Appendix A
Biological Technical Report

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Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project

Encinitas, California

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Acronyms and Abbreviations

Acronym	Definition
BCLA	biological core and linkage areas
CCA	California Coastal Act
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
City	City of Encinitas
CRPR	California Rare Plant Rank
FPA	Focused Planning Area
LCP	Local Coastal Program
MBTA	Migratory Bird Treaty Act
MHCP	Multiple Habitat Conservation Program
MM	Mitigation Measure
project	Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project
RWQCB	Regional Water Quality Control Board
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

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Executive Summary

The proposed Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project (project) would consist of the removal and replacement of approximately 2,000 linear feet of existing 48-inch-diameter corrugated metal pipe and associated appurtenances from the curb inlet along Lake Drive west through the canyon to Interstate 5, as well as the removal of sediment from an existing culvert outfall located immediately south of Manchester Avenue. The Manchester Avenue culvert outfall conveys water into the San Elijo Lagoon from upstream areas associated with an existing storm drain distribution alignment that captures water from the Lake Drive project site and surrounding vicinity.

Biological field surveys within the Lake Drive project site were conducted by Dudek biologists in 2021 and within the Manchester Avenue project site by Nature Collective in December 2020 and confirmed by Dudek in 2023. Surveys conducted within the Lake Drive project site include a biological reconnaissance survey that included vegetation mapping and an assessment for jurisdictional aquatic resources, vegetation mapping, rare plant surveys, and protocol-level surveys for coastal California gnatcatcher (*Polioptila californica californica*) and Pacific pocket mouse (*Perognathus longimembris pacificus*). Surveys conducted at the Manchester Avenue project site include vegetation mapping, jurisdictional delineation, and a biological assessment for coastal California gnatcatcher and Ridgway's rail (*Rallus obsoletus levipes*) conducted by Nature Collective.

The Lake Drive project site contains six vegetation communities (Diegan coastal sage scrub, Diegan coastal sage scrub: Baccharis-dominated, Diegan coastal sage scrub [restored/landscaped], non-native grassland, southern maritime chaparral, and eucalyptus woodland) and two land cover types (disturbed habitat and developed). The following special-status plants were observed within the Lake Drive project site: wart-stemmed ceanothus (*Ceanothus verrucosus*), Del Mar Mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*), Campbell's liverwort (*Geothallus tuberosus*), San Diego barrel cactus (*Ferocactus viridescens*), sea dahlia (*Leptosyne maritima*), Nuttall's scrub oak (*Quercus dumosa*), and Torrey pine (*Pinus torreyana* ssp. *torreyana*). In addition, the following species with a California Rare Plant Rank were observed planted along Lake Drive and are not considered special-status because they were planted outside their native range: Shaw's agave (*Agave shawii* var. *shawii*), golden-spined cereus (*Bergerocactus emoryi*), cliff spurge (*Euphorbia misera*), and red-flowered buckwheat (*Eriogonum grande* var. *rubescens*). The following special-status wildlife species were observed within the Lake Drive project site: coastal California gnatcatcher, Cooper's hawk (*Accipiter cooperii*), Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), San Diego desert woodrat (*Neotoma lepida intermedia*), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*).

The Manchester Avenue project site contains three vegetation communities or land cover types (open water, coastal and valley freshwater marsh, and disturbed habitat). No special-status species were observed within the Manchester Avenue project site.

Impacts are expected to sensitive vegetation, jurisdictional aquatic resources, special-status plants, and special-status wildlife species. Mitigation is provided to reduce impacts to these sensitive biological resources to a level that is less than significant.

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1 Introduction and Project Background

This technical report describes the existing biological conditions and an analysis of potential biological resource impacts associated with the proposed Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project (project) located in Encinitas, California (Figure 1, Project Location). This report provides an introduction, a project description, a summary of the pertinent biological resource regulations, the project setting, survey methods, existing biological resources, special-status biological resources, project impacts (direct and indirect), and project mitigation. The project impacts, avoidance, and mitigation measures are discussed in accordance with the California Environmental Quality Act (CEQA), Clean Water Act, Migratory Bird Treaty Act (MBTA), and California Fish and Game Code, as well as in the context of the draft Encinitas Subarea Plan for the North County Multiple Habitat Conservation Program (MHCP) (City of Encinitas 2001).

The Lake Drive storm drain site (herein referred to as the Lake Drive project site) includes an existing storm drain distribution alignment shown on Figure 1, maintained by the City of Encinitas (City), that runs from Lake Drive to Interstate 5, down Ocean Cove Drive, and ends at an existing outlet under Manchester Avenue (herein referred to as the Manchester Avenue project site). The purpose of this project is for the City to maintain its existing storm drain distribution alignment and outlets within the Lake Drive project site and the Manchester Avenue project site long-term to prevent threats to public health and safety. This includes the need to have adequate pedestrian and mechanical access (e.g., small excavator, skid-steer, or similar construction equipment) to help clear and maintain this drainage system long-term, so that it does not impede the storm drain alignment's ability to operate or lessen its functionality. Both sites are described in further detail below.

Currently, the Lake Drive project site and adjacent open space areas located to the northwest and southeast occur within the MHCP hardline and softline Focused Planning Areas (FPAs) (City of Encinitas 2001), as shown in Figure 2, Regulatory Setting, and are owned by Nature Collective (formerly the San Elijo Lagoon Conservancy). In 1975, the Cardiff Sea Village Map 8067 was approved and finalized by the County of San Diego, and the project site was designated as open space to mitigate for the Cardiff Sea Village impacts (Stryker, pers. comm., 2024). In 1982, a storm drain pipeline was constructed by the County of San Diego within the project site along the bottom of the canyon to collect and drain water from the surrounding developed area. The canyon and any natural drainage that previously existed was filled during installation of the storm drain pipeline. This existing pipe has failed in several areas, causing large pockets of erosion along the canyon. In very large rain events, it appears water flows out of the vertical pipes and into the canyon, as is evidenced by erosion at some of the vertical pipes. The pipeline alignment exists within the open space easement without a designated drainage easement. The open space easement is owned by the City of Encinitas. Once the project design is complete, a drainage easement will be dedicated to the City of Encinitas over the permanent impacts (i.e., detention basin and maintenance access road) (Stryker, pers. comm., 2024).

In January 2023, a large sinkhole, roughly 600 feet across and 30 feet deep, developed during the winter storms below Lake Drive, collapsing a portion of the roadway and causing a severe landslide below Lake Drive within the open space canyon. With the issuance of an emergency coastal development permit (Emergency CDP G-6-23-0021, issued February 23, 2023), emergency work was conducted by the City from February 27 through September 27, 2023, including repairing the Lake Drive roadway (including curb, gutter, and sidewalk), backfilling the slope, and installing a new energy dissipator at the bottom of the slope, which will reduce storm flow velocities and flooding and prevent further threats to public health and safety. A second emergency coastal development permit (CDP-006953-2024, issued February 22, 2024) was issued for additional emergency work within the Lake

Drive project site between January and February 2024 in response to 2023/2024 winter rain events, which caused the existing corrugated metal pipe to convey sediment from the canyon and flood several homes downstream of the Lake Drive project site. In response to the flooding, the City implemented a minimally invasive temporary solution that included a hi-line bypass with approximately 1,200 linear feet of 48-inch high-density polyethylene pipe through the canyon. To be conservative, all project impacts analyzed within this report are based on pre-landslide site conditions mapped prior to the January 2023 emergency events.

The 0.14-acre Manchester Avenue project site occurs partially (0.01 acres) within the MHCP hardline and softline FPAs (City of Encinitas 2001) and within the San Elijo Lagoon Ecological Reserve maintained by Nature Collective, the lagoon's managing non-profit agency, as shown in Figure 2. Much of the property owned within the lagoon is owned by the County of San Diego. The culvert outfall is located on the south side (i.e., downstream side) of Manchester Avenue and conveys upstream stormwater through the distribution alignment and into San Elijo Lagoon. This conveyance is done through natural ground percolation, not direct stormwater flow, into a J-channel that is approximately 130 feet long (existing just past the Manchester Avenue culvert outfall), which helps contain the upstream flows, until percolated into the ground naturally, adjacent to the lagoon. In December 2020, the City conducted emergency work due to the buildup of sediment within the culvert outfall, which hindered the stormwater system from functioning as designed, and a back-up of sediment and surface waters spilled throughout areas of the Cardiff Cove residential development and onto Manchester Avenue. In addition to removing sediment to facilitate drainage to San Elijo Lagoon, the City increased the maintenance frequency of all upstream City-maintained sediment catch basins connected to the Manchester Avenue culvert. Since the initial sediment removal activities in December 2020, the City has assumed weekly site checks and as-needed basin and storm drain maintenance to prevent additional sediment deposition in San Elijo Lagoon. The project involves long-term maintenance (i.e., removal of accumulated sediment) at the existing culvert outfall to facilitate flows into the San Elijo Lagoon and prevent threats to public health and safety.

The project sites have been subjected to habitat restoration (i.e., planting of the following special-status species along Lake Drive: Shaw's agave [*Agave shawii* var. *shawii*], golden-spined cereus [*Bergerocactus emoryi*], cliff spurge [*Euphorbia misera*], and red-flowered buckwheat [*Eriogonum grande* var. *rubescens*]) and enhancement activities consisting of non-native species management at Manchester Avenue. Restoration has been focused on the areas of the Lake Drive project site occupied by eucalyptus woodland, disturbed habitat, and non-native grassland. Mitigation for the 2020 emergency work conducted at the Manchester Avenue project site focused on non-native species removal and native wetland species plantings within the immediate surrounding vicinity. Additionally, surveys within the Lake Drive project site were conducted by Nature Collective in 2018 and included rare plant surveys, vegetation mapping, and non-native species mapping (Rothberg, pers. comm., 2021). Surveys within the Manchester Avenue project site included vegetation mapping, an aquatic resource delineation conducted by Dudek, and a biological assessment for coastal California gnatcatcher (*Polioptila californica californica*) and Ridgway's rail (*Rallus obsoletus levipes*) conducted by Nature Collective. The surveys and mapping conducted by Nature Collective were not used in this technical report analysis for the project site because comprehensive surveys have been conducted more recently as described herein, but the Nature Collective surveys provide valuable background information. The current surveys captured all species previously observed by Nature Collective within both project sites, including special-status plant species planted in the restored/landscape areas at the Lake Drive project site.

1.1 Project Location

The 25.34-acre Lake Drive project site is located in Encinitas at the intersection of Lake Drive and Sea Village Way at a latitude and longitude of 33°1′2.868″N, 117°16′7.209″W (Figure 1). The Lake Drive project site occurs on Section 26, Township 13 South, Range 4 West in the southeast portion of the Encinitas U.S. Geological Survey 7.5-minute quadrangle. The project site occurs primarily on Assessor's Parcel Number 261-150-69, but also intersects the following Assessor's Parcel Numbers: 261-254-04, 261-254-48, 261-254-20, 261-254-03, 261-254-21, 261-232-40, 261-232-39, 261-255-30, 261-254-46, 261-254-05, and 261-254-22.

The 0.14-acre Manchester Avenue project site consists of an existing culvert outfall located on the south side of Manchester Avenue, approximately 180 feet to the east of the intersection of Ocean Cove Drive and Manchester Avenue, at a latitude and longitude of 33°0′33.894″N, 117°16′1.174″W (Figure 1). The Manchester Avenue project site occurs on Section 26, Township 13 South, Range 4 West in the southeast portion of the Encinitas U.S. Geological Survey 7.5-minute quadrangle. The Manchester Avenue project site occurs on City of Encinitas right-of-way and on Assessor's Parcel Number 261-210-13.

1.2 Project Description

The City has proposed the removal and replacement of approximately 2,000 linear feet of existing 48-inch-diameter corrugated metal pipe and associated appurtenances from the curb inlet along Lake Drive west through the canyon to Interstate 5. The existing alignment would be replaced with new pipes and appurtenances of similar size. The new storm drain would generally follow the same alignment to preserve existing hydraulic conditions and minimize site disturbances as much as possible. In January 2023, a large sinkhole, roughly 600 feet across and 30 feet deep, developed during the winter storms below Lake Drive, collapsing a portion of the roadway and causing a severe landslide below Lake Drive within the open space canyon. Emergency work was conducted by the City from February 27 to September 27, 2023, and included repair of the Lake Drive roadway (including curb, gutter, and sidewalk), removal and replacement of 140 feet of corrugated metal pipe with reinforced concrete pipe, backfill of the slope with native soils/material, hydroseeding of the slope, and installation of a new energy dissipator at the bottom of the slope, which will reduce storm flow velocities and flooding and prevent further threats to public health and safety. Additional emergency work was conducted within the Lake Drive project site between January and February 2024 in response to 2023/2024 winter rain events, which caused the existing corrugated metal pipe to convey sediment from the canyon and flood several homes downstream of the Lake Drive project site. In response to the flooding, the City implemented a minimally invasive temporary solution that included a hi-line bypass with approximately 1,200 linear feet of 48-inch high-density polyethylene pipe through the canyon, associated storm drain riser inlets, desilting basins, and erosion/sediment control best management practices to prevent further erosion within the canyon as well as sedimentation downstream in the drainage system. The proposed project will remove the temporary 48-inch high-density polyethylene pipe and associated structures and replace it with a new 40-inch reinforced concrete pipe. The remaining portion of the existing corrugated metal pipe is also proposed for replacement under the current project.

During installation of the new storm drain pipeline at Lake Drive, a temporary work area would be required along the length of the pipeline. The pipe would be installed in an excavated trench in accordance with the San Diego Regional Standard Drawings, Pipe Bedding and Trench Backfill for Storm Drains (i.e., drawing number D-60) (San Diego County Regional Standard Drawings 2022). Shoring would be used to construct the needed trench to install the new storm drainpipe. Crushed rock (3/4 inch) would be placed below the new pipe, and backfill would

be placed in the trench per the D-60 drawing (San Diego County Regional Standard Drawings 2022). Permanent impacts would occur from the detention basin at the northern end of the project site, which will reduce storm flow velocities and flooding, and from the maintenance access road along the pipeline alignment. Any areas impacted outside the limits of the maintenance access road will be stabilized with a native vegetation hydroseed mix. The project also includes an access road from Lake Drive down along the length of the pipeline for entry to the detention basin and future maintenance of the pipeline. Based on the current proposed project schedule, construction is anticipated to take approximately 11 months, estimated to occur sometime between January 15, 2026, and November 30, 2031, pending project permitting and CEQA approvals, and/or any unforeseen circumstances causing schedule delays (e.g. funding). Post-construction, ongoing operation would include basin maintenance and pipe inspections. The existing 20-foot-wide road easement off Lake Drive would provide access to the basin, and a new 25-foot-wide access road along the length of the pipeline would provide adequate access for future maintenance operations and pipeline inspections.

The proposed project would also include long-term maintenance (i.e., removal of accumulated sediment) at the existing culvert outfall south of Manchester Avenue to facilitate subsurface flows into the San Elijo Lagoon and prevent threats to public health and safety. The frequency and duration of each maintenance event would occur as needed to reduce flood risk to life and property. The City needs the ability to maintain and clear out portions of the storm drain distribution system at all segments, including the downstream segment of the Manchester Avenue culvert outfall and the J-channel further downstream, during major storm events to prevent flood risk to life and property. All maintenance activities would occur in accordance with resource agency permits.

The project would consist of a City-owned staging area located within disturbed habitat immediately adjacent to Manchester Avenue but outside the San Elijo Lagoon Ecological Reserve and an approximate 130-foot excavation work area downstream of the existing culvert outfall. The staging area would be used to access the excavation work area and to stockpile the removed sediment. All sediment shall be exported to an approved dump site. The December 2020 emergency work was conducted over 3 days and removed an estimated 350 cubic yards of material, consisting of approximately 210 cubic yards of compatible beach sand and 140 cubic yards of mixed sediment. Future maintenance efforts are anticipated to remove a similar amount of material. This material will either be removed to the nearest adjacent landfill, or if deemed compatible by the City's Coastal Zone Program Administrator through the proper methods outlined in the City's Opportunistic Beach Fill Program, it can be placed at one of the recipient beach locations, outlined by the City's permitting authority.

1.3 Regulatory Setting

1.3.1 Federal

Federal Endangered Species Act

The federal Endangered Species Act (FESA) of 1973 (16 USC 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration, and National Marine Fisheries Service. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide programs for the conservation of those species, thus preventing extinction of plants and wildlife. Under provisions of Section 9 (16 USC 1538[a][1][B]) of the federal Endangered Species Act, it is unlawful to "take" any listed species. "Take" is defined in Section 3 (16 USC 1532[19])

of the federal Endangered Species Act as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

The federal Endangered Species Act allows for the issuance of "incidental take" permits for listed species under Section 7, which is generally available for projects that also require other federal agency permits or other approvals, and under Section 10, which provides for the approval of habitat conservation plans on private property without any other federal agency involvement. Incidental take is defined as "take that results from, but is not the purpose of, carrying out an otherwise lawful activity" (USFWS 2004). Upon development of a habitat conservation plan, USFWS can issue Incidental Take Permits for listed species.

Migratory Bird Treaty Act

The MBTA regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50, Section 10.13 of the Code of Federal Regulations. The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country and is enforced in the United States by USFWS. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50, Section 20 of the Code of Federal Regulations. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors). On December 22, 2017, the Department of Interior issued a legal opinion (M-Opinion 37050) that interpreted the above prohibitions as only applying to direct and purposeful actions of which the intent is to kill, take, or harm migratory birds, their eggs, or their active nests. Actions that did not intend the take of birds, eggs, or nests, even if there are direct and foreseeable results, were not prohibited. On January 7, 2021, USFWS published a final rule (the January 7th rule) that codified the previous administration's interpretation, which after further review was determined to be inconsistent with the majority of relevant court decisions and readings of the MBTA's text, purpose, and history. On May 5, 2021, USFWS published a proposed rule to revoke the January 7th rule, which would result in a return to implementing the statute as prohibiting incidental take. On July 19, 2021, USFWS announced the availability of two revised economic analysis documents for public review that evaluate the potential for the proposed rule to impact small entities, including businesses, governmental jurisdictions, and other organizations. The public review period on these documents ended on August 19, 2021. A final rule revoking the January 7th rule was published on October 4, 2021, and went into effect on December 3, 2021. In its summary of the October 4, 2021, final rule, USFWS explained that "the immediate effect of this final rule is to return to implementing the MBTA as prohibiting incidental take and applying enforcement discretion, consistent with judicial precedent and longstanding agency practice prior to 2017" (86 FR 54642).

1.3.2 State

California Environmental Quality Act

CEQA requires identification of a project's potentially significant impacts on sensitive biological resources and feasible mitigation measures and alternatives that could avoid or reduce significant impacts. CEQA Guidelines Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors." A rare animal or plant is defined in CEQA Guidelines Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or … [t]he species is likely to become endangered within the foreseeable future throughout

all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act." Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c). CEQA also requires identification of a project's potentially significant impacts on riparian habitats (such as wetlands, bays, estuaries, and marshes) and other sensitive natural communities, including habitats occupied by endangered, rare, and threatened species.

California Fish and Game Code

Under the California Fish and Game Code, the California Department of Fish and Wildlife (CDFW) provides protection from take for a variety of species, including fully protected species. "Fully protected" is a legal protective designation administered by CDFW intended to conserve wildlife species that risk extinction within California. Lists have been created for birds, mammals, fish, amphibians, and reptiles.

According to Sections 3511 and 4700 of the California Fish and Game Code, which regulate birds and mammals, respectively, a fully protected species may not be taken or possessed without a permit from the Fish and Game Commission, and incidental takes of these species are not authorized.

According to Section 3503, "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Section 3503.5 states that "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." Finally, Section 3513 states that "it is unlawful to take or possess any migratory nongame bird as designated in the federal Migratory Bird Treaty Act … or any part of such migratory nongame bird … except as provided by rules and regulations adopted by the United States Secretary of the Interior under provisions of the Migratory Bird Treaty Act."

For the purposes of these state regulations, CDFW currently defines an active nest as one that is under construction or in use and includes existing nests that are being modified. For example, if a hawk is adding to or maintaining an existing stick nest in a transmission tower, then it would be considered to be active and covered under these California Fish and Game Code sections.

1.3.3 Regional

City of Encinitas Local Coastal Program

Under the California Coastal Act (CCA), the California Coastal Commission (CCC) regulates the coastal zone and requires a coastal development permit for almost all development within this zone. The CCA also directs each coastal city or county to prepare a Local Coastal Program (LCP) to guide development in the coastal zone, which is certified by the CCC (California Public Resources Code, Section 30500). After an LCP has been approved, the permitting authority of the CCC is transferred to the local government. The City's General Plan (City of Encinitas 1989) is an approved LCP. The entire project site is located within the boundaries of the coastal zone, and the CCC has appeal authority under the City's adopted LCP for the Manchester Avenue culvert outfall component, including the J-channel (Figure 2) (City of Encinitas 1989, 2001).

The CCA also protects designated sensitive coastal areas by providing additional review and approvals for proposed actions in these areas. Section 30121 of the CCA 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." The CCA allows disking, filling, or dredging of wetlands for certain uses, such as restoration. In contrast to the U.S. Army Corps of Engineers (USACE), which uses a three-parameter definition to delineate wetlands, the CCC essentially uses the Cowardin method of wetlands classification, which defines wetland boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979). The CCC wetland definition is generally more encompassing in most respects than either the USACE definition or the CDFW definition. The CCC asserts jurisdiction over aquatic features and vegetation not necessarily regulated by other agencies pursuant to the CCA.

Draft Encinitas Subarea Plan for the North County Multiple Habitat Conservation Program and General Plan

Several conservation planning efforts are currently in progress in San Diego County with the long-term goal of establishing a regional habitat reserve system that will protect native habitat lands and their associated biota. The Final North County Multiple Habitat Conservation Program (MHCP) Plan (SANDAG 2003) and Final Environmental Impact Statement/Environmental Impact Report for the North County Multiple Habitat Conservation Program (USFWS and SANDAG 2003) were adopted by the San Diego Association of Governments on March 28, 2003. The City is within the MHCP planning area, and the draft Encinitas Subarea Plan was prepared in June 2001 (City of Encinitas 2001).

In the draft Encinitas Subarea Plan, lands identified for conservation are designated as hardline or softline Focused Planning Areas (FPAs). Hardline FPAs include lands with existing development agreements that identify designated development and biological preserve areas. Softline FPAs include lands where conservation will be achieved through the application of development and conservation standards and criteria as outlined in the draft Encinitas Subarea Plan (City of Encinitas 2001). The entire Lake Drive project site and the southern portion of the Manchester Avenue project site occur within a hardline FPA (Figure 2). The majority of impacts occurring from the proposed project would be temporary (i.e., the site would continue to function as open space after project implementation), and replacement and maintenance of existing storm drains is a compatible use with the biological objectives of the draft Encinitas Subarea Plan. Therefore, the proposed project occurring within the Lake Drive and Manchester Avenue project sites would not interfere with the implementation of conservation required under the MHCP or the future completion of the draft Encinitas Subarea Plan.

Section 2.3.1 of the draft Encinitas Subarea Plan (City of Encinitas 2001) summarizes the City's General Plan, which describes the goals, plans, and policies for various constituents within the City limits. Also described in the draft Encinitas Subarea Plan is the consistency of the City's General Plan to the adopted LCP Land Use Plan. The project would comply with Policy 10.6 of the Resource Management Element of the City's General Plan. Policy 10.6 includes the following (City of Encinitas 1989):

> The City shall preserve and protect wetlands within the City's planning area. "Wetlands" shall be defined and delineated consistent with the definitions of the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, the Coastal Act and the Coastal Commission Regulations, as applicable, and shall include, but not be limited to, all lands which are transitional between terrestrial and aquatic systems where the water table is usually at or near surface or the land is covered by shallow water.

There shall be no net loss of wetland acreage or resource value as a result of land use or development, and the City's goal is to realize a net gain in acreage and value whenever possible.

Within the Coastal Zone, the diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following newly permitted uses and activities:

a) Incidental public service projects.
b) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.
c) Restoration purposes.
d) Nature study, aquaculture, or other similar resource dependent activities.

Identification of wetland acreage and resource value shall precede any consideration of use or development on sites where wetlands are present or suspected. With the exception of development for the primary purpose of the improvement of wetland resource value, all public and private use and development proposals which would intrude into, reduce the area of, or reduce the resource value of wetlands shall be subject to alternatives and mitigation analyses consistent with Federal EPA [Environmental Protection Agency] 404(b)(1) findings and procedures under the U.S. Army Corps permit process. Practicable project and site development alternatives which involve no wetland intrusion or impact shall be preferred over alternatives which involve intrusion or impact. Wetland mitigation, replacement or compensation shall not be used to offset impacts or intrusion avoidable through other practicable project or site development alternatives. When wetland intrusion or impact is unavoidable, replacement of the lost wetland shall be required through the creation of new wetland of the same type lost, at a ratio determined by regulatory agencies with authority over wetland resources, but in any case at a ratio of greater than one acre provided for each acre impacted so as to result in a net gain. Replacement of wetland on-site or adjacent, within the same wetland system, shall be given preference over replacement off-site or within a different system.

1.4 Site Description

Topography within the Lake Drive project site occurs within a steep escarpment with elevation ranges from about 100 feet above mean sea level in the southwestern portion of the site to 250 feet above mean sea level in the northeastern portion of the site. Adjacent land uses to the Lake Drive project site include existing residential to the north and east, undeveloped land to the south, and Interstate 5 to the west. Topography within the Manchester Avenue project site is highest adjacent to the road at approximately 13 feet above mean sea level and drops to approximately 8 feet above mean sea level as the site enters the San Elijo Lagoon. Adjacent land uses to the Manchester Avenue project site include existing residential to the north and the San Elijo Lagoon Ecological Reserve to the east, south, and west.

Two soil types are mapped on the Lake Drive project site: loamy alluvial land-Huerhuero complex, 9% to 50% slopes, severely eroded, and terrace escarpments (Figure 3A, Lake Drive Storm Drain Soils). Loamy alluvial land-Huerhuero complex is described as a combination of alluvial deposits from mixed sources with residuum-weathered calcareous

sandstone and shale ridges. Terrace escarpments are described as a landform of escarpments with a riser landform position and a variable soil profile (USDA 2023). Two soil types are mapped on the Manchester Avenue project site: Corralitos loamy sand, 5% to 9% slopes, and lagoon water (Figure 3B, Manchester Avenue Culvert Outfall Soils). Corralitos loamy sand forms on alluvial fans and is derived from calcareous sandstone and is described as somewhat excessively drained (USDA 2023). Lagoon water is composed entirely of lagoon as it includes the portion of the Manchester Avenue project site that occurs within the San Elijo Lagoon.

The entire project site occurs within the San Luis Rey-Escondido Subbasin of the Lower Escondido Creek Subwatershed within the larger Escondido Creek Watershed (Figure 4, Hydrology).

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2 Survey Methods and Limitations

Data regarding biological resources present on the project site were obtained through a review of pertinent literature and through field surveys; both are described in detail below.

2.1 Literature Review

Sensitive biological resources present or potentially present on site were identified through a literature search using the following sources: the California Natural Diversity Database (CDFW 2021), the California Native Plant Society Inventory of Rare and Endangered Plants (CNPS 2022), and USFWS Critical Habitat and Occurrence Data (USFWS 2021a). Plant identification was made with reference to the Jepson Flora Project (2023) and Munz (1974) for Del Mar Mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*), which is no longer recognized by the Jepson Flora Project.

U.S. Geological Survey National Hydrography Dataset and topography data (USGS 2021), USFWS National Wetlands Inventory data (USFWS 2021b), and Natural Resources Conservation Service soils data (USDA 2023) were reviewed to further determine the potential locations of aquatic resources within the project site. Google Earth was also used to assess current and historical presence or absence of flows and/or ponding on the project site (Google Earth Pro 2021).

2.2 Field Reconnaissance

Biological field surveys for the project were conducted in 2021 and 2023 by Dudek biologists. Surveys conducted within the Lake Drive project site included a biological reconnaissance survey that included vegetation mapping and an assessment for jurisdictional aquatic resources, a formal jurisdictional delineation, rare plant surveys, and protocol-level surveys for coastal California gnatcatcher and Pacific pocket mouse (*Perognathus longimembris pacificus*). Surveys conducted within the Manchester Avenue project site included vegetation mapping, jurisdictional delineation, and a biological assessment for coastal California gnatcatcher and Ridgway's rail. Table 1 lists the survey dates, times, surveying biologists, and weather conditions for these surveys.

Table 1. Schedule of Surveys

Date	Hours	Personnel	Focus	Conditions
Lake Drive Project Site				
04/09/21	9:15 a.m.–11:35 a.m.	Katie Dayton	Reconnaissance (Vegetation Mapping and Jurisdictional Aquatic Resource Assessment)	57°F–65°F, 0%–10% cc, 1–4 mph
04/14/21	6:00 a.m.–11:25 a.m.	Erin Bergman, Katie Dayton	Coastal California Gnatcatcher Survey 1	58°F–67°F, 50%–60% cc, 0–3 mph
04/14/21	11:25 a.m.–4:10 p.m.	Katie Dayton	Vegetation Mapping	59°F–61°F, 10%–40% cc, 5–7 mph
04/24/21	8:00 a.m.–10:53 a.m.	Erin Bergman, Katie Dayton	Coastal California Gnatcatcher Survey 2	57°F–61°F, 100% cc, 0–4 mph
05/01/21	5:59 a.m.–12:02 p.m.	Erin Bergman	Coastal California Gnatcatcher Survey 3	55°F–76°F, 20%–40% cc, 0–3 mph

Table 1. Schedule of Surveys

Date	Hours	Personnel	Focus	Conditions
05/07/21	8:00 a.m.–12:12 p.m.	Erin Bergman	Coastal California Gnatcatcher Survey 4	66°F–77°F, 0%–100% cc, 0–5 mph
05/08/21	8:19 a.m.–4:15 p.m.	Katie Dayton	Rare Plant Survey Pass 1	61°F–64°F, 0%–100% cc, 1–5 mph
06/03/21	7:34 a.m.–12:17 p.m.	Erin Bergman	Coastal California Gnatcatcher Survey 5	59°F–65°F, 50%–80% cc, 0–4 mph
06/17/21	7:30 a.m.–11:25 a.m.	Erin Bergman, Katie Dayton	Coastal California Gnatcatcher Survey 6	63°F–81°F, 60%–100% cc, 0–3 mph
06/17/21	9:00 a.m.–11:25 a.m.	Patricia Schuyler	Jurisdictional Delineation	73°F–81°F, 60%–80% cc, 0–3 mph
08/09/21	6:54 a.m.–12:46 p.m.	Katie Dayton	Rare Plant Survey Pass 2	61°F–73°F, 0% cc, 0–3 mph
02/24/22	NR	Scott McMillan	Rare Plant Survey Pass 3	NR
06/12/22	11:00 a.m.–5:00 p.m.	Phillip Brylski	Pacific Pocket Mouse Habitat Assessment	NR
06/12/22–06/16/22	Set traps: 5:00 p.m.–7:00 p.m. Trap check: 6:30 a.m.–9:30 a.m.	Phillip Brylski	Pacific Pocket Mouse Live Trapping	63°F–66°F, 0%–100% cc, 0–3 mph
Manchester Avenue Project Site				
11/28/2023	11:40 a.m.–12:40 p.m.	Olivia Koziel	Vegetation Mapping, Jurisdictional Aquatic Resource Assessment, Biological Habitat Assessment	56°F–66°F, 0% cc, 1–3 mph
12/20/2023	9:00 a.m.–10:56 a.m.	Olivia Koziel, Katie Dayton	Jurisdictional Aquatic Resource Delineation	62°F–68°F, 20%–70% cc, 1–3 mph

Notes: °F = degrees Fahrenheit; cc = cloud cover; mph = miles per hour wind; NR = not recorded.

2.2.1 Vegetation Community and Land Cover Mapping

Vegetation community classifications used in this report follow the Draft Vegetation Communities of San Diego County (Oberbauer et al. 2008). Land covers on site were mapped in the field directly onto a 100-scale (1 inch = 100 feet) topographic base. Dudek geographic information system specialist Carrie Kubacki digitized each vegetation community's boundaries into a geographic information system coverage using ArcGIS software.

2.2.2 Flora and Fauna

The plant species encountered during the field survey were identified and recorded directly into a field notebook or using an electronic form on a mobile device. Those species that could not be identified immediately were brought into the laboratory for further investigation. A compiled list of plant species observed on the Lake Drive project site is presented in Appendix A1, and plant species observed on the Manchester Avenue project site are included in

Appendix A2. Latin and common names for plant species with a California Rare Plant Rank (CRPR) follow the California Native Plant Society's Rare Plant Inventory (CNPS 2022). For plant species without a CRPR, Latin names follow the Jepson Online Interchange for California Floristics (Jepson Flora Project 2023), and common names follow the California Natural Community List (CDFW 2022a) or the U.S. Department of Agriculture Natural Resources Conservation Service Plants Database (USDA 2022).

Wildlife species detected during the field survey by sight, calls, tracks, scat, or other signs were recorded directly onto a field notebook. Binoculars (10 × 42 magnification) were used to aid in the identification of wildlife. Latin and common names of any animals detected follow Crother (2017) for reptiles and amphibians, the American Ornithological Society (AOS 2020) for birds, Wilson and Reeder (2005) for mammals, and the North American Butterfly Association (NABA 2018) or San Diego Natural History Museum (SDNHM 2002) for butterflies. In addition to species actually detected during the surveys, expected wildlife use of the site was determined by known habitat preferences of local species and knowledge of their relative distributions in the area. A list of wildlife species observed on the Lake Drive project site is presented in Appendix B1, and wildlife species observed on the Manchester Avenue project site are included in Appendix B2.

2.2.3 Jurisdictional Aquatic Resource Delineation

Because the Lake Drive project site does not support any wetland vegetation, the delineation focused on mapping non-wetland waters. The Manchester Avenue project site supports one vegetation community that is typically mapped as wetlands (coastal and valley freshwater marsh); therefore, one wetland sampling point was taken within this vegetation community. Jurisdictional boundaries were mapped in the field using Esri Collector on a mobile device. Remote sensing was not used for the delineation.

U.S. Army Corps of Engineers

The USACE wetlands delineation was conducted in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 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 (USACE 2008b) was used to determine the limits of non-wetland waters. Non-wetland waters were delineated on topographical maps in conjunction with Esri Collector on a mobile device. The widths of each non-wetland water were determined in the field according to the ordinary high-water mark manual.

In addition, each of the non-wetland waters within the project site was evaluated using the Beta Streamflow Duration Assessment Method for the Arid West (Mazor et al. 2021). The non-wetland waters were sampled at the downstream end, working under the assumption that if the downstream portion of non-wetland water was ephemeral then the upstream portions of those non-wetland waters would also be ephemeral.

The Lake Drive project site does not support wetland vegetation, and therefore Wetland Determination Forms were not completed. In addition, all non-wetland waters identified within the Lake Drive project site were ephemeral, and therefore USACE Ordinary High-Water Mark forms were not completed because these channels are not regulated by USACE. The Manchester Avenue project site supports wetland vegetation, and therefore one Wetland Determination Form was completed within the coastal and valley freshwater marsh area of the site. Additionally, Ordinary High-Water Mark forms were also completed within the Manchester Avenue project site to delineate the open water and coastal and valley freshwater marsh areas.

Regional Water Quality Control Board

Waters of the state regulated by the Regional Water Quality Control Board (RWQCB) were mapped in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State, adopted April 2, 2019 (SWRCB 2021). As described in these procedures, wetland waters of the state are mapped based on the procedures in USACE's 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and its 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a). Non-wetland waters (regardless of whether they appeared to be ephemeral or not) are mapped at the ordinary high-water mark based on the procedures defined in USACE's 2008 A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2008b).

California Department of Fish and Wildlife

CDFW jurisdictional areas were mapped to include the bank of the stream/channel and outer dripline of adjacent riparian vegetation, as set forth under California Fish and Game Code Section 1602. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979).

California Coastal Commission and City of Encinitas

The CCC asserts jurisdiction over aquatic features and vegetation not necessarily regulated by other agencies pursuant to the CCA. The CCC only requires evidence of a single parameter, either wetland vegetation, hydric soils, or hydrology, to define wetlands regulated under the CCA. After an LCP has been approved, the permitting authority of the CCC is transferred to the local government. The City's General Plan (City of Encinitas 1989) is an approved LCP. Therefore, wetlands within the City follow the definition within the City's General Plan (City of Encinitas 1989), which generally includes areas with hydrophytic vegetation or perennial water.

2.3 Lake Drive Focused Surveys for Special-Status Species

Dudek qualified biologists conducted focused surveys for special-status plants, protocol-level surveys for coastal California gnatcatcher, and protocol-level surveys for Pacific pocket mouse within the Lake Drive project site. Incidental detections of other sensitive wildlife species, either through sight, calls, tracks, scat, or other signs, were also recorded. A summary of the dates and site conditions for the field efforts performed as part of this biological report are presented in Table 1 in Section 2.2, Field Reconnaissance. The following sections provide specific details regarding each species survey.

2.3.1 Focused Surveys for Special-Status Plants

The first pass of the focused survey for special-status plant species was conducted on May 8, 2021, by Dudek biologist Katie Dayton (Table 1). The second pass occurred on August 9, 2021. The third pass, on February 24, 2022, focused on identification of special-status bryophyte species within the impact footprint (Table 1). Prior to field surveys, distribution information for special-status plant species potentially occurring within the project area was reviewed.

Reference checks for target special-status species were conducted prior to each of the survey passes to confirm survey timing and detectability of target species. On April 24, 2021, San Diego thorn-mint (*Acanthomintha ilicifolia*), Palmer's grapplinghook (*Harpagonella palmeri*), and California adolphia (*Adolphia californica*) were observed in bloom. Orcutt's spineflower (*Chorizanthe orcuttiana*) was not in bloom but was easily identifiable. On August 2, 2021, Encinitas baccharis (*Baccharis vanessae*) was observed in early bloom. A reference site for Orcutt's hazardia (*Hazardia orcuttii*) was visited, and the species was identified pre-bloom. Del Mar Mesa sand aster was observed in bloom.

Focused special-status plant surveys conformed to the California Native Plant Society's Botanical Survey Guidelines (CNPS 2001), CDFW's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018), and USFWS's General Rare Plant Survey Guidelines (Cypher 2002). All plant species encountered during the field surveys were identified to subspecies or variety, if applicable, to determine sensitivity status. When target species were encountered, field personnel recorded data points, demarcated the edge of the polygon, and assessed population numbers using the Esri ArcGIS mobile application.

2.3.2 Protocol-Level Surveys for Coastal California Gnatcatcher

Coastal California gnatcatcher is a federally listed threatened species and a CDFW Species of Special Concern. Based on a preliminary review, the entire 25.34-acre Lake Drive project site is potentially suitable habitat for coastal California gnatcatcher; therefore, a focused presence/absence protocol-level survey was conducted during the breeding season according to USFWS survey protocols. Protocol-level surveys for coastal California gnatcatcher were conducted by permitted Dudek biologist Erin Bergman (No. TE-781084) between April 14 and June 17, 2021, with six survey visits conducted (Table 1).

All coastal California gnatcatcher surveys were conducted pursuant to the accepted protocol of USFWS's Coastal California Gnatcatcher Presence/Absence Survey Protocol (USFWS 1997a). The project site is not actively enrolled within an approved natural community conservation plan; thus, the survey consisted of six separate visits at a minimum of 7-day intervals between April 14 and June 17, 2021. The entire project site was covered on foot during each survey visit for 100% visual and audible coverage of the project footprint. A tape of recorded gnatcatcher vocalizations was played approximately every 75 to 100 feet to induce responses from potentially present gnatcatchers. Tape-playback was terminated immediately upon detection of any gnatcatchers to minimize the potential for harassment. A 250-scale (1 inch = 250 feet) aerial photograph of the area overlaid with the project site boundary and a vegetation map was used to identify suitable habitats and map any coastal California gnatcatchers detected. Binoculars (10 × 42 magnification) were used to aid in detecting and identifying bird species. Weather conditions, time of day, and season were appropriate for the detection of coastal California gnatcatchers (Table 1).

2.3.3 Protocol-Level Surveys for Pacific Pocket Mouse

A habitat assessment that examined soil, vegetation, topographic, and disturbance features was conducted by Phillip Brylski (USFWS permit TE148555-2) on June 12, 2022, to assess the suitability of habitat for Pacific pocket mouse within the Lake Drive project site. The habitat assessment identified the parts of the Lake Drive project site that would be the focus of the live-trapping survey. Most of the Lake Drive project site is unsuitable for Pacific pocket mouse due to the steep slopes, dense shrub cover, and poor soils. The centerline of the site contains a narrow (approximately 6 to 12 feet) path of sandy alluvium, which represents the only potentially suitable habitat

for Pacific pocket mouse on the 25.34-acre Lake Drive project site. Due to the small and restricted distribution of this habitat, which is surrounded by unsuitable habitat, it was not expected that Pacific pocket mouse would be found on the Lake Drive project site.

The live-trapping survey was conducted by Phillip Brylski (USFWS permit TE148555-2) from June 12 to 16, 2022, and consisted of 86 Sherman live traps, including small (3 inches by 3.5 inches by 9 inches) traps and large (3 inches by 3.5 inches by 12 inches) Sherman live traps with doors shortened to avoid tail damage to small mammals. The trapping effort covered suitable habitat within the proposed basin in the northern part of the impact area and within the storm drain alignment. These areas cover approximately 3.5 acres of the 25.34-acre Lake Drive project site. A total of 86 traps were set nightly at spacing of 6 meters or less. Traps were baited with bird seed. Animals were identified and released immediately at the point of capture. A total of 430 trap-nights were accrued during the field survey. Weather conditions during the trapping effort were mild.

2.4 Survey Limitations

Site visits were conducted during daylight hours except for the Pacific pocket mouse trapping efforts. Complete inventories of biological resources present on a site often require numerous focused surveys at different times of day during different seasons. Some annual plant species require a certain amount and timing of rain to germinate and/or persist. Some species, such as nocturnal animals, are difficult to detect during the day. Other species may be present in such low numbers that they could be missed. Due to such timing and seasonal variations, survey results are not an absolute list of all species that the project site may support. No focused species surveys were conducted within the Manchester Avenue project site. Because the Manchester Avenue project site is very small (0.14 acres), is composed mainly of disturbed habitat (i.e., staging area), has had prior disturbance, and occurs immediately adjacent to an existing roadway, very few special-status species are anticipated to use the site.

3 Results

The results of the surveys conducted within each site are presented below, as well as identification of special-status or sensitive biological resources observed during the field surveys.

3.1 Lake Drive Vegetation Communities and Land Covers

The 25.34-acre Lake Drive project site primarily consists of Diegan coastal sage scrub. The vegetation communities and land covers were mapped according to Oberbauer et al. (2008) and are grouped according to the habitat groups in the draft Encinitas Subarea Plan (City of Encinitas 2001). The Lake Drive project site contains six vegetation communities and two land cover types. The vegetation communities and land cover types recorded on the Lake Drive project site are described in detail below, their acreages are presented in Table 2, and their spatial distributions are presented in Figure 5A, Lake Drive Storm Drain Biological Resources.

Sensitive habitats are those that are considered rare within the region or that support special-status plant and/or wildlife species and require mitigation for impacts. Sensitive upland habitat within the Lake Drive project site consists of southern maritime chaparral, coastal sage scrub (including Baccharis-dominated and restored/ landscaped), and non-native grassland per the draft Encinitas Subarea Plan (City of Encinitas 2001).

Table 2. Vegetation Types and Land Covers on the Lake Drive Project Site

Vegetation Community/Land Cover Type	Habitat Code	Acreage
Group B. Rare Upland		
Southern Maritime Chaparral	37C30	6.56
Group C. Coastal Sage Scrub		
Diegan Coastal Sage Scrub: Coastal Form	32510	16.49
Diegan Coastal Sage Scrub: Baccharis-Dominated	32530	0.54
Diegan Coastal Sage Scrub (Restored/Landscaped)	32510	0.17
	Group C Subtotal	*17.20*
Group E. Annual Grassland		
Non-native Grassland	42200	0.14
Group F. Other		
Disturbed Habitat	11300	0.07
Eucalyptus Woodland	79100	0.73
Urban/Developed	12000	0.64
	Group F Subtotal	*1.44*
	Total	**25.34**

Sources: Oberbauer et al. 2008 (Habitat Codes); City of Encinitas 2001 (Groupings).
Note: Some numbers may not sum due to rounding.

3.1.1 Southern Maritime Chaparral

Southern maritime chaparral is a low and fairly open community dominated by wart-stemmed ceanothus (*Ceanothus verrucosus*) and Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*). It develops primarily on weathered stands in the coastal fog belt. Fire may be necessary for long-term persistence of characteristic species. Characteristic species associated with stands of this chaparral community include chamise (*Adenostoma fasciculatum*), Del Mar manzanita, Encinitas baccharis, wart-stemmed ceanothus, bush rue (*Cneoridium dumosum*), summer holly (*Comarostaphylis diversifolia*), sea dahlia (*Leptosyne maritima*), Del Mar Mesa sand aster, western dichondra (*Dichondra occidentalis*), toyon (*Heteromeles arbutifolia*), Torrey pine (*Pinus torreyana* ssp. *torreyana*), Nuttall's scrub oak (*Quercus dumosa*), laurel sumac (*Malosma laurina*), sugarbush (*Rhus ovata*), fragrant sage (*Salvia clevelandii*), mission manzanita (*Xylococcus bicolor*), and Mojave yucca (*Yucca schidigera*) (Oberbauer et al. 2008).

On site, southern maritime chaparral was characterized by dominance or co-dominance of wart-stemmed ceanothus, chamise, Nuttall's scrub oak, Mojave yucca, mission manzanita, and Del Mar Mesa sand aster. A few Torrey pines are also present within this community on site. Southern maritime chaparral tends to intergrade with Diegan coastal sage scrub on site, so lesser cover of species typically associated with coastal sage scrub, such as lemonade berry (*Rhus integrifolia*), black sage (*Salvia mellifera*), California sagebrush (*Artemisia californica*), laurel sumac, coast prickly pear (*Opuntia littoralis*), and coyote brush (*Baccharis pilularis*), were also present in some areas mapped as southern maritime chaparral. Some areas were disturbed by the presence of perennial veldtgrass (*Ehrharta calycina*). The Lake Drive project site contains 6.56 acres of southern maritime chaparral (Figure 5A).

3.1.2 Diegan Coastal Sage Scrub (Including Baccharis-Dominated and Restored/Landscaped)

Diegan coastal sage scrub is a native vegetation community. According to Oberbauer et al. (2008), coastal sage scrub is composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species, such as California sagebrush, California buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonade berry and laurel sumac.

Diegan coastal sage scrub covers 16.49 acres of the Lake Drive project site, as shown in Figure 5A. The Diegan coastal sage scrub on site is dominated by California buckwheat, California brittle bush (*Encelia californica*), lemonade berry, black sage, and/or California sagebrush. Other associated species include common deerweed (*Acmispon glaber* var. *glaber*), laurel sumac, red bush monkeyflower (*Diplacus puniceus*), and rod wirelettuce (*Stephanomeria virgata* ssp. *virgata*). Low cover of species generally associated with chaparral, such as chamise, chaparral yucca (*Hesperoyucca whipplei*), and Mojave yucca, were present in some areas mapped as Diegan coastal sage scrub. Some portions of the Diegan coastal sage scrub were disturbed by high cover of perennial veldtgrass.

In addition, 0.17 acres of the Lake Drive project site contains Diegan coastal sage scrub that has been restored by Nature Collective. This area is mapped as restored/landscaped Diegan coastal sage scrub in Figure 5A. This area includes several species that, when occurring naturally, have special-status designations, such as Shaw's agave, golden-spined cereus, cliff spurge, and red-flowered buckwheat. None of these species were observed in the natural areas of the Lake Drive project site.

Diegan coastal sage scrub–Baccharis-dominated is similar to Diegan coastal sage scrub but is dominated by *Baccharis* species (desertbroom [*B. sarothroides*] and/or coyote brush) (Oberbauer et al. 2008). This community typically occurs on disturbed sites or those with nutrient-poor soils and is often found within other forms of Diegan coastal sage scrub and on upper terraces of river valleys. This community is distributed along coastal and foothill areas in San Diego County. On site, the Diegan coastal sage scrub–Baccharis-dominated vegetation community is dominated by coyote brush, with relatively low cover of California buckwheat, California sagebrush, Menzies' goldenbush (*Isocoma menziesii* var. *vernonioides*), and western ragweed (*Ambrosia psilostachya*), along with non-native perennial veldtgrass and hottentot fig (*Carpobrotus edulis*). There is 0.54 acres of Diegan coastal sage scrub–Baccharis-dominated within the Lake Drive project site, as shown in Figure 5A.

3.1.3 Non-native Grassland

Non-native grassland consists of dense to sparse cover of annual grasses, with flowering culms 0.5 feet to 3 feet in height (Oberbauer et al. 2008). In some areas, depending on past disturbance and annual rainfall, annual forbs may be the dominant species; however, it is presumed that grasses will dominate.

Non-native grassland on site is dominated by perennial veldtgrass; this area had been treated at the time of mapping. A much smaller portion of non-native grassland consists of mowed lawn on the edge of the Lake Drive project site. There is 0.14 acres of non-native grassland within the Lake Drive project site, located along the southern boundary (Figure 5A).

3.1.4 Disturbed Habitat

Disturbed habitat contains predominantly non-native and/or weedy species that indicate disturbance and soil compaction, such as Russian thistle (*Salsola tragus*), telegraphweed (*Heterotheca grandiflora*), horehound (*Marrubium vulgare*), and sowthistle (*Sonchus oleraceus*). In areas with less than 10% vegetative cover, there is evidence of soil surface disturbance and compaction. In areas with higher vegetative cover, there is soil surface disturbance and compaction, and the presence of building foundations and debris.

Disturbed land within the Lake Drive project site (0.07 acres) is located within the southeastern corner of the Lake Drive project site and appears to be a historical dirt road (Figure 5A).

3.1.5 Eucalyptus Woodland

Oberbauer et al. (2008) describes eucalyptus woodland as a non-native vegetation type that is fairly widespread in Southern California. It typically consists of monotypic stands of introduced Australian eucalyptus trees (*Eucalyptus* spp.). The understory is either poor or lacking, owing to shade and possible allelopathic (toxic) properties of the eucalyptus leaf litter. Although eucalyptus woodlands are of limited value to most native plants and animals, they frequently provide nesting and perching sites for some raptors.

Eucalyptus woodland within the Lake Drive project site (0.73 acres) occurs adjacent to the residential development along the outer boundary of the Lake Drive project site, as shown in Figure 5A. These areas contain Bald Island marlock (*Eucalyptus conferruminata*) and red ironbark (*Eucalyptus sideroxylon*).

3.1.6 Urban/Developed

Urban/developed refers to areas that have been constructed on or disturbed so severely that native vegetation is no longer supported. Urban/developed land includes areas with permanent or semi-permanent structures, pavement or hardscape, landscaped areas, and areas with a large amount of debris or other materials (Oberbauer et al. 2008). Urban/developed land within the Lake Drive project site (0.64 acres) includes paved roads and portions of the residential homes adjacent to the Lake Drive project site, as shown in Figure 5A.

3.2 Manchester Avenue Vegetation Communities and Land Covers

The 0.14-acre Manchester Avenue project site consists of open water, coastal and valley freshwater marsh, and disturbed habitat. The vegetation communities and land covers were mapped according to Oberbauer et al. (2008) and are grouped according to the habitat groups in the draft Encinitas Subarea Plan (City of Encinitas 2001). The Manchester Avenue project site contains three vegetation communities and/or land cover types. The vegetation communities and land cover types recorded on the Manchester Avenue project site are described in detail below, their acreages are presented in Table 3, and their spatial distributions are presented in Figure 5B, Manchester Avenue Culvert Outfall Biological Resources.

Sensitive habitats are those that are considered rare within the region or support special-status plant and/or wildlife species and require mitigation for impacts. Sensitive habitat within the Manchester Avenue project site consists of open water and coastal and valley freshwater marsh per the draft Encinitas Subarea Plan (City of Encinitas 2001).

Table 3. Vegetation Types and Land Covers on the Manchester Avenue Project Site

Vegetation Community/Land Cover Type	Habitat Code	Acreage
Group A. Wetland/Riparian		
Open Water (Freshwater)	64140	0.01
Coastal and Valley Freshwater Marsh	52410	0.05
	Group A Subtotal	*0.06*
Group F. Other		
Disturbed Habitat	11300	0.08
	Total	**0.14**

Sources: Oberbauer et al. 2008 (Habitat Codes); City of Encinitas 2001 (Groupings).
Note: Some numbers may not sum due to rounding.

3.2.1 Open Water (Freshwater)

Oberbauer et al. (2008) describes the freshwater land cover as composed of year-round bodies of fresh water (extremely low salinity) in the form of lakes, streams, ponds, or rivers. This includes those portions of water bodies that are usually covered by water and contain less than 10% vegetative cover (Oberbauer et al. 2008).

The open water (freshwater) land cover is unvegetated and covers 0.01 acres of the Manchester Avenue project site. Water from the storm drain alignment is conveyed through the Manchester Avenue culvert outfall, resulting in

ponded fresh water immediately below the culvert headwall. Due to sediment buildup, the ponded water is flowing off site to the east. This eastern area of open water is artificially created within an area that would otherwise be mapped as disturbed habitat and will not persist once regular maintenance occurs.

3.2.2 Coastal and Valley Freshwater Marsh

Coastal and valley freshwater marsh is a wetland habitat that is permanently flooded by fresh water lacking a significant current (Oberbauer et al. 2008). Because it is permanently flooded by fresh water, there is an accumulation of deep, peaty soils. This vegetation community is typically dominated by species such as cattail (*Typha* spp.), sedge (*Carex* spp.), yellow nutsedge (*Cyperus esculentus*), and bulrushes (*Scirpus* spp.).

The coastal and valley freshwater marsh covers 0.05 acres of the Manchester Avenue project site and is dominated by southern cattail (*Typha domingensis*) with a few scattered arroyo willows (*Salix lasiolepis*) (Figure 5B). This community has regrown since the emergency sediment removal occurred in December 2020.

3.2.3 Disturbed Habitat

Disturbed habitats are areas that have been physically disturbed and are no longer recognizable as a native or naturalized vegetation association (Oberbauer et al. 2008). These areas may continue to retain soil substrate. If vegetation is present, it is almost entirely composed of non-native vegetation, such as ornamentals or ruderal exotic species. Examples of these areas may include graded landscapes or areas, graded firebreaks, graded construction pads, temporary construction staging areas, off-road-vehicle trails, areas repeatedly cleared for fuel management, or areas that are repeatedly used in ways that prevent revegetation (e.g., parking lots, trails that have persisted for years) (Oberbauer et al. 2008).

Within the Manchester Avenue project site, 0.08 acres of disturbed habitat occurs between the culvert outfall head wall and Manchester Avenue (Figure 5B). The disturbed habitat area has compacted soils and very limited vegetation and was used as the staging area during the December 2020 emergency excavation work.

3.3 Floral Diversity

A total of 164 vascular plant species, 104 (63%) native and 60 (37%) non-native species, were recorded during the biological reconnaissance surveys for the Lake Drive project site. A cumulative list of all common and sensitive plant species observed on the Lake Drive project site is provided in Appendix A1. A total of 12 vascular plant species, 10 (83%) native and 2 (17%) non-native species, were recorded during the biological reconnaissance surveys for the Manchester Avenue project site. A cumulative list of all common and sensitive plant species observed on the Manchester Avenue project site is provided in Appendix A2.

3.4 Wildlife Diversity

The Lake Drive project site supports habitat primarily for upland wildlife species, whereas the Manchester Avenue project site provides habitat for riparian wildlife species. These habitat types provide foraging and nesting habitat for migratory and resident bird species and other wildlife species.

As noted in Section 2.2, wildlife species that were detected during the field survey by sight, calls, tracks, scat, or other signs were recorded directly in a field notebook or using an electronic form on a mobile device. Binoculars (10 × 42 magnification) were used to aid in the identification of wildlife. A total of 40 wildlife species were recorded during wildlife surveys on the Lake Drive project site, consisting of 2 butterfly species, 2 reptile species, 30 bird species, and 6 mammal species. A cumulative list of wildlife species observed in the Lake Drive project site during field surveys is provided in Appendix B1. A total of 4 wildlife species were recorded during wildlife surveys on the Manchester Avenue project site, consisting of 4 bird species. A cumulative list of wildlife species observed in the Manchester Avenue project site during field surveys is provided in Appendix B2.

3.4.1 Amphibians and Reptiles

No amphibians were observed during the wildlife surveys in either site. Two reptile species, western fence lizard (*Sceloporus occidentalis*) and common side-blotched lizard (*Uta stansburiana*), were observed during surveys within the Lake Drive project site. No reptile species were observed within the Manchester Avenue project site.

3.4.2 Birds

There were 30 species of birds observed during the surveys within the Lake Drive project site. Birds adapted to human disturbance, such as mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), common raven (*Corvus corax*), and Anna's hummingbird (*Calypte anna*), were observed, as well as species associated with scrub or chaparral habitats, such as coastal California gnatcatcher and Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*). Flying or foraging birds observed were red-tailed hawk (*Buteo jamaicensis*) and Cooper's hawk (*Accipiter cooperii*). Four bird species were observed during surveys within the Manchester Avenue project site including bushtit (*Psaltriparus minimus*), black phoebe (*Sayornis nigricans*), common yellowthroat (*Geothlypis trichas*), and yellow-rumped warbler (*Setophaga coronata*).

3.4.3 Mammals

Four common mammal species were detected within the Lake Drive project site: brush rabbit (*Sylvilagus bachmani*), California ground squirrel (*Otospermophilus beecheyi*), California deermouse (*Peromyscus californicus*), and desert cottontail (*Sylvilagus audubonii*). Two special-status species were observed during the small mammal live capture surveys: San Diego desert woodrat (*Neotoma lepida intermedia*) and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*). Other human-adapted species, such as Botta's pocket gopher (*Thomomys bottae*), northern racoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*), are likely to use the area. No mammal species were observed within the Manchester Avenue project site.

3.5 Special-Status Plants

Plant species are considered special status if they have been listed or proposed for listing by the federal or state government as rare, endangered, or threatened ("listed species"), are covered under the draft Encinitas Subarea Plan (City of Encinitas 2001), and/or have a CRPR of 1 or 2. An evaluation of known records in the Encinitas quadrangle and the surrounding quadrangles (CDFW 2021; CNPS 2022; USFWS 2021a) was conducted to determine which species have been recorded in the project vicinity. In addition, Dudek biologists' knowledge of biological resources,

the regional distribution of each species, and the results from focused surveys, as well as elevation, habitat, and soils present within the project site, were used to determine the potential for various special-status species to occur.

3.5.1 Lake Drive Project Site

Seven sensitive plant species—Campbell's liverwort (*Geothallus tuberosus*), Del Mar Mesa sand aster, Nuttall's scrub oak, Torrey pine, San Diego barrel cactus (*Ferocactus viridescens*), wart-stemmed ceanothus, and sea dahlia—were observed naturally occurring within the Lake Drive project site during the 2021 and 2022 survey effort. Locations of special-status plants are shown in Figure 5A.

Campbell's liverwort, a CRPR 1B.1 species, is an ephemeral liverwort that occurs in mesic coastal scrub and vernal pools (CNPS 2022). It occurs in Riverside and San Diego Counties (CNPS 2022). There are at least 17 locations of Campbell's liverwort throughout the Lake Drive project site. Each location in Figure 5A represents a patch or cluster of patches.

Del Mar Mesa sand aster, a CRPR 1B.1 and narrow endemic species under the draft Encinitas Subarea Plan, is a perennial herb that occurs in sandy coastal bluff scrub, maritime chaparral, and coastal scrub (City of Encinitas 2001; CNPS 2022). It occurs in coastal regions from Encinitas south to Torrey Pines (CCH 2021). The Lake Drive project site overlaps a major population area of Del Mar Mesa sand aster, as recognized by the MHCP, but does not include any critical locations of this variety (SANDAG 2003). Approximately 194 individuals of Del Mar Mesa sand aster were observed in the southern, northern, and central portions of the Lake Drive project site.

Nuttall's scrub oak, a CRPR 1B.1 and covered species under the draft Encinitas Subarea Plan, is a perennial evergreen shrub that occurs in sandy or clay loam soils in closed-cone coniferous forest, chaparral, and coastal scrub habitats from Santa Barbara County south to San Diego County (City of Encinitas 2001; CNPS 2022). The project site does not contain any major population areas or critical locations of this species (SANDAG 2003). There were 10 individuals of Nuttall's scrub oak observed in the southern maritime chaparral in the northwestern portion of the Lake Drive project site.

Torrey pine, a CRPR 1B.2 and covered species under the draft Encinitas Subarea Plan, is a perennial evergreen tree that occurs in sandstone in closed-cone coniferous forest and chaparral habitats and is endemic to San Diego County (City of Encinitas 2001; CNPS 2022). The Lake Drive project site does not contain any major population areas or critical locations of this species (SANDAG 2003). Six individuals of Torrey pine, including one immature individual and one individual in poor health, were observed in the southern maritime chaparral and Diegan coastal sage scrub in the western and eastern portions of the Lake Drive project site.

San Diego barrel cactus, a CRPR 2B.1 and covered species under the draft Encinitas Subarea Plan, is a perennial stem succulent that occurs in chaparral, coastal scrub, valley and foothill grassland, and vernal pools and is endemic to San Diego County (City of Encinitas 2001; CNPS 2022). The project site does not contain any major population areas or critical locations of this species (SANDAG 2003). A total of 43 individuals of San Diego barrel cactus were observed, primarily in the southern portion of the Lake Drive project site.

Wart-stemmed ceanothus, a CRPR 2B.2 and covered species under the draft Encinitas Subarea Plan, is a perennial evergreen shrub that occurs in chaparral (City of Encinitas 2001; CNPS 2022). It generally occurs in coastal regions from Carlsbad south to Point Loma (CCH 2021). The project site does not contain any major population areas or

critical locations of this species (SANDAG 2003). Approximately 107 individuals of wart-stemmed ceanothus were observed throughout the Lake Drive project site, primarily in southern maritime chaparral.

Sea dahlia, a CRPR 2B.2 species, is a perennial herb that occurs in coastal bluff scrub and coastal scrub (City of Encinitas 2001; CNPS 2022). In California, it primarily occurs in coastal regions from Camp Pendleton south to Border Field State Park, but there is a record as far north as Rancho Palos Verde and as far east as Potrero (CCH 2021). Approximately 117 individuals of sea dahlia were observed in the northeastern portion of the Lake Drive project site in Diegan coastal sage scrub.

Shaw's agave, golden-spined cereus, red-flowered buckwheat, and cliff spurge were observed planted in the restored/landscaped Diegan coastal sage scrub along Lake Drive on site.

There are no other sensitive plant species with a moderate to high potential to occur on the Lake Drive project site. A list of special-status plant species known to occur within the surrounding region or covered under the draft Encinitas Subarea Plan and the probability of their occurrence on the project site is presented in Appendix C1.

3.5.2 Manchester Avenue Project Site

No focused surveys were conducted for special-status plant species; however, no sensitive plant species were observed within the Manchester Avenue project site during the 2020 emergency work or the 2023 field surveys. A list of special-status plant species known to occur within the surrounding region or covered under the draft Encinitas Subarea Plan and the probability of their occurrence on the project site is presented in Appendix C2. There are no special-status plant species with moderate or high potential to occur within the Manchester Avenue project site.

3.6 Special-Status Wildlife

Special-status wildlife species are those listed as federally/state endangered or threatened, proposed for listing, fully protected by CDFW, a California Species of Special Concern, or an MHCP covered species. An evaluation of known records in the Encinitas quadrangle and the surrounding quadrangles (CDFW 2021; USFWS 2021a) was conducted. In addition, Dudek biologists' knowledge of biological resources and regional distribution of each species, and the elevation, habitat, and soils present within the project site were used to determine the potential for various special-status species to occur. A list of observed or potentially occurring wildlife species and the probability of their occurrence is presented in Appendix D1 for the Lake Drive project site and Appendix D2 for the Manchester Avenue project site.

3.6.1 Lake Drive Project Site

Five special-status species were observed within the Lake Drive project site during field surveys, and each species is described further in the text below. Other special-status species that have not been detected on site but have a moderate or high potential to occur include Crotch's bumble bee (*Bombus crotchii)*, Blainville's horned lizard (*Phrynosoma blainvillii*), California glossy snake (*Arizona elegans occidentalis*), orange-throated whiptail (*Aspidoscelis hyperythra*), red diamondback rattlesnake (*Crotalus ruber*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), southern California legless lizard (*Anniella stebbinsi*), western bluebird (*Sialia mexicana*), Dulzura pocket mouse (*Chaetodipus californicus femoralis*), Jacumba pocket mouse (*Perognathus longimembris*

internationalis), and pallid bat (*Antrozous pallidus*). A list of observed or potentially occurring wildlife species and the probability of their occurrence is presented in Appendix D1.

Coastal California gnatcatcher is federally threatened, a California Species of Special Concern, and a covered species under the draft Encinitas Subarea Plan (CDFW 2021; City of Encinitas 2001). Coastal California gnatcatcher occurs in coastal Southern California and Baja California year-round, where it depends on a variety of arid scrub habitats (Atwood and Bolsinger 1992). The Lake Drive project site occurs within USFWS critical habitat for coastal California gnatcatcher (USFWS 2021a).

During the survey efforts, coastal California gnatcatcher observations included one pair and juveniles that were reared to self-sustaining status during the 2021 season. The pair was observed consistently (both visually and acoustically) within the northern and eastern portions of the site. The female and male were together during the first and second survey but did not present any nesting behaviors during this time. This pair did not separate from each other during these visits. The male had a distinct black cap that was large and consisted of a rough edge. During the third, fourth, and fifth surveys, the male was very protective of the female and her nest. The male used tactics to keep others away from the nest and spent time moving around the site, likely looking for food and/or distracting predators. The male was consistently singing loudly and traveling throughout the territory. The female was hidden during the third, fourth, and fifth surveys. During survey six, two juveniles were observed flying with the male and female pair. The pair stayed close to the juveniles during the entire visit once observed. The pair's most consistent location during the six surveys is shown in Figure 5A. Although the pair used the entire site as their territory, they were limited in space by the residential housing and roads. The focused survey report is provided as Appendix E.

Cooper's hawk is a CDFW Watch List species and a covered species under the draft Encinitas Subarea Plan (CDFW 2021; City of Encinitas 2001). Cooper's hawk is a year-round resident throughout most of California and the United States; it is generally associated with forests and woodlands but is well adapted to urban environments (Cornell Lab of Ornithology 2021). Cooper's hawk was observed flying overhead on site during 2021 surveys.

Southern California rufous-crowned sparrow is a CDFW Watch List species and a covered species under the draft Encinitas Subarea Plan (CDFW 2021; City of Encinitas 2001). Southern California rufous-crowned sparrow is a year-round resident in southwest California; it is generally associated with coastal scrub and chaparral (Cornell Lab of Ornithology 2021). Southern California rufous-crowned sparrow was observed on site during 2021 surveys.

San Diego desert woodrat is a California Species of Special Concern. San Diego desert woodrat occurs most commonly within dense shrubs, where middens are constructed using twigs, sticks, and other building materials (CDFW 2022b). This species was captured during the small mammal live-trapping surveys.

Northwestern San Diego pocket mouse is a California Species of Special Concern and a covered species under the draft Encinitas Subarea Plan (CDFW 2021; City of Encinitas 2001). Northwestern San Diego pocket mouse is a common resident of sandy, herbaceous areas, in association with rocks or coarse gravel (CDFW 2022b). This species was captured during the small mammal live-trapping surveys and likely occurs throughout the site but less likely to occur on steep slopes.

Crotch's bumble bee is a State Candidate for listing as endangered. Crotch's bumble bee occurs in open grassland and scrub communities supporting suitable floral resources along the Southern California coast. Nesting is primarily located underground in abandoned holes made by ground squirrels, mice, and rats, but may be aboveground in abandoned bird nests or empty cavities (Osborne et al. 2008; Williams et al. 2014). Little is known about winter

hibernacula, but the species is presumed to rely on microhabitats for overwintering similar to those of other bumble bees, including loose disturbed soil, leaf litter, and other debris (Xerces Society et. al. 2018; CDFW 2019).

Crotch's bumble bee has a moderate potential to occur within the Lake Drive project site, as the closest California Natural Diversity Database location is 5.7 miles northeast of the site within Rancho Santa Fe (CDFW 2021), but there are suitable open scrub communities with preferred floral resources present. Crotch's bumble bee is a generalist forager and could forage anywhere within the Lake Drive project site where suitable floral resources are present. Although the Lake Drive project site supports suitable floral resources, the actual area occupied by specific resources with potential to support nesting for the species is likely a much smaller portion of the entire site.

Pacific pocket mouse historically ranged in coastal southern California from El Segundo in Los Angeles County south to the Mexican border in San Diego County. The species occurs in coastal strand, coastal dunes, river alluvium, and coastal sage scrub habitats growing mostly on maritime terraces (Grinnell 1933; Meserve 1976; USFWS 1994, 1997b). Pacific pocket mouse occurs in open coastal sage scrub and grasslands, which tend to have a diverse community of grasses and annual herbs, the seeds of which are its main diet (Meserve 1976).

The Lake Drive project site is within the historical range of Pacific pocket mouse and contains a small area of very low-quality habitat for the species (i.e., most of the site is unsuitable for this species due to the steep slopes, dense shrub cover, and poor soils). No Pacific pocket mouse individuals were captured during the live-trapping survey. The focused survey report for this species is provided as Appendix F. The absence of Pacific pocket mouse during the trapping survey indicates that there would be no impacts to Pacific pocket mouse as a result of the proposed project. Therefore, impacts to this species are not discussed further.

3.6.2 Manchester Avenue

Although no focused surveys were conducted specifically for special-status wildlife species, no special-status wildlife species were incidentally observed within the Manchester Avenue project site during field surveys conducted by Dudek in 2023 or by Nature Collective in 2020. A list of all known special-status wildlife species occurring within the Encinitas quadrangle and surrounding quadrangles and the probability of their occurrence within the Manchester Avenue project site is presented in Appendix D2. There is only one special-status species, western bluebird, that has moderate potential to forage within the site and a few special-status species known to occur within the San Elijo Lagoon (i.e., immediate vicinity of the site) but have low potential to occur within the site: south coast garter snake (*Thamnophis sirtalis*), two-striped gartersnake (*Thamnophis hammondii*), California black rail (*Laterallus jamaicensis coturniculus*), coastal California gnatcatcher, least Bell's vireo (*Vireo bellii pusillus*), Ridgway's rail, white-faced ibis (*Plegadis chihi*), white-tailed kite (*Elanus leucurus*), yellow warbler (*Setophaga petechia*), and mule deer (*Odocoileus hemionus*). The Manchester Avenue project site overlaps USFWS-designated critical habitat for coastal California gnatcatcher (USFWS 2021a).

3.7 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the immigration and emigration of animals. Wildlife corridors contribute to population viability by ensuring the continual exchange of genes between populations, which helps maintain genetic diversity; providing access to adjacent habitat areas, representing additional territory for foraging and mating; allowing for greater carrying capacity; and

providing routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes (e.g., fires).

Habitat linkages are patches of native habitat that function to join two larger patches of habitat. They serve as connections between habitat patches and help to reduce the adverse effects of habitat fragmentation, representing a potential route for gene flow and long-term dispersal. Habitat linkages may serve both as habitat and as avenues of gene flow for small animals such as reptiles and amphibians. Habitat linkages may be represented by continuous patches of habitat or by nearby habitat "islands" that function as steppingstones for dispersal.

Biological core and linkage areas (BCLA) are identified on Figure 2-3 in the Final MHCP (SANDAG 2003) and used without revision on Figure 3-2 in the draft Encinitas Subarea Plan (City of Encinitas 2001). BCLAs represent the largest remaining habitat blocks within the City and include critical linkages connecting the habitat blocks. These BCLAs also contribute to or function as regional landscape linkages that connect coastal and inland habitats within and beyond the boundaries of the MHCP. The majority of the lands identified as FPAs are considered BCLAs on Figure 3-2 in the draft Encinitas Subarea Plan (City of Encinitas 2001). Both the Lake Drive project site and Manchester Avenue project site overlap the hardline FPA and BCLA (Figure 2). The Lake Drive project site connects into upland open space areas to the south and east, and the Manchester Avenue project site is located within the San Elijo Lagoon connecting into wetland habitat areas to the west and east. The San Elijo Lagoon is a significant wildlife resource, supporting a high number of obligate wetland wildlife species.

3.8 Jurisdictional Aquatic Resource Delineation

Based on the jurisdictional delineation at the Lake Drive project site (Appendix G1), no wetlands were observed, and all the non-wetland waters were determined to be ephemeral. Because ephemeral channels are not regulated by USACE, there are no USACE jurisdictional aquatic resources within the Lake Drive project site. The Lake Drive Aquatic Resources Delineation Report is included as Appendix G1, and the Approved Jurisdictional Determination stating waters of the United States do not occur on the Lake Drive project site was received from USACE on June 5, 2024. The Lake Drive project site supports 0.087 acres of non-wetland waters and culverts that may be regulated by RWQCB, CDFW, the CCC, and the City. Of those 0.087 acres, 0.086 acres were delineated as non-wetland waters and 0.001 acres were delineated as culverts (Table 4). It is important to note the resource agencies make the final determination on jurisdictional aquatic resources.

Table 4. Jurisdictional Aquatic Resources within the Lake Drive Project Site

Jurisdictional Aquatic Resource	RWQCB/CDFW/CCC/City	
	Acreage	Linear Feet
Culvert		
Culvert (CUL-1, CUL-2, CUL-3)	0.001	60
Non-wetland Waters/Streambeds		
Non-wetland Waters (NWW-3, NWW-4, NWW-6, NWW-7, NWW-8, NWW-9)	0.069	2,580
Non-wetland Waters (concrete-lined brow ditch) (NWW-2)	0.008	348
Non-wetland Waters (erosional) (NWW-1, NWW-5)	0.009	372

Table 4. Jurisdictional Aquatic Resources within the Lake Drive Project Site

Jurisdictional Aquatic Resource	RWQCB/CDFW/CCC/City	
	Acreage	Linear Feet
Non-wetland Waters Subtotal	*0.086*	*3,300*
Total	0.087	3,360

Source: Appendix G1.
Notes: RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; CCC = California Coastal Commission; City = City of Encinitas; CUL = culvert; NWW = non-wetland water.
Acreages may not sum due to rounding.

The Manchester Avenue culvert conveys water into the San Elijo Lagoon from upstream areas associated with an existing storm drain alignment that captures water from the Lake Drive project site and surrounding vicinity, as shown on Figure 1. The Manchester Avenue project site is located above the mean high tide line that is associated with the San Elijo Lagoon, which is a State Marine Conservation Area comprised of estuary waters and coastal marsh habitat. Based on the jurisdictional delineation at the Manchester Avenue project site (Appendix G2), a total of 0.06 acres of USACE, RWQCB, CDFW, CCC, and City jurisdictional aquatic resources occur within the Manchester Avenue project site. The Manchester Avenue project site supports 0.06 acres of non-wetland waters that may be regulated by USACE and RWQCB, and 0.01 acres of streambeds and 0.05 acres of riparian habitat that may be regulated by CDFW, CCC, and the City (Table 5; Figure 5B). Ponded water was observed during the 2023 site visits immediately below the Manchester Avenue culvert (Figure 5B). The water would normally flow south toward the San Elijo Lagoon but due to sediment buildup below the culvert causing a blockage, some of the water is flowing off site to the east. It was determined during the jurisdictional delineation that the eastern portion of the open water would not be considered a jurisdictional aquatic resource since it is artificially created in an area that would otherwise be mapped as disturbed habitat and will not persist once regular maintenance occurs (Figure 5B). Therefore, the acreage of open water listed below in Table 5 is slightly less than the total acreage for open water as summarized in Table 3. Further details are provided in the Manchester Avenue Aquatic Resources Delineation Report, which is included as Appendix G2.

Table 5. Jurisdictional Aquatic Resources within the Manchester Avenue Project Site

Jurisdictional Aquatic Resource	USACE/RWQCB/CDFW/CCC/City (acres)
Non-wetland Waters/Streambed	
Open Water	0.01
Non-wetland Waters/Riparian Habitat	
Coastal and Valley Freshwater Marsh	0.05
Total	0.06

Source: Appendix G2.
Notes: USACE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; CCC = California Coastal Commission; City = City of Encinitas.
Acreages may not sum due to rounding.

4 Impact Analysis

The purpose of this section is to describe the direct, indirect, and cumulative impacts of the proposed project on special-status biological resources and to provide the significance determinations for proposed or potential impacts. To be conservative, all project impacts analyzed within this report are based on pre-landslide site conditions mapped prior to the January 2023 emergency events occurring at the Lake Drive project site.

4.1 Definition of Impacts

Based on the project description (Section 1.2), direct, indirect (short-term and long-term), and cumulative impacts are defined as follows:

Direct impacts include the permanent loss of on-site habitat and the plant and wildlife species that it contains, and the temporary loss of on-site habitat. Direct impacts were quantified by overlaying the limits of the work area on the biological resources map of the project site (Figure 6A, Lake Drive Storm Drain Impacts to Biological Resources, and Figure 6B, Manchester Avenue Culvert Outfall Impacts to Biological Resources). Direct impacts at the Lake Drive project site would include permanent impacts associated with the detention basin and access road and temporary impacts associated with the replacement of new pipeline. All temporary impacts would be restored in-place after pipeline installation. Direct impacts at the Manchester Avenue project site would include temporary impacts associated with sediment removal. All temporary impacts occurring to biological resources at the Manchester Avenue project site are anticipated to fully recover upon completion of the sediment removal activities.

Indirect impacts refer to off-site and on-site effects that are short-term impacts (i.e., temporary) due to project construction, or long-term (i.e., permanent) due to the design of the project and the effects it may have on adjacent resources. For this project, indirect impacts would include short-term impacts during construction, such as additional dust and noise that could temporarily disrupt wildlife activities, and construction-related soil erosion and runoff. The project would be subject to the typical restrictions and requirements that address turbidity and water quality, including the federal Clean Water Act and National Pollution Discharge Elimination System, the Porter-Cologne Act, and preparation of a stormwater pollution prevention plan.

Cumulative impacts refer to the combined environmental effects of the proposed project and other relevant projects. In some cases, the impact from a single project may not be significant, but when combined with other projects, the cumulative impact may be significant.

4.2 Lake Drive Direct Impacts

4.2.1 Vegetation Communities and Land Cover Types

Implementation of the proposed project would result in direct permanent and/or temporary impacts to southern maritime chaparral, Diegan coastal sage scrub (coastal and Baccharis-dominated), eucalyptus woodland, and urban/developed, as depicted in Figure 6A and as listed in Table 6. Direct impacts at the Lake Drive project site would include permanent impacts associated with the detention basin and access road and temporary impacts associated with the replacement of new pipeline. All temporary impacts would be restored in-place after pipeline installation.

Also included in Table 6 and shown on Figure 6A are the impacts to vegetation communities and land cover types that occurred during the January 2023 sinkhole and landslide emergency below Lake Drive. The City's emergency work consisted of the Lake Drive roadway repair, backfill of the slope with native soils/material, hydroseeding of the slope, and installation of an energy dissipator within the location for the proposed detention basin. Impacts occurring from the Lake Drive roadway collapse and repair as well as those occurring within the proposed detention basin are considered permanent, and impacts along the slope are considered temporary as they were revegetated to coastal sage scrub after the emergency work concluded. The temporary impacts along the slope leading into the detention basin were revegetated to coastal sage scrub by the Nature Collective in December 2023, and maintenance has been on-going since January 2024. These revegetation areas will be included in the proposed project's Upland Habitat Mitigation and Monitoring Plan (Appendix H) but only for monitoring and maintenance as the revegetation has already occurred.

Table 6. Direct Impacts to Vegetation Types and Land Covers on the Lake Drive Project Site

Vegetation Community/ Land Cover Type	Habitat Code	Perm Impact (acres)		Temp Impact (acres)		Total Impact (acres)	
		Proposed	Emergency	Proposed	Emergency	Perm	Temp
Group B. Rare Upland							
Southern Maritime Chaparral	37C30	0.26	0	0.25	0	0.26	0.25
Group C. Coastal Sage Scrub							
Diegan Coastal Sage Scrub: Coastal Form	32510	1.97	0	0.70	0.16	1.97	0.86
Diegan Coastal Sage Scrub: Baccharis-Dominated	32530	0.16	0	0.05	0	0.16	0.05
Diegan Coastal Sage Scrub (Restored/ Landscaped)	32510	0	0	0	0.03	0	0.03
*Group C Subtotal**		*2.14*	*0*	*0.75*	*0.19*	*2.14*	*0.94*
Group E. Annual Grassland							
Non-native Grassland	42200	0	0	0	0	0	0
Group F. Other							
Disturbed Habitat	11300	0	0	0	0	0	0
Eucalyptus Woodland	79100	0	0	0.05	0	0	0.05
Urban/Developed	12000	0.05	0.03	0.01	0	0.08	0.01
*Group F Subtotal**		*0.05*	*0.03*	*0.06*	*0*	*0.08*	*0.06*
Total*		**2.45**	**0.03**	**1.06**	**0.19**	**2.48**	**1.25**

Sources: Oberbauer et al. 2008 (Habitat Codes); City of Encinitas 2001 (Groupings).
Notes: Perm = permanent; Temp = temporary.
* Some numbers may not sum due to rounding.

Direct permanent and temporary impacts to southern maritime chaparral and Diegan coastal sage scrub (including coastal form and Baccharis-dominated) vegetation communities would be significant absent mitigation. With implementation of Mitigation Measure (MM) BIO-1, which requires an Upland Habitat Mitigation and Monitoring Plan (Appendix H) and provides for on-site compensatory mitigation for permanent impacts and in-place restoration of temporary impacts, impacts to sensitive vegetation communities would be reduced to less than significant. Direct permanent impacts to eucalyptus woodland, disturbed habitat, and urban/developed areas are not considered significant because these disturbed/developed types have minimal biological value and therefore do not require mitigation. It should be noted that no eucalyptus trees are proposed for removal with project implementation. All temporary impacts to eucalyptus woodland, disturbed habitat, and urban/developed, shall be hydroseeded for stabilization and erosion control purposes.

4.2.2 Jurisdictional Aquatic Resources

There are no USACE jurisdictional aquatic resources within the Lake Drive project site. The proposed project would permanently impact 0.003 acres and temporarily impact 0.005 acres of aquatic resources under the jurisdiction of RWQCB, CDFW, the CCC, and the City. Additionally, the January 2023 sinkhole and landslide emergency that occurred below Lake Drive temporarily impacted 0.002 acres of NWW-2, which is a concrete-lined brow ditch located along the slope. The brow ditch was restored in-place after the City's emergency repair work concluded. Figure 6A shows the location of impacts to jurisdictional resources. Table 7 provides the impact acreages by jurisdiction resource, jurisdiction, and type of impact.

Table 7. Impacts to Jurisdictional Aquatic Resources on the Lake Drive Project Site

Jurisdictional Aquatic Resource	RWQCB/CDFW/CCC/City (acres)		
	Permanent	Temporary	Total
Culverts			
Culvert (CUL-1, CUL-2, CUL-3)	0	0.001	0.001
Non-wetland Waters/Streambeds			
Non-wetland Waters/Streambeds (NWW-3, NWW-4, NWW-6, NWW-7, NWW-8)	0.002	0.003	0.005
Non-wetland Waters (concrete-lined brow ditch) (NWW-2)[1]	0	0.002	0.002
Non-wetland Waters (erosional) (NWW-1)	0.001	0.001	0.002
Non-wetland Waters Subtotal	*0.003*	*0.006*	*0.009*
Total[2]	**0.003**	**0.007**	**0.010**

Notes: RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; CCC = California Coastal Commission; City = City of Encinitas.

1 Impacts to the concrete-lined brow ditch (NWW-2) occurred during the 2023 Lake Drive landslide emergency and were repaired after the emergency work concluded. Therefore, the 0.002 acres of temporary impacts are not included in the non-wetland waters habitat mitigation and monitoring plan required by Mitigation Measure (MM) BIO-2A.

2 Some numbers may not sum due to rounding.

Impacts to jurisdictional aquatic resources would be reduced to less than significant with implementation of MM-BIO-2A, which requires resource agency (i.e., RWQCB, and CDFW) permits and a non-wetland waters habitat mitigation and monitoring plan that describes the compensatory mitigation for 0.003 acres of permanent impacts and restoration of 0.005 acres of temporary impacts (Appendix I). The portion of the concrete-lined brow ditch (NWW-2) impacted by the January 2023 sinkhole and landslide emergency was repaired by the City. Therefore, the

0.002 acres of temporary impacts are not included in the non-wetland waters habitat mitigation and monitoring plan required by MM-BIO-2A.

The proposed project consists of pipeline replacement and existing culvert replacement along the pipeline, which would allow for all of the jurisdictional aquatic resources to continue to flow into the new underground storm drain distribution alignment and out the Manchester Avenue culvert outfall, which ultimately flows into San Elijo Lagoon. Therefore, the overall function and value of the Lake Drive project site would not change upon completion of the maintenance/repair activities. Refer to Table 12, MHCP Focused Planning Area Consistency Analysis, in Section 4.5, Consistency with the City's Multiple Habitat Conservation Program and Local Coastal Program, of this report for details on the project's compliance with the Wetland/Wetland Buffer Policy 4.3.1.1 of the Encinitas Subarea Plan (City of Encinitas 2001), which applies to all wetland communities within the City.

4.2.3 Special-Status Plants

Impacts to special-status plants from implementation of the proposed project are summarized in Table 8 and presented in Figure 6A. Of the seven special-status species observed, five would be directly impacted by the proposed project. Additionally, impacts occurred to one wart-stemmed ceanothus individual and three sea dahlia individuals during the January 2023 sinkhole and landslide emergency. These species were replanted by the Nature Collective in December 2023 as part of their slope revegetation efforts and are therefore not included in the proposed project impacts listed below. The revegetation area will be included in the proposed project's Upland Habitat Mitigation and Monitoring Plan (Appendix H) but only for monitoring and maintenance as the revegetation has already occurred.

Table 8. Impacts to Special-Status Plant Species

Species	Status*	Total Number on Site	Number Impacted (Percent of Total)
Campbell's liverwort	CRPR 1B.1	17 locations	12 locations (71%)**
Del Mar Mesa sand aster	CRPR 1B.1, Narrow Endemic	194	3 (2%)
Nuttall's scrub oak	CRPR 1B.1, Covered	10	0
Torrey pine	CRPR 1B.2, Covered	6	3 (50%)
San Diego barrel cactus	CRPR 2B.1, Covered	43	0
Wart-stemmed ceanothus	CRPR 2B.2, Covered	107	19 (18%)
Sea dahlia	CRPR 2B.2	117	6 (2%)

Notes: CRPR = California Rare Plant Rank.
* California Rare Plant Rank (CNPS 2022), MHCP Draft Encinitas Subarea Plan (City of Encinitas 2001).
** Only the impact footprint was surveyed for bryophytes; Campbell's liverwort locations may occur outside the impact footprint.

Direct impacts would also occur to planted Shaw's agave and golden-spined cereus. Because these species were planted outside their native range, impacts to these individuals would be less than significant.

Del Mar Mesa Sand Aster

Conservation goals for Del Mar Mesa sand aster include ensuring species persistence within the MHCP plan area by conserving major populations, critical locations, and required habitat of Del Mar Mesa sand aster if this plant is determined to be a valid taxon (SANDAG 2003). The Del Mar Mesa sand aster on site is part of a major population

identified in the MHCP plan area. The MHCP did not identify any critical locations of this species (SANDAG 2003). A genetics study examining both cpDNA and nrDNA data conducted in 2014 did not detect genetic differences among individuals of Del Mar Mesa sand aster and San Diego sand aster (*Corethrogyne filaginifolia* var. *incana*), which is also a CRPR 1B.1 species (Kaur and Sharma 2017). However, because the Del Mar Mesa sand aster variety is currently still recognized as special-status as a CRPR 1B.1 species, because the project is located inside an FPA and overlaps a major population of Del Mar Mesa sand aster identified by the MHCP, and because Del Mar Mesa sand aster is a narrow endemic species, impacts to Del Mar sand aster on site would be significant absent mitigation. Individuals of Del Mar Mesa sand aster that occur within the impact footprint would be flagged and avoided or translocated in accordance with MM-BIO-3. With implementation of MM-BIO-3 and MM-BIO-4, which provides for biological monitoring during construction, impacts to Del Mar Mesa sand aster would be reduced to less than significant.

Wart-Stemmed Ceanothus

Conservation goals for wart-stemmed ceanothus include ensuring species persistence within the MHCP plan area by conserving major populations and required habitat of wart-stemmed ceanothus in a configuration that maintains a regional metapopulation (SANDAG 2003). Wart-stemmed ceanothus on site is not part of a major population identified in the MHCP, but a major population occurs northwest of the Lake Drive project site. Because wart-stemmed ceanothus is a characteristic species in southern maritime chaparral (Oberbauer et al. 2008), mitigation for impacts to native vegetation communities would also mitigate for impacts to this species. Therefore, with implementation of MM-BIO-1, direct impacts to wart-stemmed ceanothus on site would be reduced to less than significant.

Torrey Pine

Conservation goals for Torrey pine include conserving major populations, critical locations, and required habitat (SANDAG 2003). However, no major populations or critical locations are identified in the MHCP. Two Torrey pines occur within the temporary impact footprint, and one occurs within the permanent impact footprint. Because Torrey pine is a CRPR 1B.2 species and because the Lake Drive project site is located inside an FPA, impacts to Torrey pine on site would be significant absent mitigation. Individuals of Torrey pine that occur within the temporary impact footprint would be flagged and avoided, or mitigated by planting Torrey pine on site at a 1:1 ratio in accordance with MM-BIO-5. With implementation of MM-BIO-5 and MM-BIO-4, which provides for biological monitoring during construction, impacts to Torrey pine would be reduced to less than significant

Sea Dahlia

Because sea dahlia is a CRPR 2B.2 species and because the project site is located inside an FPA, impacts to sea dahlia on site would be significant absent mitigation. Individuals of sea dahlia that occur within the impact footprint would be flagged and avoided, or mitigated by planting sea dahlia on site at a 1:1 ratio in accordance with MM-BIO-6. With implementation of MM-BIO-6 and MM-BIO-4, which provides for biological monitoring during construction, impacts to sea dahlia would be reduced to less than significant.

Campbell's Liverwort

Because Campbell's liverwort is a CRPR 1B.1 species and because the project site is located inside an FPA, impacts to Campbell's liverwort would be significant absent mitigation. Campbell's liverwort within the impact footprint would be flagged and avoided or covered to reduce impacts from trampling, or mitigated by salvaging and

establishing Campbell's liverwort in accordance with MM-BIO-7. With implementation of MM-BIO-7 and MM-BIO-4, which provides for biological monitoring during construction, impacts to Campbell's liverwort would be reduced to less than significant.

4.2.4 Special-Status Wildlife and Nesting Birds

No special-status amphibians are likely to occur on the project site. Coastal California gnatcatcher, Cooper's hawk, and Southern California rufous-crowned sparrow were observed (Figure 6A). Two special-status mammal species were captured during the small mammal live-trapping surveys: northwestern San Diego pocket mouse and San Diego desert woodrat. In addition, the following species have not been detected on site, but have a moderate to high potential to occur: Crotch's bumble bee, Blainville's horned lizard, California glossy snake, orange-throated whiptail, red diamondback rattlesnake, San Diegan tiger whiptail, southern California legless lizard, western bluebird, Dulzura pocket mouse, Jacumba pocket mouse, and pallid bat. Impacts to suitable habitat for these species with moderate to high potential to occur would be less than significant due to lack of species observations. A discussion of direct impacts by guild is provided below.

Listed Birds

Coastal California gnatcatcher was observed nesting within the northern-central portion of the Lake Drive project site but outside of any proposed impact areas. Temporary impacts within the Lake Drive project site to coastal California gnatcatcher suitable habitat (i.e., Diegan coastal sage scrub and southern maritime chaparral) total 1.19 acres. Permanent impacts to suitable habitat total 2.40 acres and occur within USFWS-designated critical habitat for coastal California gnatcatcher. Potential direct impacts to coastal California gnatcatcher individuals and suitable habitat would be significant absent mitigation.

Project implementation of MM-BIO-1 provides for compensation for the permanent loss of coastal California gnatcatcher suitable habitat, and in-place restoration for all temporary impact areas. The Lake Drive project site would remain an open space area, containing 21.36 acres of suitable habitat for use by this species after the detention basin and access road have been built. Because this species is mobile, direct impacts to adult individuals are not anticipated. However, direct impacts could occur to nesting individuals, which would be avoided through implementation of MM-BIO-4, which requires biological monitoring during any vegetation clearing and trenching activities at the Lake Drive project site. Additional protections for nesting coastal California gnatcatchers would be provided through implementation of MM-BIO-8, which requires a pre-construction nesting bird survey and avoidance measures, and MM-BIO-9, which requires biological monitoring during the breeding season specifically for coastal California gnatcatcher. Therefore, all impacts to coastal California gnatcatcher, after mitigation is implemented, would be reduced to less than significant.

Other Special-Status Birds and Nesting Birds

Cooper's hawk, Southern California rufous-crowned sparrow, and western bluebird could all nest on site within habitats that would be impacted by the proposed project. Potential direct impacts to nesting Cooper's hawk are not anticipated because no eucalyptus trees are proposed for removal with project implementation. Potential direct impacts to nesting birds, including special-status species (Cooper's hawk, Southern California rufous-crowned sparrow, and western bluebird), on site may occur if construction occurs during the breeding season. However, pre-construction nesting bird surveys (MM-BIO-8) during the breeding season (i.e., February 15 through

September 15) are a condition of project approval and would avoid impacts to nesting birds in accordance with the MBTA and California Fish and Game Code.

Given the mobile nature of these species (i.e., they are likely to move away from the project site to use adjacent areas of equally suitable habitat), it is anticipated that project impacts would not result in direct impacts to birds outside of the nesting season. Impacts to suitable habitat for nesting birds would be significant and would be mitigated to less than significant through implementation of MM-BIO-1.

Reptiles

No special-status reptiles have been observed on site, but Blainville's horned lizard, California glossy snake, orange-throated whiptail, red diamondback rattlesnake, San Diegan tiger whiptail, and southern California legless lizard have a moderate or high potential to occur. Due to the presence of suitable scrub and chaparral habitat, MM-BIO-4, which requires biological monitoring, would be implemented to avoid significant impacts to these species.

Small Mammals

Two special-status small mammals, northwestern San Diego pocket mouse and San Diego desert woodrat, were captured on site during the small mammal live-trapping surveys. Impacts to habitat occupied by the northwestern San Diego pocket mouse and San Diego desert woodrat would be mitigated through implementation of MM-BIO-1, which provides compensation for the loss of habitat and restoration of temporary impact areas. Impacts to individuals would be reduced to less than significant through implementation of MM-BIO-4, which requires biological monitoring, and MM-BIO-10, which would require avoidance of woodrat middens. All impacts to these species, after mitigation is implemented, would be reduced to less than significant.

Additionally, Dulzura pocket mouse and Jacumba pocket mouse could occur within the coastal scrub and chaparral habitats on site. Due to the presence of suitable scrub and chaparral habitat, MM-BIO-4, which requires biological monitoring, would be implemented to avoid significant impacts to these species.

Bats

Pallid bat could occur on site and potentially roost in the ornamental trees on site. Potential direct impacts to roosting pallid bat may occur if construction occurs during the roosting season. However, it is highly unlikely that roosting or foraging pallid bat individuals would be impacted by the project due to the small extent of impacts and the mobile nature of this species (i.e., they are likely to move away from the project site to use adjacent areas of equally suitable habitat). In addition, MM-BIO-4, which requires biological monitoring, would be implemented to avoid significant impacts to pallid bat.

Listed Invertebrates

Although Crotch's bumble bee has a moderate potential to occur within the Lake Drive project site due to lack of observations within the vicinity, this species is a state candidate for listing as endangered. The Lake Drive project site supports suitable floral and potential nesting resources for Crotch's bumble bee. Because Crotch's bumble bee typically nests underground, individuals would also be highly vulnerable to injury and mortality during construction, which could crush nests and individuals, if present on site. Therefore, the proposed project has the potential to

result in direct impacts to individuals that may be harmed or killed during vegetation removal and grading for construction of the access road and during pipe replacement activities.

Project implementation of MM-BIO-11 (Focused Surveys for Crotch's Bumble Bee) would reduce potential direct impacts to a less-than-significant level by requiring a focused survey for Crotch's bumble bee and avoidance of nesting resources, if present, until the nesting period has concluded. Project implementation of MM-BIO-1 would provide on-site compensatory mitigation for permanent impacts and in-place restoration of temporary impacts to offset impacts to potentially suitable nesting habitat. Therefore, potential direct impacts to Crotch's bumble bee would be **less than significant with mitigation incorporated.**

4.2.5 Wildlife Corridors and Habitat Linkages

Project implementation has the potential to create a minor disruption in dispersal of wildlife, including birds and small mammals. It is unlikely that the project site supports movement by mule deer, bobcats (*Lynx rufus*), or mountain lions (*Puma concolor*) due to the urban and constrained nature of the area. Coyotes (*Canis latrans*) may still occur in the area and may use the project site for movement purposes, but most of their movement occurs during the early morning or nighttime periods when project activities would not occur. Bats move during nighttime periods when work would not occur. Some of the other, smaller wildlife may be less inclined to travel along the project site during pipeline removal replacement activities. However, this impact would be short-term, with project activities expected to last less than 1 year. Long-term maintenance, including basin maintenance and checking pipes, is not expected to impact wildlife use of the site for movement. Therefore, no change to wildlife movement within the site is anticipated to occur from project implementation.

4.3 Manchester Avenue Direct Impacts

4.3.1 Vegetation Communities and Land Cover Types

Implementation of the proposed project would include a staging area below Manchester Avenue and a work area where sediment removal (i.e., excavation) activities would occur below the culvert outfall. The staging area would be used to access the excavation work area and to stockpile the removed sediment. All impacts occurring within the Manchester Avenue project site are considered temporary as the frequency and duration of each maintenance event would be limited to the minimum necessary to reduce flood risk to life and property. Impacts to vegetation communities and land cover types are depicted on Figure 6B and summarized in Table 9.

Table 9. Direct Temporary Impacts to Vegetation Types and Land Covers on the Manchester Avenue Project Site

Vegetation Community/ Land Cover Type	Habitat Code	Staging Area (acres)	Excavation Area (acres)	Total (acres)
Group A. Wetland/Riparian				
Open Water (Freshwater)	64140	0	0.01	0.01
Coastal and Valley Freshwater Marsh	52410	0	0.05	0.05
	Group A Subtotal	*0*	*0.06*	*0.06*
Group F. Other				
Disturbed Habitat	11300	0.08	0	0.08

Table 9. Direct Temporary Impacts to Vegetation Types and Land Covers on the Manchester Avenue Project Site

Vegetation Community/ Land Cover Type	Habitat Code	Staging Area (acres)	Excavation Area (acres)	Total (acres)
	Total	0.08	0.06	0.14

Sources: Oberbauer et al. 2008 (Habitat Codes); City of Encinitas 2001 (Groupings).
Notes: Some numbers may not sum due to rounding.

The staging area is located entirely within disturbed habitat, which is not considered a sensitive vegetation community as it has minimal biological value. Therefore, temporary impacts occurring as a result of the staging area within disturbed habitat do not require mitigation.

In response to the December 2020 emergency sediment removal at the Manchester Avenue project site, the City and the Nature Collective conducted mitigation for the 0.11 acres of impacts, including 0.09 acres of coastal and valley freshwater marsh and 0.02 acres of southern riparian woodland, as summarized in Appendix J, Manchester Avenue Emergency Sediment Removal Post-Construction Report. A total of 0.22 acres of rehabilitation, including weed removal and native species plantings, of southern coastal salt marsh, coastal and valley freshwater marsh, and southern riparian woodland was conducted within the surrounding area of San Elijo Lagoon. Refer to Appendix J for details on the mitigation efforts for the emergency work.

All proposed excavation activities would result in temporary direct impacts to open water and coastal and valley freshwater marsh. The purpose of the proposed project is to remove sediment buildup below the culvert outfall to prevent flooding across Manchester Avenue. No tree removal is proposed during excavation activities. Excavation of the sediment below the culvert outfall would also remove coastal and valley freshwater marsh. However, the freshwater marsh includes fast-growing, herbaceous species (e.g., southern cattail), and the excavation activities would occur at a frequency and duration that would allow the coastal and valley freshwater marsh to regenerate prior to the next maintenance event. Therefore, impacts resulting from excavation activities would be temporary, and all the coastal and valley freshwater marsh is anticipated to fully recover upon completion of the sediment removal. Additionally, impacts from the proposed project to open water are not anticipated as the sediment removal activities would result in a higher functioning channel (e.g., flood storage, slower flows, sediment capture) providing a net benefit (i.e., water quality protection) to downstream aquatic resources associated with the San Elijo Lagoon. Due to sediment buildup, water from the culvert outfall is flowing east outside of the channel instead of south toward the San Elijo Lagoon. After the sediment is removed (i.e., normal conditions), the water flow will be contained within the channel, and the area it currently occupies would be mapped as disturbed habitat. Therefore, temporary impacts to open water and coastal and valley freshwater marsh would not be significant and do not require mitigation.

4.3.2 Jurisdictional Aquatic Resources

All impacts occurring within the Manchester Avenue project site are considered temporary as the frequency and duration of each maintenance event (i.e., excavation) would be limited to the minimum necessary to reduce flood risk to life and property. Impacts to jurisdictional aquatic resources are depicted on Figure 6B and summarized in Table 10.

Table 10. Direct Temporary Impacts to Jurisdictional Aquatic Resources within the Manchester Avenue Project Site

Jurisdictional Aquatic Resource	USACE/RWQCB/CDFW/CCC/City (acres)
Non-wetland Waters/Streambed	
Open Water	0.01
Non-wetland Waters/Riparian Habitat	
Coastal and Valley Freshwater Marsh	0.05
Total	**0.06**

Notes: USACE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; CCC = California Coastal Commission; City = City of Encinitas.
Acreages may not sum due to rounding.

In response to the December 2020 emergency sediment removal at the Manchester Avenue project site, the City and the Nature Collective conducted mitigation for the 0.11 acres of impacts, including 0.09 acres of coastal and valley freshwater marsh and 0.02 acres of southern riparian woodland, as summarized in Appendix J, Manchester Avenue Emergency Sediment Removal Post-Construction Report. A total of 0.22 acres of rehabilitation, including weed removal and native species plantings, of southern coastal salt marsh, coastal and valley freshwater marsh, and southern riparian woodland was conducted within the surrounding area of San Elijo Lagoon. Refer to Appendix J for details on the mitigation efforts for the emergency work.

All proposed excavation activities would result in temporary direct impacts to open water and coastal and valley freshwater marsh. The purpose of the proposed project is to remove sediment buildup below the culvert outfall to prevent flooding across Manchester Avenue. No tree removal is proposed during excavation activities. Excavation of the sediment below the culvert outfall would also remove coastal and valley freshwater marsh. However, the freshwater marsh includes fast-growing, herbaceous species (i.e., southern cattail and western ragweed), and the excavation activities would occur at a frequency and duration that would allow the coastal and valley freshwater marsh to regenerate prior to the next maintenance event. Therefore, impacts resulting from excavation activities would be temporary, and all the coastal and valley freshwater marsh is anticipated to fully recover upon completion of the sediment removal. Additionally, impacts from the proposed project to open water are not anticipated as the sediment removal activities would result in a higher functioning channel (e.g., flood storage, slow flows, capture sediment) providing a net benefit (i.e., water quality protection) to downstream aquatic resources associated with the San Elijo Lagoon. Therefore, temporary impacts to open water and coastal and valley freshwater marsh would not be considered significant and do not require mitigation.

Impacts to jurisdictional aquatic resources would require aquatic resource agency (i.e., USACE, RWQCB, and CDFW) permits, as directed by MM-BIO-2B. Refer to Table 12 in Section 4.5 of this report for details on the project's compliance with the Wetland/Wetland Buffer Policy 4.3.1.1 of the Encinitas Subarea Plan (City of Encinitas 2001), which applies to all wetland communities within the City.

4.3.3 Special-Status Plants

No special-status plants were observed during the site visits, and there are no special-status plant species with moderate or high potential to occur within the Manchester Avenue project site. Therefore, no direct impacts are anticipated from project implementation to special-status plant species.

4.3.4 Special-Status Wildlife Species and Nesting Birds

No special-status wildlife species were observed during the site visits. There is only one special-status species, western bluebird, that has moderate potential to forage within the site and a few special-status species known to occur within the San Elijo Lagoon (i.e., immediate vicinity of the site) but have low potential to occur within the site: south coast garter snake, two-striped gartersnake, California black rail, coastal California gnatcatcher, least Bell's vireo, Ridgway's rail, white-faced ibis, white-tailed kite, yellow warbler, and mule deer. Therefore, because the Manchester Avenue project site is very small (0.14 acres), is composed mainly of disturbed habitat, occurs adjacent to an existing roadway, and impacts from sediment removal activities would be temporary and occur over a short duration (i.e., less than 1 week), direct impacts to special-status wildlife species are not anticipated to occur. However, direct impacts would be further avoided through implementation of MM-BIO-4, which would require biological monitoring to ensure that practicable measures are being employed.

Sediment removal activities at the Manchester project site are not anticipated to occur during the nest bird season (i.e., February 15 through September 15). However, potential direct impacts to nesting birds may occur if sediment removal activities occur during the breeding season. Direct impacts to nesting birds would be avoided through implementation of MM-BIO-8, which requires a preconstruction nest bird survey and implementation of measures to avoid/minimize impacts to breeding/nesting birds (e.g., sound walls), in accordance with the MBTA and California Fish and Game Code.

Direct impacts would occur within USFWS-designated critical habitat for coastal California gnatcatcher at the Manchester Avenue project site (Figure 6B). Although there is disturbed Diegan coastal sage scrub immediately adjacent to the Manchester Avenue project site, there is no suitable habitat (i.e., coastal sage scrub) for this species within the site (i.e., no Diegan coastal sage scrub would be removed during sediment removal activities, and there would be no permanent loss of suitable habitat for coastal California gnatcatcher). No coastal California gnatcatchers were observed during the site visits within the site or the immediate vicinity. Due to the limited size (0.14 acres) and level of disturbance (i.e., 57% is comprised of disturbed habitat lacking vegetation) within the Manchester Avenue project site and minimal suitable coastal sage scrub habitat within the immediate vicinity (i.e., project site is immediately adjacent to an existing roadway), it is unlikely this species would occur within the site. All sediment removal activities occurring at the Manchester project site would occur outside the coastal California gnatcatcher breeding season, and if the breeding season cannot be avoided, pre-construction surveys shall be conducted by a qualified biologist prior to sediment removal activities to determine whether breeding California gnatcatchers within 500 feet of the Manchester project site as directed by MM-BIO-8. Measures (e.g., sound walls) to avoid/minimize impacts to breeding coastal California gnatcatchers within 500 feet of the work areas would be implemented in accordance with MM-BIO-8. All direct impacts to coastal California gnatcatcher would be further avoided through implementation of MM-BIO-4, which requires pre-construction meetings and construction monitoring. Therefore, direct impacts to coastal California gnatcatcher individuals or suitable habitat are not anticipated.

4.3.5 Wildlife Corridors and Habitat Linkages

Project implementation has the potential to create a minor disruption in dispersal of wildlife, including birds and mammals. It is unlikely that the Manchester Avenue project site supports movement by bobcats or mountain lions due to the urban and constrained nature of the area but could support coyotes and mule deer, which may still occur in the area and use the Manchester Avenue project site for movement purposes, but most of their movement occurs

during the early morning or nighttime periods when project activities would not occur. Bats move during nighttime periods when work would not occur. Some of the other, smaller wildlife may be less inclined to travel along the project site during sediment removal activities. However, this impact would be short-term, with project activities expected to last less than 1 week. Long-term maintenance (i.e., periodic sediment removal) is not expected to impact wildlife use of the site for movement. Therefore, no change to wildlife movement within the site is anticipated to occur from project implementation.

4.4 Lake Drive and Manchester Avenue Indirect Impacts

4.4.1 Vegetation Communities and Land Covers

Short-term indirect impacts to vegetation communities include dust, erosion, temporary access impacts, and accidental trampling. Best management practices to be followed during construction would be implemented according to MM-BIO-12 and would minimize indirect impacts to surrounding vegetation, which could occur through deposit of material, such as dust or fuel, on foliage. Indirect impacts would be reduced through permit compliance and standard best management practices. Specifically, the City would incorporate methods to control runoff, including a stormwater pollution prevention plan to meet National Pollutant Discharge Elimination System regulations (MM-BIO-12). Implementation of stormwater regulations is expected to substantially control adverse edge effects (e.g., erosion, sedimentation, habitat conversion) during and following construction both adjacent to and downstream of the project site. Typical construction best management practices specifically related to reducing impacts from dust, erosion, and runoff generated by construction activities would be implemented. Indirect impacts would be further avoided through implementation of MM-BIO-4, which would require biological monitoring to ensure that practicable measures are being employed to avoid incidental disturbance of habitat outside the disturbance footprint.

Long-term indirect impacts to sensitive vegetation communities would be less than significant at the Lake Drive and Manchester Avenue project sites as long-term maintenance activities would be infrequent, occur over a short duration, and be limited to a specific area (i.e., within the Lake Drive detention basin or along the pipeline access road, below the Manchester Avenue culvert outfall).

4.4.2 Jurisdictional Aquatic Resources

Potential temporary indirect impacts to jurisdictional aquatic resources are similar to those described above for vegetation communities and include dust, erosion, increased turbidity, temporary access impacts, and accidental trampling. Indirect impacts would be avoided through implementation of MM-BIO-4, which would require biological monitoring to ensure that practicable measures are being employed to avoid incidental disturbance of jurisdictional aquatic resources outside the disturbance footprint. Indirect impacts would be reduced through permit compliance and standard best management practices outlined in MM-BIO-12. Specifically, the City would incorporate methods to control runoff, including a stormwater pollution prevention plan to meet National Pollutant Discharge Elimination System regulations. Implementation of stormwater regulations is expected to substantially control adverse edge effects (e.g., erosion, sedimentation, habitat conversion) during and following construction both adjacent to and downstream of the project site. Typical construction best management practices specifically related to reducing impacts from dust, erosion, and runoff generated by construction activities would be implemented. During construction, material stockpiles would be placed such that they cause minimal interference with on-site drainage patterns. This would protect jurisdictional aquatic resources from being inundated with sediment-laden runoff.

Dewatering would be conducted in accordance with standard regulations of RWQCB. A National Pollutant Discharge Elimination System permit, issued by RWQCB to discharge water from dewatering activities, would be required prior to start of dewatering. This would minimize erosion, siltation, and pollution within sensitive communities. Design of drainage facilities would incorporate long-term control of pollutants and stormwater flow to minimize pollution and hydrologic changes.

In addition to the permit compliance and best management practices described above, compliance with the land use adjacency guidelines described in Section 4.5 would avoid significant indirect impacts to jurisdictional aquatic resources.

Long-term indirect impacts to jurisdictional aquatic resources would be less than significant at the Lake Drive and Manchester Avenue project sites as long-term maintenance activities would be infrequent, occur over a short duration, and be limited to a specific area (i.e., within the Lake Drive detention basin or along the pipeline access road, below the Manchester Avenue culvert outfall).

4.4.3 Special-Status Plant Species

Potential temporary indirect impacts to special-status plants are similar to those described above for vegetation communities and include decreased rigor from dust, and accidental trampling. MM-BIO-4, which requires biological monitoring, would be implemented to avoid significant indirect impacts to special-status plants during construction. Indirect impacts would be also reduced through permit compliance and standard best management practices. Specifically, the City would incorporate methods to control runoff, including a stormwater pollution prevention plan to meet National Pollutant Discharge Elimination System regulations. Implementation of stormwater regulations is expected to substantially control adverse edge effects (e.g., erosion, sedimentation, habitat conversion) during and following construction both adjacent to and downstream of the project site. Typical construction best management practices specifically related to reducing impacts from dust, erosion, and runoff generated by construction activities would be implemented.

Long-term indirect impacts to special-status plant species would be less than significant at the Lake Drive and Manchester Avenue project sites as long-term maintenance activities would be infrequent, occur over a short duration, and be limited to a specific area (i.e., within the Lake Drive detention basin or along the pipeline access road, below the Manchester Avenue culvert outfall).

4.4.4 Special-Status Wildlife Species and Nesting Birds

Most of the indirect impacts to vegetation communities previously described can also affect special-status wildlife. Wildlife may also be indirectly affected in the short term by construction-related noise, which can disrupt normal activities and subject wildlife to higher predation risks. Adverse edge effects can cause degradation of habitat quality through the erosion, sedimentation, and/or habitat conversion. Indirect impacts to special-status wildlife species would be avoided through implementation of MM-BIO-4, which would require biological monitoring to ensure that practicable measures are being employed to avoid incidental disturbance of habitat for special-status species outside the disturbance footprint. Indirect impacts would be further reduced through permit compliance and standard best management practices outlined in MM-BIO-12.

Breeding birds can be significantly affected by short-term construction-related noise, which can result in the disruption of foraging, nesting, and reproductive activities. Nesting bird species present or potentially present adjacent to work areas, including coastal California gnatcatcher and raptors such as Cooper's hawk, may nest within the shrubs and trees on site and within 500 feet of work areas. These species are protected under the MBTA. If nesting birds, including raptors, nest in off-site areas within 500 feet of a work area, short-term indirect impacts from noise could occur if construction takes place during their breeding season (February 15 through September 15). As a condition of project approval, pre-construction nesting bird surveys and measures to avoid/minimize impacts to breeding/nesting birds (e.g., sound walls) (MM-BIO-8) would be implemented during the breeding season and would avoid impacts to nesting birds in accordance with the MBTA and California Fish and Game Code.

Long-term indirect impacts to special-status wildlife species would be less than significant at the Lake Drive and Manchester Avenue project sites as long-term maintenance activities would be infrequent, occur over a short duration, and be limited to a specific area (i.e., within the Lake Drive detention basin or along the pipeline access road, below the Manchester Avenue culvert outfall).

4.4.5 Wildlife Corridors and Habitat Linkages

Because implementation of the proposed project is considered maintenance of existing storm drain facilities (i.e., replacement of an existing pipeline at Lake Drive and sediment removal from an existing culvert below Manchester Avenue), and both sites would continue to function as open space areas after the project is complete, and any maintenance activities would be infrequent, occur over a short duration, and be limited to a specific area (i.e., within the Lake Drive detention basin or along the pipeline access road, below the Manchester Avenue culvert outfall), no indirect impacts to wildlife corridors or habitat linkages are anticipated from the project.

4.5 Consistency with the City's Multiple Habitat Conservation Program and Local Coastal Program

Because the project is located in the coastal zone, as defined by the CCC, compliance with the CCA would be through the City's General Plan (City of Encinitas 1989), which is an approved LCP. The proposed project is consistent with the applicable zoning of the City's General Plan and would comply with the goals and policies outlined in the Land Use Element and Resource Management Element of the City's General Plan (City of Encinitas 1989). Furthermore, the project is consistent with the guidelines outlined in the draft Encinitas Subarea Plan as summarized in Tables 11 and 12 in this report (City of Encinitas 1989, 2001). Therefore, the project is compliant with the LCP.

The project site occurs within a hardline FPA of the draft Encinitas Subarea Plan (City of Encinitas 2001). However, the majority of impacts occurring from the proposed project would be temporary (i.e., the site would continue to function as open space after project implementation), and replacement and/or maintenance of an existing storm drain is a compatible use within the City's preserves as allowed by Section 4.2.1 of the draft Encinitas Subarea Plan. As directed by Section 4.2.1 of the draft Encinitas Subarea Plan, the project is a permitted use within the preserve and must comply with the applicable land use regulations, including measures to minimize impacts on the preserve for impacts to lighting, noise, dust, and controlled access (City of Encinitas 2001). Table 11 provides a summary of how the project would comply with the land use adjacency guidelines for compatible uses within preserves.

Table 11. Project Consistency with Land Use Adjacency Guidelines for Compatible Uses within Preserves

Land Use Adjacency Guideline	Applicability and Compliance
Lighting	As directed by Mitigation Measure (MM) BIO-12, all maintenance/construction activities will be conducted during the daytime, and lights will not be kept on overnight in the work area. If night lighting is required during maintenance/construction activities, all exterior lighting along undeveloped land shall be fully shielded and directed downward in a manner that will prevent light spillage or glare into the adjacent open space. No permanent lighting is proposed for this project.
Noise	Permanent noise impacts are not anticipated with project implementation. Construction within and adjacent to suitable habitat for coastal California gnatcatcher and other nesting birds during the breeding season would be avoided to the extent feasible. However, should construction need to occur during the nesting bird breeding season, MM-BIO-8 and MM-BIO-9 would be implemented to reduce noise-related impacts to coastal California gnatcatcher and other nesting birds.
Dust	Typical construction best management practices specifically related to reducing impacts from dust generated by construction activities would be implemented. All temporary work areas would be restored to pre-existing conditions or hydroseeded for stabilization and erosion control purposes after completion of the project and would not result in an increase in dust to surrounding areas.
Controlled Access	The Lake Drive project site and adjacent open space areas located to the northwest and southeast are all owned by Nature Collective. These areas were dedicated as open space to mitigate for the Cardiff Sea Village approved by the County of San Diego in 1975. Currently, public access through the open space area (i.e., project site) is not controlled. The pipeline alignment occurs within an easement that runs through the open space and is owned by the County of San Diego, and access during construction would occur within the easement. The pipeline would be installed below ground, and all areas temporarily disturbed by construction would be restored to pre-construction contours and conditions. The southern portion of the Manchester Avenue project site is located within the San Elijo Lagoon Ecological Reserve and public access is not controlled. No permanent access controls are required or proposed at either project location. After project implementation, the open space would return to pre-existing conditions (with the exception of the permanent impacts occurring from the Lake Drive detention basin and access road), and public access would be allowed to resume.

The project site occurs within the City's FPA and therefore must be in compliance with the policies identified in Section 4.3 of the Encinitas Subarea Plan (City of Encinitas 2001). These policies are listed in Table 12, along with a description of how the proposed project would comply with each policy.

Table 12. MHCP Focused Planning Area Consistency Analysis

Policy*		Analysis
4.3.1.1	Wetland/ Wetland Buffer	The project would result in a total of 0.010 acres of impacts to City of Encinitas (City) wetlands at the Lake Drive project site, including 0.003 acres of permanent impacts and 0.007 acres of temporary impacts. The project would also result in a total of 0.06 acres of temporary impacts to City

Table 12. MHCP Focused Planning Area Consistency Analysis

Policy*		Analysis
		wetlands from sediment removal at the Manchester Avenue project site. The following standards and policies apply to all wetland communities within the City. No Net Loss: Project implementation is not anticipated to have an effect on the function and value of the features within the project site. The majority of impacts would be short term (temporary), except for a small impact to erosional features at the Lake Drive project site, and the overall function and value of the sites would fully recover upon completion of the maintenance/repair activities (i.e., water would continue to flow into the new underground storm drain and out the Manchester Avenue culvert outfall, which ultimately flows into San Elijo Lagoon). Mitigation for Unavoidable Impacts: Temporary impacts at the Lake Drive project site would be restored in-place as directed by the project's non-wetland waters habitat mitigation and monitoring plan (see Mitigation Measure [MM] BIO-2A). Temporary impacts at the Manchester Avenue project site would be allowed to passively regenerate between maintenance activities. Permanent impacts from construction of the detention basin and access road would occur within the Lake Drive project site. The Lake Drive permanent impacts would be mitigated within Nature Collective Lake Drive property, as directed by the non-wetland waters habitat mitigation and monitoring plan (MM-BIO-2A). No permanent impacts would occur at the Manchester Avenue project site. Conservation and Buffer Requirements: The Lake Drive and Manchester Avenue project sites are currently located within conservation areas, the majority of impacts would be temporary, and the project is a compatible use within the City's preserves as allowed by Section 4.2.1 of the draft Encinitas Subarea Plan. Therefore, the conservation and buffer requirements of Policy 4.3.1.1 do not apply to this project.
4.3.1.2	Narrow Endemic Species	The only narrow endemic species identified on site is Del Mar Mesa sand aster located at the Lake Drive project site. Only three individuals of Del Mar Mesa sand aster occur within the impact footprint. These individuals would be flagged and avoided during construction. If avoidance is not feasible, these individuals would be translocated on site (see MM-BIO-3). Therefore, there would be no net loss of narrow endemic populations, occupied acreage, or population viability.
4.3.1.3	Critical Location	No critical populations are within either project site (SANDAG 2003). The Lake Drive project site overlaps a major population of Del Mar Mesa sand aster. However, all of the Del Mar Mesa sand aster on the Lake Drive project site would be avoided or translocated (see MM-BIO-3).
4.3.1.4	Other Sensitive Species	Mitigation for suitable habitat for other sensitive species would be implemented according to the ratios provided in Table 4-4 of the draft Encinitas Subarea Plan (see MM-BIO-1). Nesting coastal California gnatcatcher within the Lake Drive project site and any potential nesting birds within or immediately adjacent to the Manchester Avenue project site would be protected in accordance with MM-BIO-8 and MM-BIO-9. Measures MM-BIO-3 through MM-BIO-7, MM-BIO-10, and MM-BIO-11 would avoid or minimize impacts to other special-status species occurring within the project site.

Table 12. MHCP Focused Planning Area Consistency Analysis

Policy*		Analysis
4.3.1.5	Vegetation Communities	Mitigation for vegetation communities would occur according to the ratios provided in Table 4-4 of the draft Encinitas Subarea Plan (see MM-BIO-1). Mitigation would be provided on site, as prioritized by the Encinitas Subarea Plan.
4.3.1.6	Wildlife Corridors	Not applicable. Because the new pipeline at the Lake Drive project site would follow the existing pipeline and only removal of accumulated sediment is proposed at the Manchester Avenue culvert, the project is not expected to change the width of the Focused Planning Area as a wildlife corridor or the functionality of the site for wildlife movement.
4.3.1.7	Fire/Brush Management Zones	Not applicable. This project is not a development project, and no fire or brush management zones are proposed.
4.3.1.8	Steep Slope	The Lake Drive project would implement 2:1 slopes, which have been designed to mimic the natural topography of the canyon and to allow the Lake Drive project to be implemented with the least amount of grading, limiting vegetation removal to the minimum necessary to complete the project. This slope design complies with Section 3.2 of the City of Encinitas Design Standards and Guidelines (City of Encinitas 2022) and is consistent with Goal 8 of the City's General Plan Land Use Element and Policy 10.1 of the Resource Management Element (City of Encinitas 2024).
4.3.1.9	Development Setback on Bluffs	Not applicable. This project is not a development project.
4.3.1.10	Agricultural Conversion to Development	Not applicable. This project is not proposing agricultural conversion to development.

Notes: MHCP = Multiple Habitat Conservation Program.
* Source: City of Encinitas 2001.

4.6 Cumulative Impacts

This project would replace an existing storm drain at the Lake Drive project site and remove sediment below an existing culvert outfall along Manchester Avenue and would not promote additional future development or contribute to additional future habitat losses in any way. Permanent impacts at the Lake Drive project site would be mitigated, and all temporary impacts would be restored to pre-project conditions. Sediment removal at the Manchester Avenue project site would result in a higher functioning channel (e.g., flood storage, slow flows, capture sediment) providing a net benefit (i.e., water quality protection) to downstream aquatic resources associated with the San Elijo Lagoon. Both sites would remain as open space areas after project implementation, and the overall function and value of the sites would fully recover upon completion of the maintenance/repair activities (i.e., water would continue to flow into the new underground storm drain from the surrounding features, which ultimately flows into San Elijo Lagoon). Implementation of the project's mitigation and avoidance/minimization measures MM-BIO-1 through MM-BIO-12 would avoid or reduce all impacts to biological resources to less than significant. In addition, as described in Section 4.5, this project is consistent with the City's MHCP, a regional planning document designed to address cumulative impacts to biological resources. Therefore, this project would not have significant adverse cumulative impacts.

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5 Avoidance, Minimization, and Mitigation Measures

This section describes proposed project avoidance, minimization, and mitigation measures that would avoid or mitigate adverse and significant impacts to biological resources resulting from proposed project activities. Table 13 provides a summary of the measures that apply to each project site.

Table 13. Applicable Measures for each Project Site

Avoidance/Minimization/Mitigation Measures	Lake Drive	Manchester Avenue
MM-BIO-1 Upland Mitigation	X	N/A
MM-BIO-2A Aquatic Resource Permits and Mitigation	X	N/A
MM-BIO-2B Aquatic Resource Permits	N/A	X
MM-BIO-3 Del Mar Mesa Sand Aster Avoidance/Mitigation	X	N/A
MM-BIO-4 Biological Monitoring	X	X
MM-BIO-5 Torrey Pine Avoidance/Mitigation	X	N/A
MM-BIO-6 Sea Dahlia Avoidance/Mitigation	X	N/A
MM-BIO-7 Campbell's Liverwort Avoidance/Mitigation	X	N/A
MM-BIO-8 Nesting Bird Survey	X	X
MM-BIO-9 Coastal California Gnatcatcher Monitoring	X	X
MM-BIO-10 Woodrat Midden Avoidance	X	N/A
MM-BIO-11 Focused Surveys for Crotch's Bumble Bee	X	N/A
MM-BIO-12 Construction or Maintenance-Related Indirect Impacts to Biological Resources	X	X

Note: N/A = not applicable to that project site.

MM-BIO-1 Upland Mitigation. As compensation for direct permanent and temporary impacts to sensitive vegetation communities, the City of Encinitas shall be required to provide on-site compensatory mitigation and in-place restoration in accordance with the City of Encinitas' 2001 Multiple Habitat Conservation Program (MHCP) Draft Encinitas Subarea Plan and acceptable to the wildlife agencies (the U.S. Fish and Wildlife Services and the California Department of Fish and Wildlife). The Upland Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project, City of Encinitas, California (included as Appendix H to the Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project, Encinitas, California) includes the mitigation for permanent impacts and restoration of all temporary impact areas. The Upland Habitat Mitigation and Monitoring Plan includes the goals and objectives, regulatory setting, site selection, baseline site information, restoration design approach, rationale for success, implementation program (including the construction period and the 5-year maintenance and monitoring program), performance standards, and long-term site protection and management of the upland mitigation site.

As summarized in the permanent impacts to sensitive vegetation communities table below, a total of 5.07 acres of mitigation for permanent impacts to sensitive vegetation communities shall be conducted in accordance with the ratios provided in the MHCP Draft Encinitas Subarea Plan as

described in the Upland Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project, City of Encinitas, California (Appendix H to the Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project, Encinitas, California).

Lake Drive Mitigation Required for Permanent Impacts to Sensitive Vegetation Communities

Vegetation Community/ Land Cover Type	Habitat Code	Permanent Impact (acres)	Mitigation Ratio (acres)	Mitigation Required (acres)
Group B. Rare Upland				
Southern Maritime Chaparral	37C30	0.26	3:1	0.79
Group C. Coastal Sage Scrub				
Diegan Coastal Sage Scrub: Coastal Form	32510	1.97	2:1	3.95
Diegan Coastal Sage Scrub: Baccharis-Dominated	32530	0.16	2:1	0.33
*Group C Subtotal**		*2.14*	*N/A*	*4.27*
Total*		**2.40**	**N/A**	**5.07**

Sources: Oberbauer et al. 2008 (Habitat Codes); City of Encinitas 2001 (refer to Table 4-4 for Habitat Groupings and Mitigation Ratios).
Notes: N/A = not applicable.
* Some numbers may not sum due to rounding.

All temporary impacts to sensitive vegetation communities shall be restored in-place at a 1:1 ratio. For temporary impacts to non-native communities and land covers, hydroseeding shall occur for stabilization and erosion control purposes using appropriate native species as directed by the Upland Habitat Mitigation and Monitoring Plan (Appendix H to the Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project, Encinitas, California). The amount of restoration required based on project impacts is included in the table below.

Lake Drive Restoration Required for Temporary Impacts to Vegetation Types and Land Covers on the Project Site

Vegetation Community/ Land Cover Type	Habitat Code	Temporary Impact (acres)	Restoration Ratio (acres)	Restoration Total (acres)
Group B. Rare Upland				
Southern Maritime Chaparral	37C30	0.25	1:1	0.25
Group C. Coastal Sage Scrub				
Diegan Coastal Sage Scrub: Coastal Form	32510	0.70	1:1	0.70
Diegan Coastal Sage Scrub: Baccharis-Dominated	32530	0.05	1:1	0.05
*Group C Subtotal**		*0.75*	*N/A*	*0.75*
Group F. Other[1]				
Eucalyptus Woodland	79100	0.05	N/A	0

Lake Drive Restoration Required for Temporary Impacts to Vegetation Types and Land Covers on the Project Site

Vegetation Community/ Land Cover Type	Habitat Code	Temporary Impact (acres)	Restoration Ratio (acres)	Restoration Total (acres)
Urban/Developed	12000	0.01	N/A	0
*Group F Subtotal**		*0.06*	*N/A*	*0*
Total		**1.06**	**N/A**	**1.00**

Sources: Oberbauer et al. 2008 (Habitat Codes); City of Encinitas 2001 (Groupings).
Notes: N/A = not applicable.
* Some numbers may not sum due to rounding.
1 All temporary impacts occurring to Group F land cover types would be hydroseeded for stabilization and erosion control.

MM-BIO-2A Aquatic Resource Permits and Mitigation. The proposed project (Lake Drive project site) would require, prior to project implementation, state permitting from the California Department of Fish and Wildlife (CDFW) for a streambed alteration agreement, required by California Fish and Game Code Section 1600 et seq., and from the Regional Water Quality Control Board (RWQCB) for waste discharge requirements. As compensation for direct permanent and temporary impacts to jurisdictional aquatic resources, the City of Encinitas shall provide compensatory mitigation acceptable to the resource agencies (i.e., RWQCB, and CDFW). Mitigation for direct permanent impacts to 0.003 acres of RWQCB/CDFW jurisdictional aquatic resources shall occur at a 1:1 ratio for a total of 0.003 acres of compensation. Direct temporary impacts to 0.005 acres of RWQCB/CDFW aquatic resources shall be restored in-place. Mitigation shall be conducted in accordance with the Non-Wetland Waters Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project, City of Encinitas, California (included as Appendix I to the Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project, City of Encinitas, California).

The Non-Wetland Waters Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project, City of Encinitas, California (Appendix I to the Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project, Encinitas, California) outlines the approach and requirements for compensatory mitigation associated with the jurisdictional impacts. The Non-Wetland Waters Habitat Mitigation and Monitoring Plan includes goals and objectives, regulatory setting, site selection, baseline site information, restoration design approach, rationale for success, implementation program (including the construction period and the 5-year maintenance and monitoring program), performance standards, and long-term site protection and management.

MM-BIO-2B Aquatic Resource Permits. The proposed project (Manchester outfall site) would require, prior to project implementation, state permitting from the California Department of Fish and Wildlife (CDFW) for a streambed alteration agreement, required by California Fish and Game Code Section 1600 et seq., from the U.S. Army Corps of Engineers (USACE) for a Section 404 permit, and from the Regional Water Quality Control Board (RWQCB) for a Section 401 water quality certification. Direct temporary impacts to jurisdictional aquatic resources shall be passively restored in-place as acceptable to the resource agencies (i.e., USACE, RWQCB, and CDFW).

MM-BIO-3 Del Mar Mesa Sand Aster Avoidance/Mitigation. Prior to construction activities, all individuals of Del Mar Mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*) within the impact footprint and a 20-foot buffer of the impact footprint shall be flagged by a qualified biologist for avoidance. If avoidance is not possible, individuals of Del Mar Mesa sand aster in the impact footprint shall be translocated to a permanently conserved location of suitable habitat outside of the impact footprint on site. The translocation site shall be selected using appropriate habitat factors (e.g., vegetation, soils, aspect, steepness) and shall be prepared prior to translocation (e.g., weeds removed, soil amended), if needed. The Del Mar Mesa sand aster mitigation shall be included in the Upland Habitat Mitigation and Monitoring Plan (Appendix H), which includes the goals and objectives, site selection, baseline site information, restoration design approach, rationale for success, implementation program (including the construction period and the 5-year maintenance and monitoring program), performance standards, and long-term site protection and management of the mitigation site.

MM-BIO-4 Biological Monitoring. A qualified project biologist shall monitor any vegetation clearing and trenching activities at the Lake Drive project site or sedimental removal activities at the Manchester Avenue project site for the duration of the project to ensure that practicable measures are being employed to avoid incidental disturbance of habitat, special-status species, and other sensitive biological resources within and outside the disturbance footprint. Pre-construction educational meetings shall be required to include a training session for project personnel by a qualified biologist. Construction/contractor personnel shall complete a Worker Environmental Awareness Program to ensure compliance with environmental/permit regulations and mitigation measures. Construction-limit staking and biological monitoring shall prevent inadvertent impacts to special-status plant and wildlife species and their habitat. Before beginning activities that would cause impacts, the contractor shall, in consultation with the biological monitor, clearly delineate the boundaries with fencing, stakes, or flags, within which the impacts will take place. All impacts outside the fenced, staked, or flagged areas shall be avoided, and all fencing, stakes, and flags shall be maintained until the completion of impacts in that area. In addition, any avoided environmental resources will be clearly delineated. Prior to implementing maintenance activities, the biological monitor shall verify that the flagging clearly delineates the maintenance limits and any sensitive environmental resources to be avoided.

Prior to initiation of clearing, grading, or sedimental removal activities, the qualified biologist shall conduct a daily pre-construction survey sweep within areas of suitable habitat for special-status species wildlife. The qualified biologist shall look for special-status species that may be located within or immediately adjacent to (within 500 feet of) the project work areas, as permitted by access. Any individual special-status wildlife species observed within the project work areas during the pre-construction survey will be flushed or moved out of harm's way to avoid direct impacts to these species. If special-status wildlife are observed during the pre-construction survey and cannot be avoided by the project, additional measures may be required as determined through consultation with the California Department of Fish and Wildlife and/or U.S. Fish and Wildlife Service.

MM-BIO-5 Torrey Pine Avoidance/Mitigation. Prior to construction activities, all individuals of Torrey pine (*Pinus torreyana* ssp. *torreyana*) within the impact footprint and a 20-foot buffer shall be flagged

by a qualified biologist for avoidance. If avoidance is not possible, impacts to Torrey pine during construction shall be documented, and Torrey pine shall be planted on site post-construction at a 1:1 ratio. Trees shall be sourced locally or from a reputable vendor. The planting site shall be selected using appropriate habitat factors (e.g., vegetation, soils, aspect, steepness) and shall be prepared prior to planting (e.g., scraping, weeds removed, soil amended), if needed. The Torrey pine mitigation shall be included in the Upland Habitat Mitigation and Monitoring Plan (Appendix H), which includes the goals and objectives, site selection, baseline site information, restoration design approach, rationale for success, implementation program (including the construction period and the 5-year maintenance and monitoring program), performance standards, and long-term site protection and management of the mitigation site.

MM-BIO-6 Sea Dahlia Avoidance/Mitigation. Prior to construction activities, all individuals of sea dahlia (*Leptosyne maritima*) within the impact footprint and a 20-foot buffer shall be flagged by a qualified biologist for avoidance. If avoidance is not possible, impacts to sea dahlia during construction shall be documented, and sea dahlia shall be planted on site post-construction at a 1:1 ratio. Seed shall be sourced locally or from a reputable vendor. The planting site shall be selected using appropriate habitat factors (e.g., vegetation, soils, aspect, steepness) and shall be prepared prior to planting (e.g., scraping, weeds removed, soil amended), if needed. The sea dahlia mitigation shall be included in the Upland Habitat Mitigation and Monitoring Plan (Appendix H), which includes the goals and objectives, site selection, baseline site information, restoration design approach, rationale for success, implementation program (including the construction period and the 5-year maintenance and monitoring program), performance standards, and long-term site protection and management of the mitigation site.

MM-BIO-7 Campbell's Liverwort Avoidance/Mitigation. Prior to construction activities, all individuals of Campbell's liverwort (*Geothallus tuberosus*) within the impact footprint and a 20-foot buffer shall be flagged by a qualified biologist for avoidance. If avoidance is not possible, but impacts would be limited to trampling or other disturbance that does not require removal of the soil, tarps and/or plywood shall be used to cover Campbell's liverwort to protect it during construction. If more extensive impacts are proposed, Campbell's liverwort shall be salvaged by removing the bryophyte along with its host soil and re-establishing it outside of the impact footprint. The translocation site shall be selected using appropriate habitat factors (e.g., vegetation, soils, aspect, steepness) and shall be prepared prior to planting (e.g., scraping, weeds removed), if needed. The Campbell's liverwort mitigation shall be included in the Upland Habitat Mitigation and Monitoring Plan (Appendix H), which includes the goals and objectives, site selection, baseline site information, restoration design approach, rationale for success, implementation program (including the construction period and the 5-year maintenance and monitoring program), performance standards, and long-term site protection and management of the mitigation site.

MM-BIO-8 Nesting Bird Survey. To avoid and/or minimize impacts to any breeding coastal California gnatcatchers (*Polioptila californica californica*) or active nests protected under the Migratory Bird Treaty Act and the California Fish and Game Code, construction activities at the Lake Drive project site and sedimental removal activities at the Manchester Avenue project site (i.e., work activities) shall commence outside of the breeding season for coastal California gnatcatcher (February 15 to August 31), raptors (January 15 to July 15), and nesting birds (February 15 through September 15).

If work activities commence during the breeding season, surveys shall be conducted by a qualified biologist prior to construction to determine whether breeding California gnatcatchers or active nests occur on site or within 500 feet of the project site. The pre-construction surveys shall not begin more than 7 days prior to the start of construction. If there are no nesting birds (includes nest building or other breeding/nesting behavior) within or adjacent to the potential impact area, work activities shall be allowed to proceed. If breeding activity or an active nest is identified, the biologist and the City of Encinitas shall postpone construction activity and contact the wildlife agencies (i.e., U.S. Fish and Wildlife Services and the California Department of Fish and Wildlife) to discuss the best approach to avoiding/minimizing impacts to breeding/nesting birds (e.g., sound walls) and create a monitoring program acceptable to the wildlife agencies.

Subsequent to these discussions, work may be initiated subject to implementation of the agreed-upon avoidance/minimization approach and monitoring program. If the biologist determines that bird breeding behavior is being disrupted, the City shall stop work and coordinate with the wildlife agencies to review the avoidance/minimization approach. Upon agreement as to any necessary revisions to the avoidance/minimization approach, work may resume subject to the revisions and continued monitoring. Success or failure of an active nest shall be established by regular and frequent trips to the site, as determined by the biologist and through a schedule approved by the wildlife agencies. Monitoring of an active nest shall continue until fledglings have dispersed or the nest has been determined to be a failure, as approved by the wildlife agencies.

MM-BIO-9 Coastal California Gnatcatcher Monitoring. If coastal California gnatcatcher (*Polioptila californica californica*) is found nesting within 500 feet of project impact areas during the nesting bird survey as directed by MM-BIO-8, biological monitoring shall be required during the breeding season. Avoidance/minimization provisions and a monitoring program shall be generated in consultation with the wildlife agencies (i.e., U.S. Fish and Wildlife Services and the California Department of Fish and Wildlife), and the City of Encinitas shall submit a final report prepared by the project biologist to the wildlife agencies and the City of Encinitas. The report shall include as-built construction drawings for grading with an overlay of any active nests, photographs of habitat areas during pre-construction and post-construction conditions, and other relevant summary information documenting that authorized impacts were not exceeded and that general compliance with the avoidance/minimization provisions and monitoring program were achieved.

MM-BIO-10 Woodrat Midden Avoidance. Active woodrat nests that may be occupied by San Diego desert woodrat (*Neotoma lepida intermedia*) shall be flagged by the qualified project biologist, and ground-disturbing activities shall be avoided within a minimum of 10 feet surrounding each active nest. If avoidance is not possible, the City of Encinitas shall take the following sequential steps: (1) all understory vegetation will be cleared in the area immediately surrounding active nests excluding an escape route to nearby habitat followed by a period of one night without further disturbance to allow woodrats to vacate the nest, (2) each occupied nest will then be disturbed by a qualified wildlife biologist until all woodrats leave the nest and seek refuge off site, and (3) a majority of the nest sticks shall be removed from the project site and piled at the base of a nearby rock or downed tree or shrub outside the impact area. Relocated nest material shall not be spaced closer than 100 feet from existing nests, unless a qualified wildlife biologist has determined that a specific habitat can support a higher density of nests. The City of Encinitas (City) shall document all woodrat

nests moved in weekly monitoring reports and will include a written summary in each annual report. The resumes of the qualified biologists shall be provided to the City for concurrence.

MM-BIO-11 Focused Surveys for Crotch's Bumble Bee. Focused surveys for Crotch's bumble bee (*Bombus crotchii*) shall be conducted by a qualified biologist, with expertise in surveying for bumble bees, within the construction footprint prior to the start of ground-disturbing construction activities that would occur during the Crotch's bumble bee Queen Flight Season through the Colony Active Period (February 1 through August 31). The focused surveys shall be conducted prior to each phase of Project implementation and shall include (1) a habitat assessment and (2) focused surveys in accordance with the recommendations described in the *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species*, released by the California Department of Fish and Wildlife (CDFW) on June 6, 2023, or the most current version at the time of construction. Focused surveys shall be repeated within suitable habitat each year; ground-disturbing construction activities within suitable habitat are scheduled to occur during the Queen Flight Season through the Colony Active Period (February 1 through October 31).

The habitat assessment shall be conducted concurrently with the focused surveys and shall, at a minimum, include historical and current species occurrences; document potential on-site habitat including foraging, nesting, and/or overwintering resources; and identify which plant species are in bloom during the focused surveys, as well as their percent cover. Incidental observations of potential nest resources will also be noted. For the purposes of this mitigation measure, potential nest resources are defined as abandoned small mammal burrows, bunch grasses with a duff layer, grass thatch, hollow trees, rock and brush piles, and human-made structures that may support bumble bee colonies, such as birdhouses. Potential overwintering resources are defined as bare soil, leaf litter, pine needle duff layer, and bunch grasses.

Focused surveys shall include at least three on-site surveys that are spaced 2 weeks to 4 weeks apart. The timing of these surveys shall coincide with the Queen Flight Season through the Colony Active Period (February 1 through August 31); however, the surveys should coincide with the blooming season of floral food sources). Surveys may occur between 1 hour after sunrise and 2 hours before sunset. Surveys shall not be conducted during wet conditions (e.g., foggy, rainy, or drizzling), and surveyors shall wait at least 1 hour following rain. Optimal surveys are conducted when there are sunny to partly sunny skies, temperatures between 65°F and 90°F, and winds less than 8 mph. Surveys may be conducted outside these weather parameters if other bees or butterflies are observed flying. A qualified biologist who is in possession of a valid Memorandum of Understanding with CDFW (and valid Scientific Collecting Permit, if applicable) shall conduct capture surveys and record non-lethal photo vouchers of all captured bumble bees in accordance with the *CDFW Survey Considerations for CEQA Candidate Bumble Bee Species* document (June 2023).

A written survey report shall be submitted to the City of Encinitas and CDFW within 30 days following completion of the focused surveys. The report shall include survey methods, weather conditions, and survey results, including a detailed habitat assessment, floral resources blooming and percent cover, bumble bee species observed, floral species that bumble bees were observed visiting, nesting and overwintering habitat surveyed, and a figure showing the locations of any Crotch's bumble bee nest sites or individuals observed. The survey report shall include the

qualifications/resumes of the surveyor(s) and approved taxonomist(s) for identification of photo vouchers. If Crotch's bumble bee nests or individuals are observed, the location information shall be submitted to the California Natural Diversity Database at the time of, or prior to, submittal of the survey report. In addition, if avoidance of take is not feasible, the City of Encinitas shall consult with CDFW to determine if take authorization is required. If Crotch's bumble bee is not detected during the focused surveys, no further action or mitigation would be required.

If required, mitigation for direct impacts to Crotch's bumble bee shall 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, to be fulfilled through the on-site compensatory mitigation for permanent impacts and in-place restoration of temporary impacts as directed by MM-BIO-1. If required by the permitting process, additional mitigation may be required through off-site conservation or through a CDFW-approved mitigation bank. If mitigation is not purchased through a mitigation bank, and lands are conserved separately, a cost estimate shall be prepared to estimate the initial start-up costs and ongoing annual costs of management activities for the management of the conservation easement area(s) in perpetuity, in coordination with CDFW. The funding source shall be in the form of an endowment to help the qualified natural lands management entity that is ultimately selected to hold the conservation easement(s). The endowment amount shall be established following the completion of a project-specific Property Analysis Record to calculate the costs of in-perpetuity land management. The Property Analysis Record shall account for all management activities required to fulfill the requirements of the conservation easement(s), which are currently under review and development by CDFW.

MM-BIO-12 Construction or Maintenance-Related Indirect Impacts to Biological Resources. Maintenance plans and conditions of approval shall include the following to address indirect maintenance- or construction-related impacts to biological resources:

Standard Dust Control Measures. Standard dust control measures as per the stormwater pollution prevention plan to meet National Pollutant Discharge Elimination System regulations shall be implemented to reduce dust impacts on nearby conserved lands, plants, and wildlife. Measures include controlling speed to 15 mph or less on unpaved roads, frequently watering active work sites, installation of shaker plates, and suspending excavation operations during periods of high winds.

Stormwater Pollution Prevention Plan. The City of Encinitas shall submit a stormwater pollution prevention plan to the City of Encinitas that specifies best management practices to prevent all maintenance pollutants from contacting stormwater, with the intent of keeping sedimentation or any other pollutants from moving off site and into receiving waters. The requirements of the stormwater pollution prevention plan shall be incorporated into the design specifications and maintenance plan. Best management practices categories employed on site would include erosion control, sediment control, and non-stormwater (good housekeeping). Best management practices recommended during maintenance/construction activities shall include, but not be limited to, the following:

- Limiting maintenance/construction activities to the minimum area necessary for stormwater infrastructure operation

- Limiting vegetation disturbance/removal to the maximum extent practicable
- Implementing fiber rolls and sandbags around drainage areas and the site perimeter
- Stockpiling and disposing of demolition debris, concrete, and soil properly
- Installing a stabilized entrance/exit
- Implementing proper protections for fueling and maintenance of equipment and vehicles
- Managing waste, aggressively controlling litter, and implementing sediment controls

The following water quality measures will be included in the stormwater pollution prevention plan:

- Erodible fill material shall not be deposited into water courses.
- Maintenance/construction shall be timed to avoid the placement of equipment and personnel within the work area or in adjacent upland habitats used by special-status species, as feasible.
- Silt fencing or other sediment-trapping materials shall be installed at the downstream end of the maintenance/construction limits to minimize the transport of sediments off site. Sediment shall be cleaned out in a manner that prevents the sediment from reentering the downstream portions of the basin. Care shall be exercised when removing silt fences, to prevent debris or sediment from returning to downstream portions of the basin.
- Water pollution and erosion control plans shall be developed and implemented in accordance with the Regional Water Quality Control Board.

Minimize Spills of Hazardous Materials. All vehicles and equipment shall be maintained in proper condition to minimize the potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. Hazardous spills and contaminated soil shall be immediately cleaned up and the contaminated soil shall be properly handled or disposed of at a licensed facility. Servicing of equipment shall only take place within the site's staging area.

Wildlife Hazards. The following measures will be implemented to ensure that wildlife do not become trapped, entangled, or injured by maintenance/construction activities:

- Debris piles, equipment, and other items that may be used as wildlife refuge shall be inspected for wildlife at the start of each work day and prior to disturbance. If wildlife is discovered, it shall either be moved out of harm's way by a qualified biologist or allowed to move off of the study area on its own.
- Nets and mesh shall be made of loose-weave material that is not fused at the intersections of the weave, as nets with welded weaves present an entanglement risk.
- Toxic materials and garbage shall be removed from the work site and safely stored or disposed of at the end of each workday.

Night Work. All maintenance/construction activities will be conducted during the daytime, and lights will not be kept on overnight in the work area. If night lighting is required during maintenance/ construction activities, all exterior lighting along undeveloped land shall be fully shielded and directed downward in a manner that will prevent light spillage or glare into the adjacent open space.

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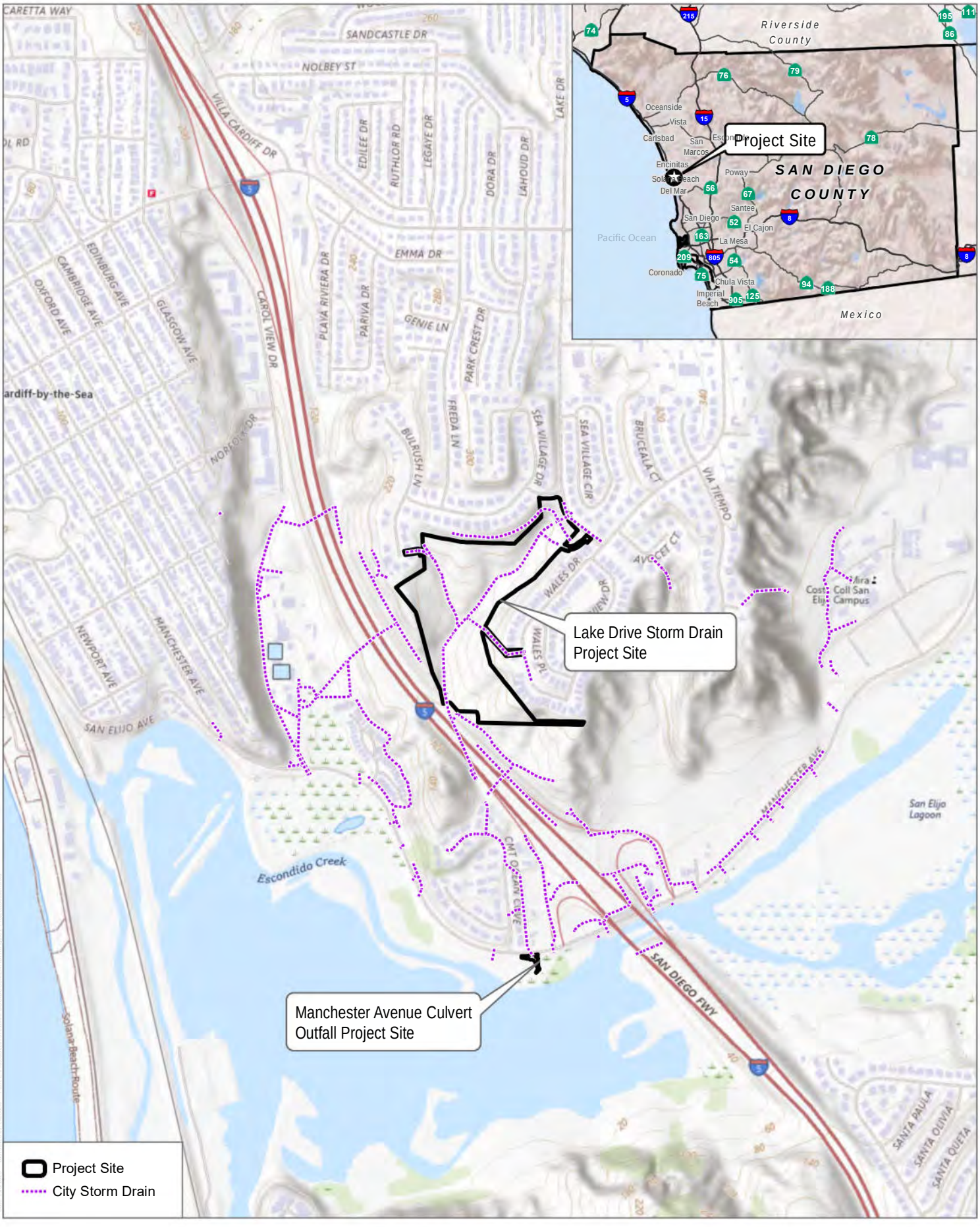

SOURCE: USGS 7.5-Minute Series Encinitas Quadrangle
Township 13S / Range 4W / Section 26

DUDEK

0 500 1,000 Feet

FIGURE 1

Project Location

Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project

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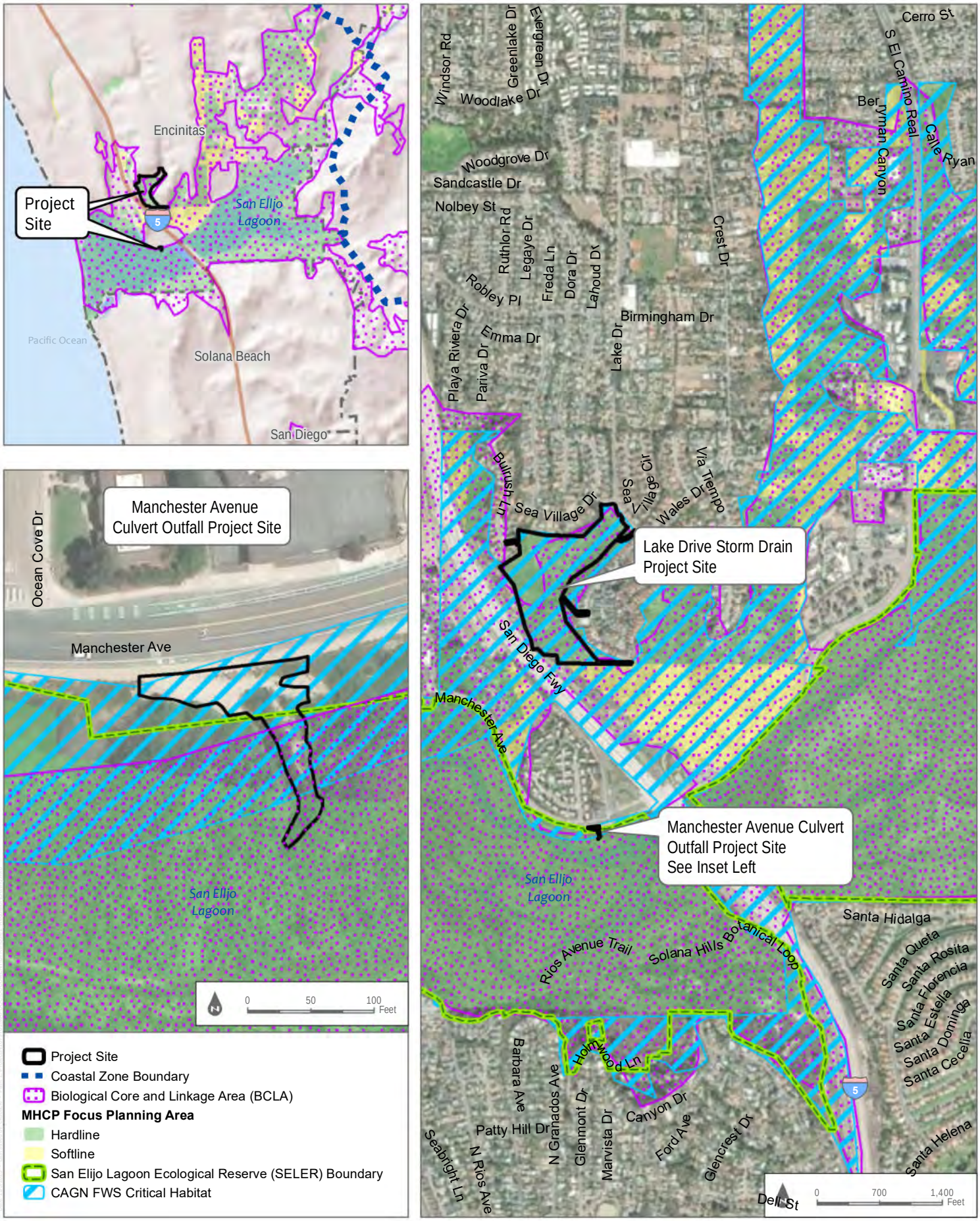

SOURCE: ESRI IMAGERY SERVICE 2022; USFWS 2022

FIGURE 2

Regulatory Setting

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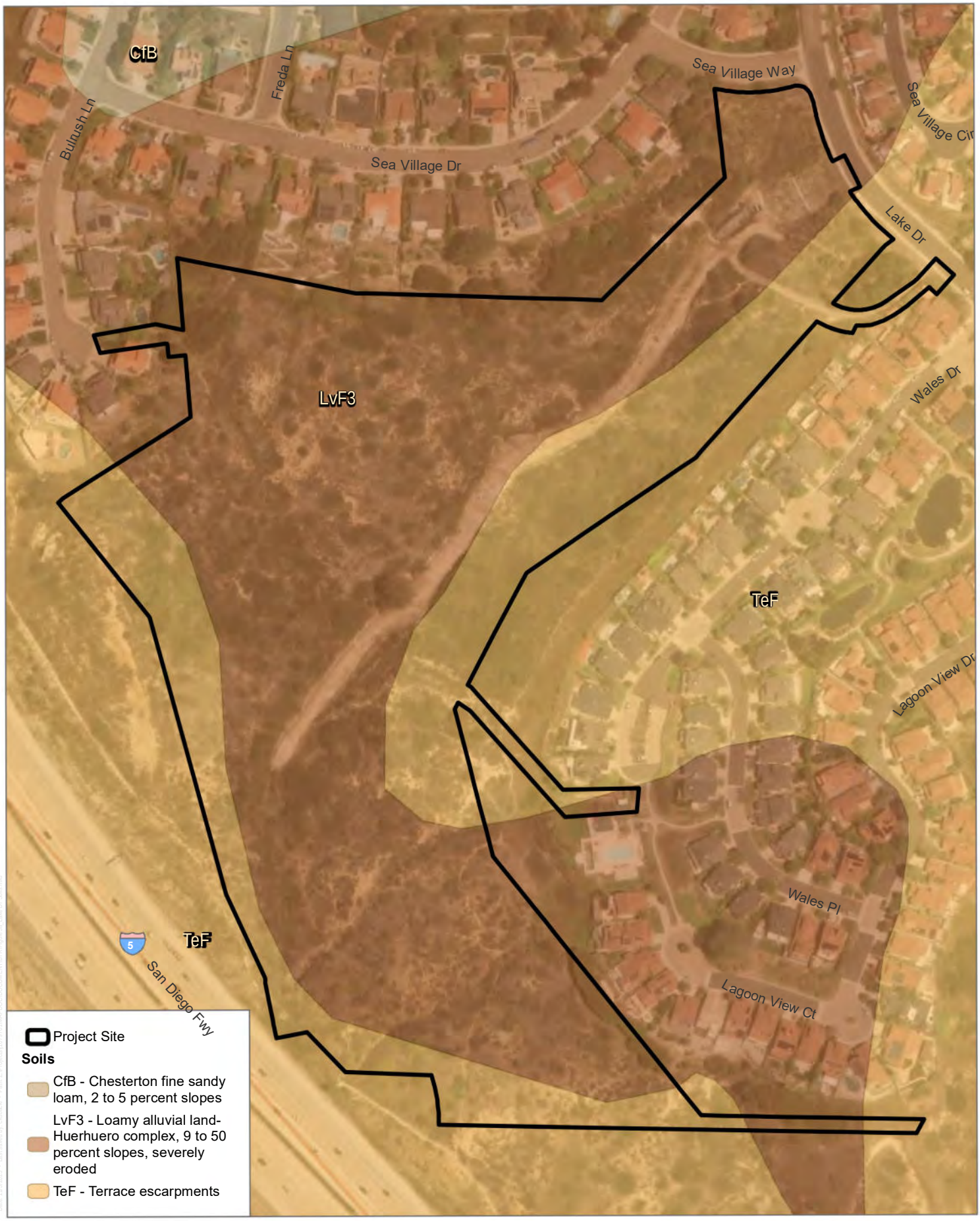

SOURCE: ESRI 2022; USDA 2022

Coordinate System: NAD 1983, Zone 6, US Feet
Datum: North American 1983
Vertical Datum: NAVD88, US Feet
Created: August 2, 2021

DUDEK

0 105 210 Feet

FIGURE 3A

Lake Drive Storm Drain Soils

Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project

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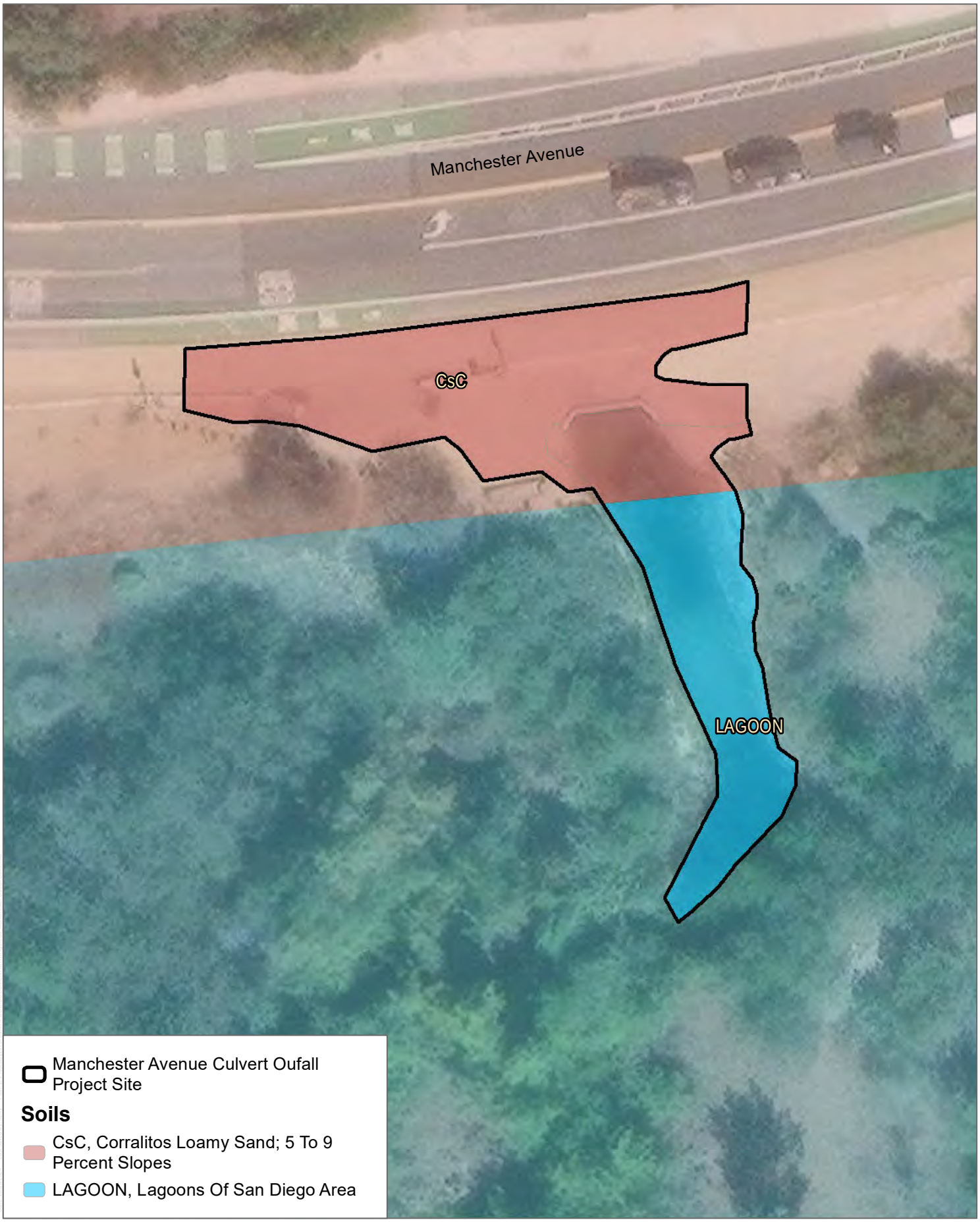

SOURCE: AERIAL-ESRI 2022

DUDEK

0 15 30 Feet

FIGURE 3B

Manchester Avenue Culvert Outfall Soils

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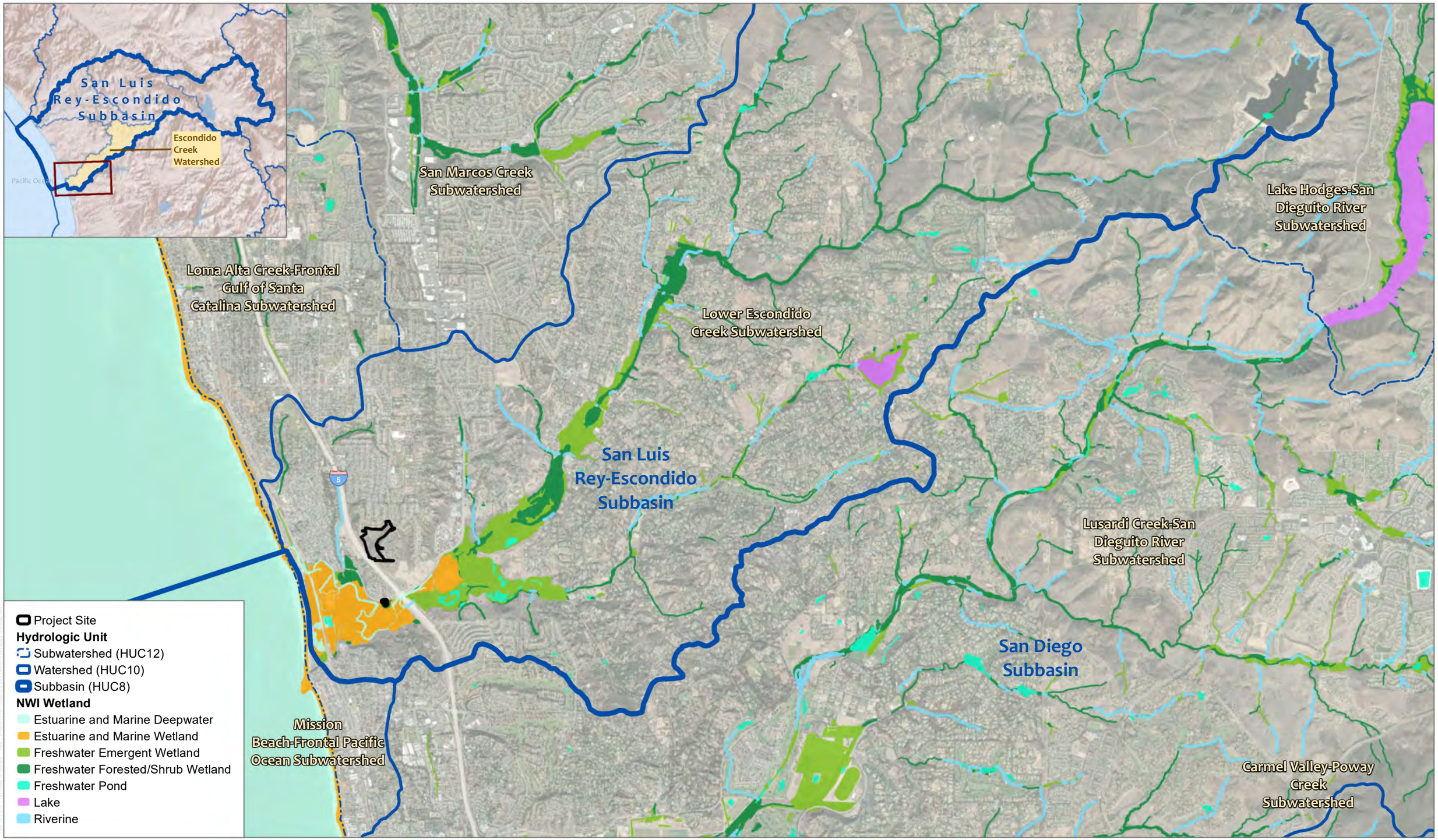

SOURCE: Esri World Imagery 2021; USFWS NWI 2021; USGS 2021

DUDEK

0 2,000 4,000 Feet

Coordinate System: NAD 1983, Zone 6, US Feet
Datum: North American 1983
Vertical Datum: NAVD88, US Feet
Created: August 2, 2021

FIGURE 4

Hydrology

Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project

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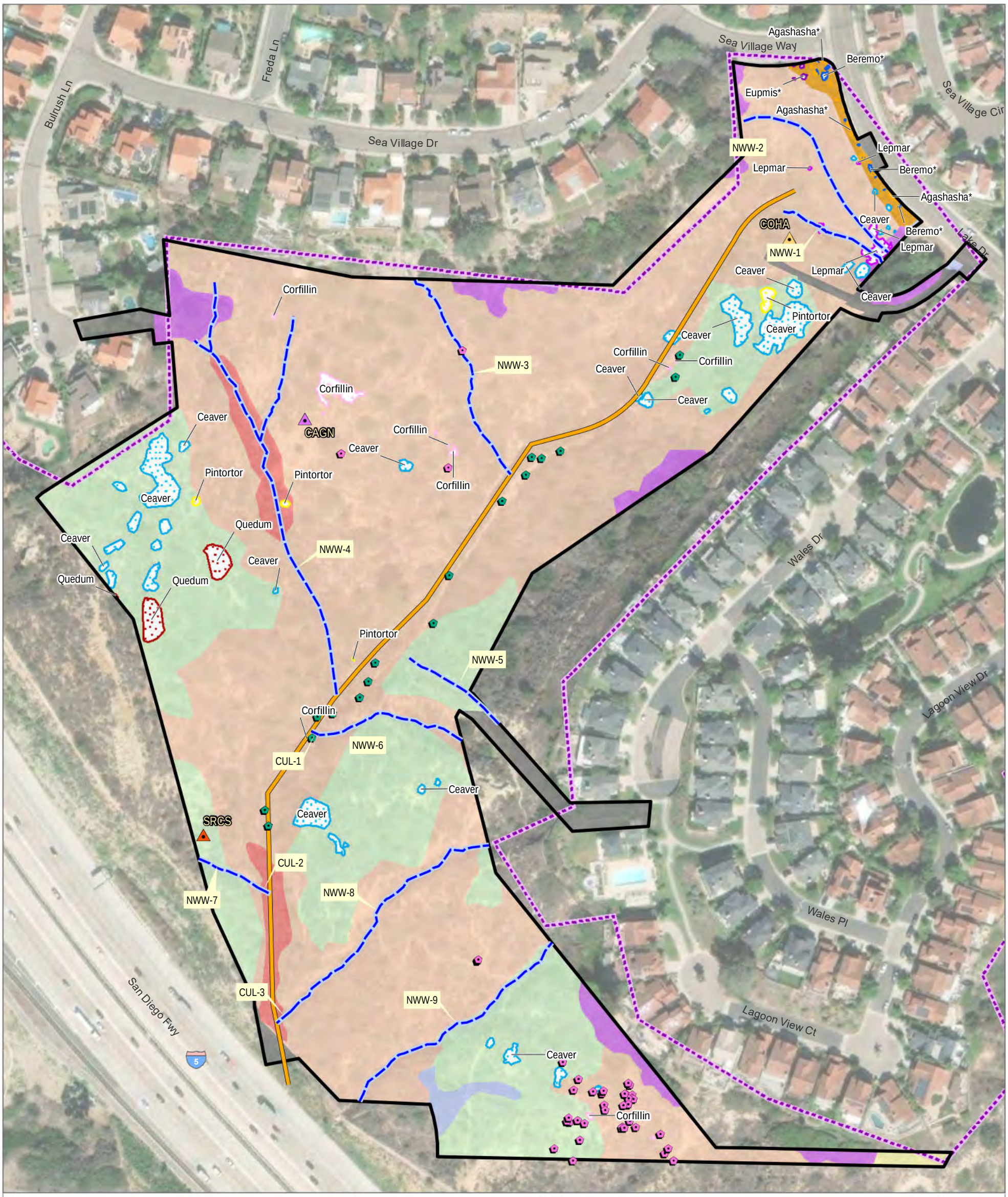

Project Site
CAGN USFWS Critical Habitat
Existing Pipeline

Vegetation Communities/Land Covers

- CSS-r, Restored/landscaped Diegan Coastal Sage Scrub
- CSSB, Diegan Coastal Sage Scrub: Baccharis-dominated
- CSSC, Diegan Coastal Sage Scrub: Coastal form
- DEV, Urban/Developed
- DH, Disturbed Habitat
- EUC, Eucalyptus Woodland
- NNG, Non-Native Grassland
- SMC, Southern Maritime Chaparral

Jurisdictional Waters

- RWQCB/CDFW

Plants

- Agashasha (Agave shawii var. shawii - Shaw's agave)*
- Beremo (Bergerocactus emoryi - golden-spined cereus)*
- Ceaver (Ceanothus verrucosus - wart-stemmed ceanothus)
- Corfillin (Corethrogyne filaginifolia var. linifolia - Del Mar sand aster)
- Eupmis (Euphorbia misera - cliff spurge)*
- Lepmar (Leptosyne maritima - sea dahlia)
- Pintortor (Pinus torreyana ssp. torreyana - Torrey pine)
- Quedum (Quercus dumosa - Nuttall's scrub oak)
- Fervir (Ferocactus viridescens - San Diego barrel cactus)
- Geotub (Geothallus tuberosus - Campbell's liverwort)

Wildlife

- CAGN, coastal California gnatcatcher (*Polioptila californica californica*)
- COHA, Cooper's hawk (*Accipiter cooperii*)
- SRCS, Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)

Notes:

1. NWW = non-wetland water
2. CUL = culvert
3. * planted

SOURCE: ESRI 2023; NV5 2024

DUDEK

0 80 160 Feet

FIGURE 5A

Lake Drive Storm Drain Biological Resources

Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project

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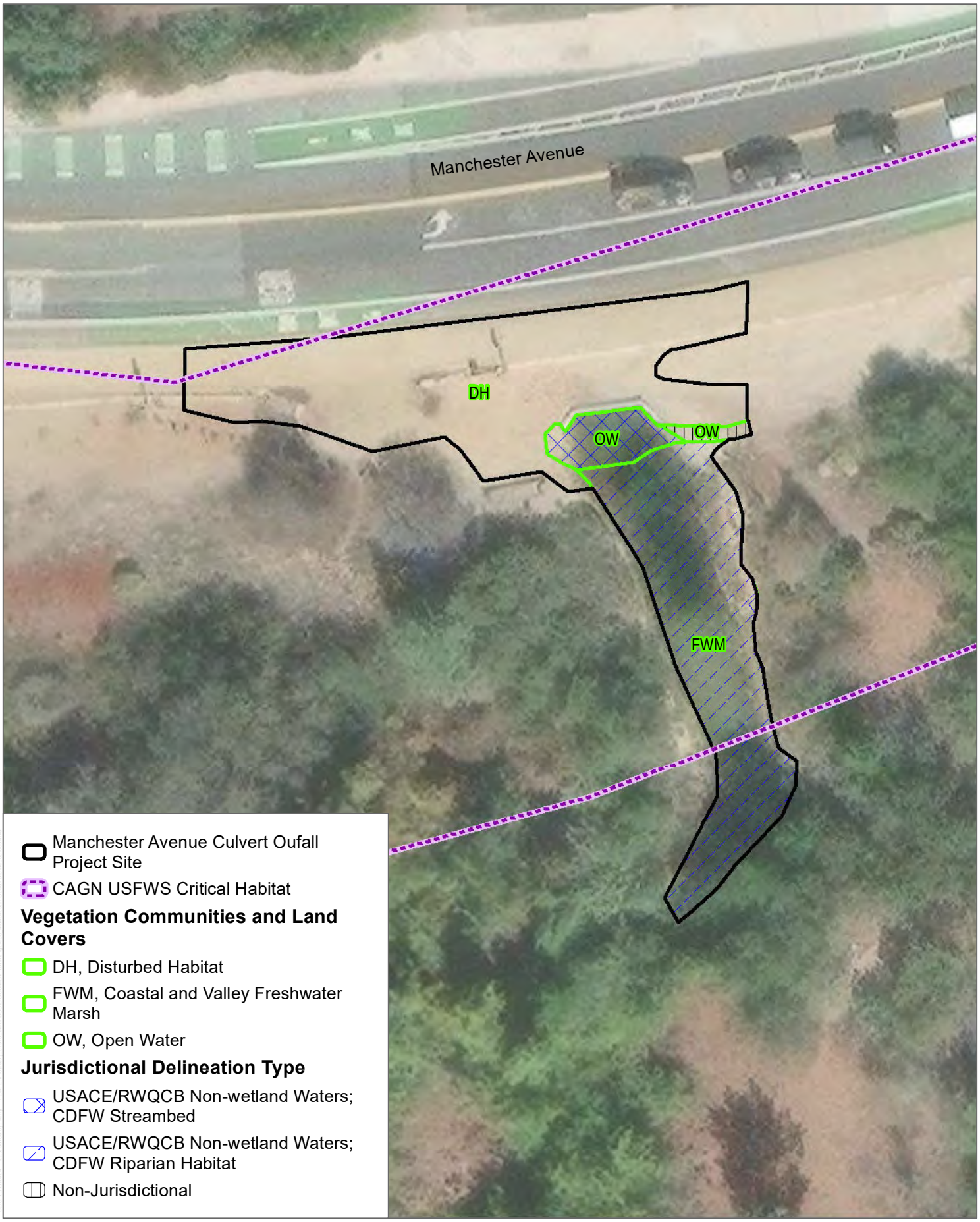

SOURCE: AERIAL-ESRI 2023

DUDEK

0 15 30 Feet

FIGURE 5B

Manchester Avenue Culvert Outfall Biological Resources

Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project

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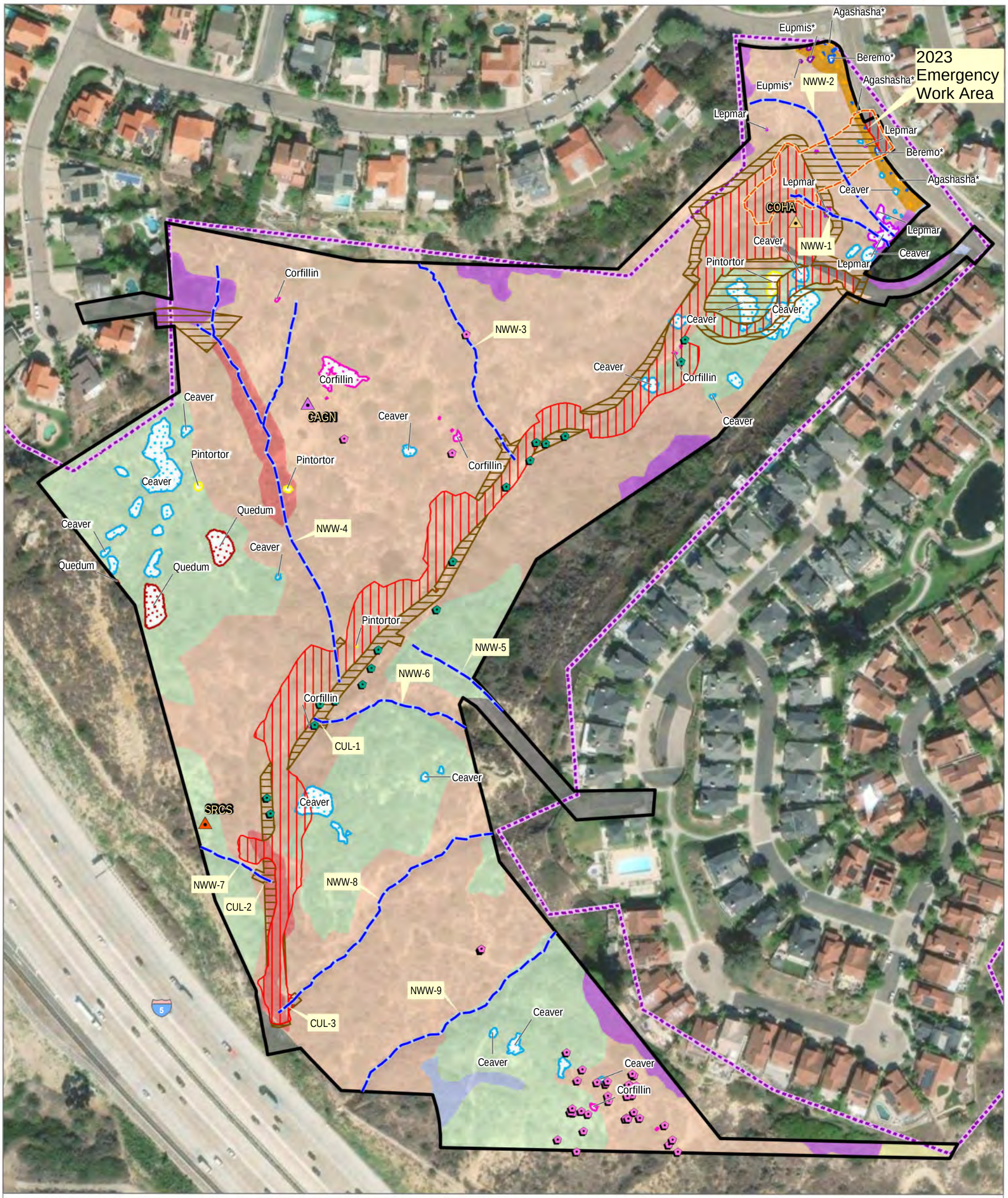

Project Site
2023 Emergency Work Area
CAGN USFWS Critical Habitat

Impact Type

Permanent
Temporary

Vegetation Communities/Land Covers

CSS-r, Restored/landscaped Diegan Coastal Sage Scrub
CSSB, Diegan Coastal Sage Scrub: Baccharis-dominated
CSSC, Diegan Coastal Sage Scrub: Coastal form
DEV, Urban/Developed
DH, Disturbed Habitat
EUC, Eucalyptus Woodland
NNG, Non-Native Grassland
SMC, Southern Maritime Chaparral

Jurisdictional Waters

RWQCB/CDFW

Plants

Agashasha (Agave shawii var. shawii - Shaw's agave)*
Beremo (Bergerocactus emoryi - golden-spined cereus)*
Ceaver (Ceanothus verrucosus - wart-stemmed ceanothus)
Corfillin (Corethrogyne filaginifolia var. linifolia - Del Mar sand aster)
Eupmis (Euphorbia misera - cliff spurge)*
Lepmar (Leptosyne maritima - sea dahlia)
Pintortor (Pinus torreyana ssp. torreyana - Torrey pine)
Quedum (Quercus dumosa - Nuttall's scrub oak)
Fervir (Ferocactus viridescens - San Diego barrel cactus)
Geotub (Geothallus tuberosus - Campbell's liverwort)

Wildlife

CAGN, coastal California gnatcatcher (*Polioptila californica californica*)
COHA, Cooper's hawk (*Accipiter cooperii*)
SRCS, Southern California rufous-crowned sparrow *(Aimophila ruficeps canescens*)

Notes:

1. NWW = non-wetland water
2. CUL = culvert
3. * species planted

SOURCE: ESRI 2023; NV5 2024

DUDEK

0 80 160 Feet

FIGURE 6A

Lake Drive Storm Drain Impacts to Biological Resources

Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project

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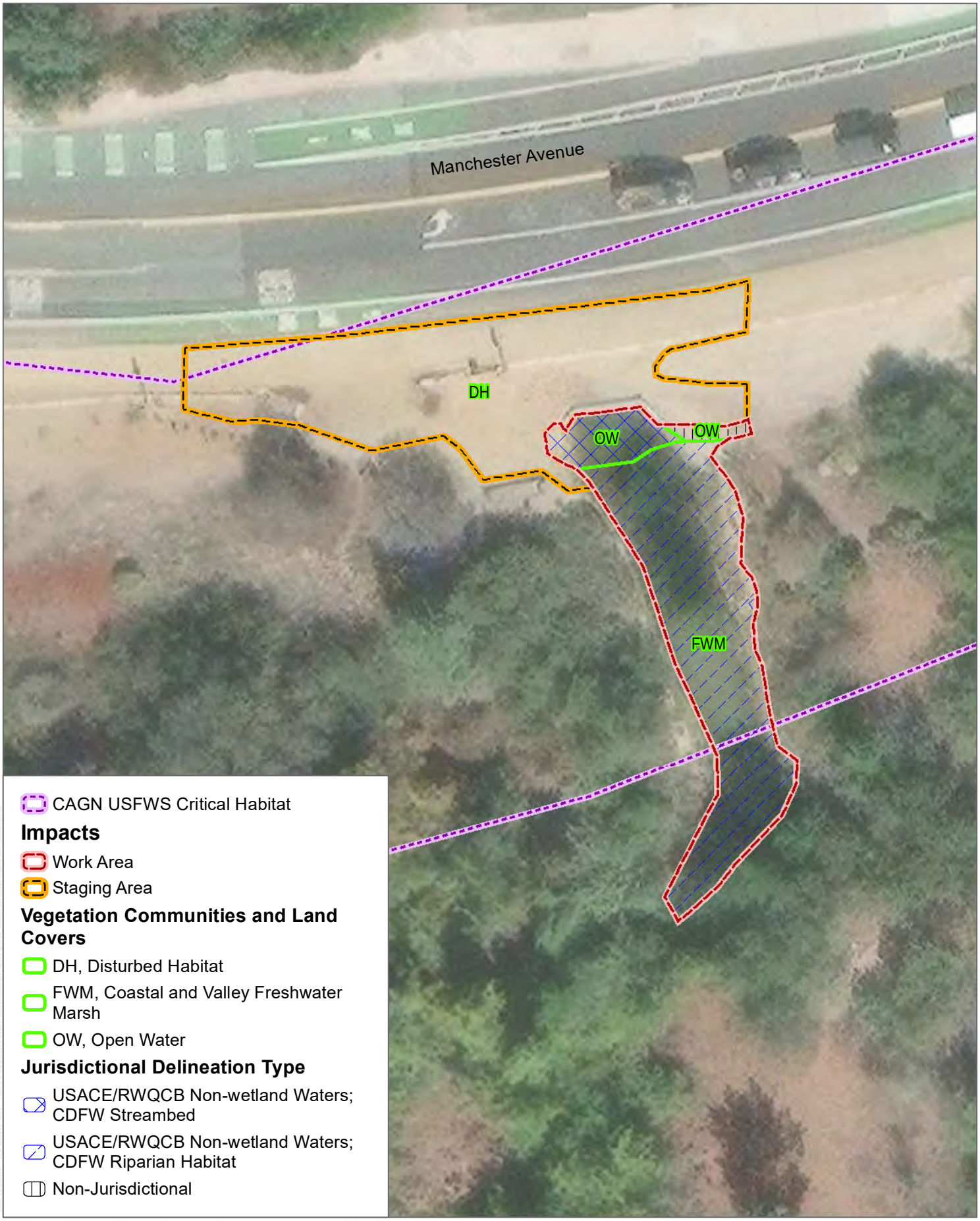

SOURCE: AERIAL-ESRI 2023

DUDEK

0 15 30 Feet

FIGURE 6B

Manchester Avenue Culvert Outfall Impacts to Biological Resources

Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project

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Appendix A1

Plant Species Observed on the Lake Drive Project Site

Plant Species

Vascular Species

Eudicots

AIZOACEAE – FIG-MARIGOLD FAMILY

* *Carpobrotus edulis* – hottentot fig
* *Malephora crocea* – coppery mesemb

ANACARDIACEAE – SUMAC OR CASHEW FAMILY

Malosma laurina – laurel sumac
Rhus integrifolia – lemonade berry
* *Schinus molle* – Peruvian peppertree

APIACEAE – CARROT FAMILY

* *Foeniculum vulgare* – fennel

ASTERACEAE – SUNFLOWER FAMILY

Ambrosia psilostachya – western ragweed
Artemisia californica – California sagebrush
Artemisia dracunculus – wild tarragon
Baccharis pilularis ssp. *consanguinea* – coyotebrush
Baccharis salicifolia ssp. *salicifolia* – mulefat
Baccharis sarothroides – desertbroom
Brickellia californica – California brickellbush
* *Centaurea melitensis* – Maltese star-thistle
Cirsium occidentale – cobwebby thistle
Corethrogyne filaginifolia var. *linifolia* – Del Mar Mesa sand aster
* *Cotula australis* – Australian waterbuttons
Deinandra fasciculata – clustered tarweed
Encelia californica – California brittle bush
* *Erigeron bonariensis* – asthmaweed
Erigeron canadensis – Canadian horseweed
Erigeron glaucus – seaside fleabane
Eriophyllum confertiflorum var. *confertiflorum* – golden-yarrow
Hazardia squarrosa var. *grindelioides* – sawtooth bristleweed
Helianthus annuus – common sunflower
Heterotheca grandiflora – telegraphweed
* *Hypochaeris glabra* – smooth cat's ear
Isocoma menziesii var. *vernonioides* – Menzies' goldenbush

* *Lactuca serriola* – prickly lettuce
Lasthenia gracilis – needle goldfields
Leptosyne maritima – sea dahlia
Microseris douglasii ssp. *platycarpha* – small-flowered microseris
Pluchea odorata var. *odorata* – sweetscent
Pseudognaphalium biolettii – two-color rabbit-tobacco
Pseudognaphalium californicum – ladies' tobacco
* *Pseudognaphalium luteoalbum* – Jersey cudweed
Pseudognaphalium stramineum – cottonbatting plant
* *Senecio vulgaris* – old-man-in-the-Spring
* *Silybum marianum* – blessed milkthistle
* *Sonchus asper* ssp. *asper* – spiny sowthistle
* *Sonchus oleraceus* – common sowthistle
Stephanomeria virgata ssp. *virgata* – rod wirelettuce
Stylocline gnaphaloides – mountain neststraw

BORAGINACEAE – BORAGE FAMILY

* *Echium candicans* – pride of Madeira
Heliotropium curassavicum var. *oculatum* – seaside heliotrope
Phacelia distans – distant phacelia
Plagiobothrys collinus var. *gracilis* – Cooper's popcornflower

BRASSICACEAE – MUSTARD FAMILY

* *Hirschfeldia incana* – shortpod mustard
* *Lepidium didymum* – lesser swinecress
Lepidium nitidum – shining pepperweed
* *Raphanus sativus* – cultivated radish
* *Sisymbrium irio* – London rocket

CACTACEAE – CACTUS FAMILY

Bergerocactus emoryi – golden-spined cereus
Cylindropuntia prolifera – coastal cholla
Ferocactus viridescens – San Diego barrel cactus
Opuntia basilaris – beavertail pricklypear
* *Opuntia ficus-indica* – Barbary fig
Opuntia littoralis – coast prickly pear

CARYOPHYLLACEAE – PINK FAMILY

Cardionema ramosissimum – sandcarpet

CHENOPODIACEAE – GOOSEFOOT FAMILY

* *Atriplex glauca* – waxy saltbush
* *Atriplex semibaccata* – Australian saltbush
* *Chenopodium album* – lambsquarters
* *Salsola tragus* – prickly Russian thistle

CISTACEAE – ROCK-ROSE FAMILY

Crocanthemum scoparium – no common name

CLEOMACEAE – CLEOME FAMILY

Peritoma arborea var. *arborea* – bladderpod spiderflower
Peritoma arborea – bladderpod

CONVOLVULACEAE – MORNING-GLORY FAMILY

Calystegia macrostegia – island false bindweed
Cuscuta californica – chaparral dodder

CRASSULACEAE – STONECROP FAMILY

* *Cotyledon orbiculata* – pig's ear
* *Crassula ovata* – jade plant

Dudleya edulis – fingertips
Dudleya lanceolata – lanceleaf liveforever
Dudleya pulverulenta – chalk dudleya

CUCURBITACEAE – GOURD FAMILY

Marah macrocarpa – Cucamonga manroot

ERICACEAE – HEATH FAMILY

Xylococcus bicolor – mission manzanita

EUPHORBIACEAE – SPURGE FAMILY

Croton californicus – California croton
Euphorbia misera – cliff spurge

* *Euphorbia peplus* – petty spurge
* *Ricinus communis* – castorbean

FABACEAE – LEGUME FAMILY

* *Acacia longifolia* – Sydney golden wattle
* *Acacia melanoxylon* – blackwood

Acmispon glaber var. *glaber* – common deerweed
Astragalus trichopodus – Santa Barbara milkvetch
Lupinus truncatus – collared annual lupine

* *Medicago polymorpha* – burclover
* *Melilotus indicus* – annual yellow sweetclover

FAGACEAE – OAK FAMILY

Quercus berberidifolia – Inland scrub oak

Quercus dumosa – Nuttall's scrub oak

GROSSULARIACEAE – GOOSEBERRY FAMILY

Ribes speciosum – fuchsiaflower gooseberry

LAMIACEAE – MINT FAMILY

Salvia apiana – white sage

Salvia mellifera – black sage

MALVACEAE – MALLOW FAMILY

* *Malva parviflora* – cheeseweed mallow

MYRSINACEAE – MYRSINE FAMILY

* *Lysimachia arvensis* – scarlet pimpernel

MYRTACEAE – MYRTLE FAMILY

* *Eucalyptus conferruminata* – Bald Island marlock
* *Eucalyptus sideroxylon* – red ironbark

NYCTAGINACEAE – FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia* – California four o’clock

ONAGRACEAE – EVENING PRIMROSE FAMILY

Epilobium canum – hummingbird trumpet

PHRYMACEAE – LOPSEED FAMILY

Diplacus longiflorus – southern bush monkeyflower

Diplacus puniceus – red bush monkeyflower

PLANTAGINACEAE – PLANTAIN FAMILY

Antirrhinum nuttallianum ssp. *subsessile* – lesser snapdragon

Penstemon spectabilis – showy penstemon

Plantago erecta – dwarf plantain

PLUMBAGINACEAE – LEADWORT FAMILY

* *Limonium perezii* – Perez’s sea lavender

POLEMONIACEAE – PHLOX FAMILY

Navarretia hamata ssp. *leptantha* – hooked pincushionplant

POLYGONACEAE – BUCKWHEAT FAMILY

Chorizanthe procumbens – Prostrate spineflower
Eriogonum fasciculatum var. *foliolosum* – California buckwheat
Eriogonum grande var. *rubescens* – red-flowered buckwheat
Pterostegia drymarioides – woodland pterostegia

RHAMNACEAE – BUCKTHORN FAMILY

Ceanothus verrucosus – wart-stemmed ceanothus

ROSACEAE – ROSE FAMILY

Adenostoma fasciculatum – chamise
Heteromeles arbutifolia – toyon

RUBIACEAE – MADDER FAMILY

Galium angustifolium – narrowleaf bedstraw

SALICACEAE – WILLOW FAMILY

Salix lasiolepis – arroyo willow

SCROPHULARIACEAE – FIGWORT FAMILY

* *Myoporum laetum* – myoporum
Scrophularia californica – California figwort

SOLANACEAE – NIGHTSHADE FAMILY

Datura wrightii – sacred thorn-apple
* *Nicotiana glauca* – tree tobacco
Solanum americanum – American black nightshade
Solanum parishii – Parish's nightshade

TAMARICACEAE – TAMARISK FAMILY

* *Tamarix ramosissima* – tamarisk

TROPAEOLACEAE – NASTURTIUM FAMILY

* *Tropaeolum majus* – nasturtium

Ferns and Fern Allies

PTERIDACEAE – BRAKE FAMILY

Pentagramma triangularis ssp. *triangularis* – goldback fern

SELAGINELLACEAE – SPIKE-MOSS FAMILY

Selaginella bigelovii – bushy spikemoss
Selaginella cinerascens – ashy spike-moss

Gymnosperms and Gnetophytes

PINACEAE – PINE FAMILY

Pinus torreyana ssp. *torreyana* – Torrey pine

Monocots

AGAVACEAE – AGAVE FAMILY

Agave shawii var. *shawii* – Shaw's agave
Hesperoyucca whipplei – chaparral yucca
Yucca schidigera – Mojave yucca

ARECACEAE – PALM FAMILY

* *Phoenix canariensis* – Canary Island date palm
* *Washingtonia robusta* – Washington fan palm

ASPARAGACEAE – ASPARAGUS FAMILY

* *Asparagus asparagoides* – African asparagus fern

CYPERACEAE – SEDGE FAMILY

Cyperus eragrostis – tall flatsedge
* *Cyperus involucratus* – umbrella plant

IRIDACEAE – IRIS FAMILY

Sisyrinchium bellum – western blue-eyed grass

JUNCACEAE – RUSH FAMILY

Juncus balticus ssp. *ater* – Baltic rush
Juncus dubius – questionable rush
Juncus xiphioides – irisleaf rush

LILIACEAE – LILY FAMILY

Calochortus weedii var. *weedii* – Weed's mariposa lily

MELANTHIACEAE – FALSE HELLEBORE FAMILY

Toxicoscordion fremontii – Fremont's deathcamas

POACEAE – GRASS FAMILY

Aristida purpurea – purple three-awn
* *Avena barbata* – slender oat
Bothriochloa barbinodis – cane bluestem
* *Brachypodium distachyon* – purple false brome
* *Bromus diandrus* – ripgut brome
* *Bromus rubens* – red brome
* *Cortaderia jubata* – purple pampas grass
* *Cortaderia selloana* – Uruguayan pampas grass
* *Cynodon dactylon* – Bermudagrass
Distichlis spicata – salt grass
* *Ehrharta calycina* – perennial veldtgrass
* *Ehrharta erecta* – panic veldtgrass
Elymus condensatus – giant wild rye
* *Eragrostis curvula* – weeping lovegrass
* *Festuca myuros* – rat-tail fescue
* *Hordeum murinum* ssp. *glaucum* – smooth barley
Melica imperfecta – smallflower melicgrass
Muhlenbergia rigens – deer grass
* *Paspalum dilatatum* – dallisgrass
* *Pennisetum setaceum* – fountain grass
* *Polypogon monspeliensis* – annual rabbitsfoot grass
Stipa coronata – giant ricegrass
Stipa lepida – foothill needlegrass
Stipa pulchra – purple needlegrass

THEMIDACEAE – BRODIAEA FAMILY

Dipterostemon capitatus ssp. *capitatus* – bluedicks

* signifies introduced (non-native) species

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Appendix A2

Plant Species Observed on the Manchester Avenue Project Site

Plant Species

Vascular Species

Eudicots

ANACARDIACEAE – SUMAC OR CASHEW FAMILY

Malosma laurina – laurel sumac

ASTERACEAE – SUNFLOWER FAMILY

Artemisia californica – California sagebrush
Baccharis pilularis – coyote brush
Baccharis salicifolia – mulefat
Encelia californica – California brittle bush
Isocoma menziesii – Menzies's golden bush

EUPHORBIACEAE – SPURGE FAMILY

* *Euphorbia peplus* – petty spurge

SALICACEAE – WILLOW FAMILY

Populus fremontii – Fremont cottonwood
Salix exigua – sandbar willow
Salix lasiolepis – arroyo willow

Monocots

ASPARAGACEAE – ASPARAGUS FAMILY

* *Asparagus asparagoides* – African asparagus fern

TYPHACEAE – CATTAIL FAMILY

Typha domingensis – southern cattail

* signifies introduced (non-native) species

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Appendix B1

Wildlife Species Observed on the Lake Drive Project Site

Wildlife Species

Birds

Blackbirds, Orioles and Allies

ICTERIDAE – BLACKBIRDS

Icterus cucullatus – hooded oriole

Bushtits

AEGITHALIDAE – LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus – bushtit

Finches

FRINGILLIDAE – FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus – house finch

Spinus psaltria – lesser goldfinch

Flycatchers

TYRANNIDAE – TYRANT FLYCATCHERS

Sayornis nigricans – black phoebe

Sayornis saya – Say's phoebe

Hawks

ACCIPITRIDAE – HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii – Cooper's hawk

Buteo jamaicensis – red-tailed hawk

Hummingbirds

TROCHILIDAE – HUMMINGBIRDS

Calypte anna – Anna's hummingbird

Selasphorus sasin – Allen's hummingbird

Selasphorus sp. – Allen's/rufous hummingbird

Jays, Magpies and Crows

CORVIDAE – CROWS AND JAYS

Corvus brachyrhynchos – American crow

Corvus corax – common raven

Mockingbirds and Thrashers

MIMIDAE – MOCKINGBIRDS AND THRASHERS

Mimus polyglottos – northern mockingbird

Toxostoma redivivum – California thrasher

New World Quail

ODONTOPHORIDAE – NEW WORLD QUAIL

Callipepla californica – California quail

New World Vultures

CATHARTIDAE – NEW WORLD VULTURES

Cathartes aura – turkey vulture

Old World Sparrows

PASSERIDAE – OLD WORLD SPARROWS

* *Passer domesticus* – house sparrow

Old World Warblers and Gnatcatchers

POLIOPTILIDAE – GNATCATCHERS

Polioptila californica californica – coastal California gnatcatcher

Pigeons and Doves

COLUMBIDAE – PIGEONS AND DOVES

Zenaida macroura – mourning dove

Vireos

VIREONIDAE – VIREOS

Vireo huttoni – Hutton's vireo

Wood Warblers and Allies

PARULIDAE – WOOD-WARBLERS

Cardellina pusilla – Wilson's warbler

Wrens

TROGLODYTIDAE – WRENS

Troglodytes aedon – house wren

Thryomanes bewickii – Bewick's wren

Waxbills

ESTRILDIDAE – WAXBILLS

* *Lonchura punctulata* – scaly-breasted munia

New World Sparrows

PASSERELLIDAE – NEW WORLD SPARROWS

Aimophila ruficeps canescens – Southern California rufous-crowned sparrow

Melospiza melodia – song sparrow

Melozone crissalis – California towhee

Pipilo maculatus – spotted towhee

Typical Warblers, Parrotbills, Wrentit

SYLVIIDAE – SYLVIID WARBLERS

Chamaea fasciata – wrentit

Invertebrates

Butterflies

LYCAENIDAE – BLUES, HAIRSTREAKS, AND COPPERS

Leptotes marina – marine blue

NYMPHALIDAE – BRUSH-FOOTED BUTTERFLIES

Danaus plexippus – monarch

Mammals

Hares and Rabbits

LEPORIDAE – HARES AND RABBITS

Sylvilagus audubonii – desert cottontail

Sylvilagus bachmani – brush rabbit

Pocket Mice

HETEROMYIDAE—POCKET MICE AND KANGAROO RATS

Chaetodipus fallax fallax—northwestern San Diego pocket mouse

Squirrels

SCIURIDAE – SQUIRRELS

Spermophilus (Otospermophilus) beecheyi – California ground squirrel

RATS, MICE, and VOLES

CRICETIDAE—RATS, MICE, AND VOLES

Neotoma lepida intermedia—San Diego desert woodrat

Peromyscus californicus—California deermouse

Reptiles

Lizards

PHRYNOSOMATIDAE – IGUANID LIZARDS

Sceloporus occidentalis – western fence lizard

Uta stansburiana – common side-blotched lizard

* signifies introduced (non-native) species

Appendix B2

Wildlife Species Observed on the Manchester Avenue Project Site

Wildlife Species

Birds

Bushtits

AEGITHALIDAE – LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus – bushtit

Flycatchers

TYRANNIDAE – TYRANT FLYCATCHERS

Sayornis nigricans – black phoebe

Wood Warblers and Allies

PARULIDAE – WOOD-WARBLERS

Geothlypis trichas – common yellowthroat

Setophaga coronata – yellow-rumped warbler

* signifies introduced (non-native) species

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Appendix C1

Special-Status Plant Species Observed or Potentially Occurring within the Lake Drive Project Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Abronia maritima	red sand-verbena	None/None/4.2/Covered	Coastal dunes/perennial herb/Feb–Nov/0–328	Not expected to occur. No suitable vegetation present.
Acanthomintha ilicifolia	San Diego thorn-mint	FT/CE/1B.1/Covered, Narrow Endemic	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay, openings/annual herb/Apr–June/33–3,150	Not expected to occur. Suitable habitat present but species not observed during surveys and clay soils are not present.
Acmispon prostratus	Nuttall's acmispon	None/None/1B.1/Covered, Narrow Endemic	Coastal dunes, coastal scrub (sandy)/annual herb/Mar–June (July)/0–33	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present.
Adolphia californica	California adolphia	None/None/2B.1/None	Chaparral, coastal scrub, valley and foothill grassland; clay/perennial deciduous shrub/Dec–May/30–2,428	Not expected to occur. Deciduous shrub would have been observed during surveys if present and clay soils are not present within the site.
Agave shawii var. *shawii*	Shaw's agave	None/None/2B.1/None	Coastal bluff scrub, coastal scrub/perennial leaf succulent/ Sep–May/10–394	Observed planted during surveys. Not expected to occur naturally. Although Shaw's agave has been introduced to Torrey Pines State Reserve, it is known from Point Loma and south (Reiser 2001; SDNHM 2021).
Ambrosia pumila	San Diego ambrosia	FE/None/1B.1/Covered, Narrow Endemic	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; sandy loam or clay, often in disturbed areas, sometimes alkaline/perennial rhizomatous herb/Apr–Oct/66–1,362	Not expected to occur. No clay soils present and species was not observed during surveys.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Aphanisma blitoides	aphanisma	None/None/1B.2/Covered	Coastal bluff scrub, coastal dunes, coastal scrub; sandy or gravelly/annual herb/ Mar–June/3–1,001	Not expected to occur. Species would have been observed during surveys if present.
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	FE/None/1B.1/Covered, Narrow Endemic	Chaparral (maritime, sandy)/ perennial evergreen shrub/ Dec–June/0–1,198	Not expected to occur. Perennial evergreen shrub would have been observed during surveys if present.
Astragalus tener var. *titi*	coastal dunes milk-vetch	FE/CE/1B.1/None	Coastal bluff scrub (sandy), coastal dunes, coastal prairie (mesic); often vernally mesic areas/annual herb/Mar–May/ 3–164	Not expected to occur. No suitable vegetation present.
Atriplex coulteri	Coulter's saltbush	None/None/1B.2/None	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland; alkaline or clay/perennial herb/ Mar–Oct/10–1,509	Not expected to occur. No suitable clay soils present and species would have been observed during surveys if present.
Atriplex pacifica	South Coast saltscale	None/None/1B.2/None	Coastal bluff scrub, coastal dunes, coastal scrub, playas/annual herb/ Mar–Oct/0–459	Not expected to occur. Species would have been observed during surveys if present.
Atriplex parishii	Parish's brittlescale	None/None/1B.1/None	Chenopod scrub, playas, vernal pools; alkaline/annual herb/June–Oct/82–6,234	Not expected to occur. No suitable vegetation present.
Baccharis vanessae	Encinitas baccharis	FT/CE/1B.1/Covered, Narrow Endemic	Chaparral (maritime), cismontane woodland; sandstone/perennial deciduous shrub/Aug–Nov/197–2,362	Not expected to occur. Perennial deciduous shrub would have been observed during surveys if present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Bergerocactus emoryi	golden-spined cereus	None/None/2B.2/None	Closed-cone coniferous forest, chaparral, coastal scrub; sandy/perennial stem succulent/May–June/10–1,296	Observed planted during the May 2021 focused rare plant survey. Not expected to occur naturally. Although there is one introduced location at Torrey Pines State Reserve, all other locations are at Point Loma or farther south (Reiser 2001; SDNHM 2021; CCH 2021).
Bloomeria clevelandii	San Diego goldenstar	None/None/1B.1/Covered, Narrow Endemic	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial bulbiferous herb/Apr–May/164–1,526	Not expected to occur. No suitable clay soils present and species would have been observed during surveys if present.
Brodiaea filifolia	thread-leaved brodiaea	FT/CE/1B.1/Covered, Narrow Endemic	Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay/perennial bulbiferous herb/ Mar–June/82–3,675	Not expected to occur. No suitable clay soils present and species would have been observed during surveys if present.
Brodiaea orcuttii	Orcutt's brodiaea	None/None/1B.1/Covered	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay, sometimes serpentinite/ perennial bulbiferous herb/ May–July/98–5,551	Not expected to occur. No suitable clay soils present and species would have been observed during surveys if present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Ceanothus cyaneus	Lakeside ceanothus	None/None/1B.2/None	Closed-cone coniferous forest, chaparral/perennial evergreen shrub/Apr–June/771–2,477	Not expected to occur. The site is outside of the species' known elevation range and perennial evergreen shrub would have been observed during surveys if present.
Ceanothus verrucosus	wart-stemmed ceanothus	None/None/2B.2/Covered	Chaparral/perennial evergreen shrub/Dec–May/3–1,247	Observed during May 2021 focused rare plant survey.
Centromadia parryi ssp. *australis*	southern tarplant	None/None/1B.1/None	Marshes and swamps (margins), valley and foothill grassland (vernally mesic), vernal pools/annual herb/May–Nov/ 0–1,575	Not expected to occur. Species would have been observed during surveys if present and there are no vernally mesic habitats within the site.
Centromadia pungens ssp. *laevis*	smooth tarplant	None/None/1B.1/None	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland; alkaline/annual herb/Apr–Sep/0–2,100	Not expected to occur. Species would have been observed during surveys if present and there is no suitable habitat within the site.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/None/1B.1/None	Coastal bluff scrub (sandy), coastal dunes/annual herb/ Jan–Aug/0–328	Not expected to occur. No suitable vegetation present.
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	FE/CE/1B.2/None	Coastal dunes, marshes and swamps (coastal salt)/annual herb (hemiparasitic)/ May–Oct/0–98	Not expected to occur. No suitable vegetation present.
Chorizanthe orcuttiana	Orcutt's spineflower	FE/CE/1B.1/Covered, Narrow Endemic	Closed-cone coniferous forest, chaparral (maritime), coastal scrub; sandy openings/annual herb/Mar–May/10–410	Not expected to occur. Species would have been observed during surveys if present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	None/None/1B.2/None	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools; often clay/annual herb/ Apr–July/98–5,020	Not expected to occur. No suitable clay soils present.
Clarkia delicata	delicate clarkia	None/None/1B.2/None	Chaparral, cismontane woodland; often gabbroic/ annual herb/Apr–June/ 771–3,281	Not expected to occur. The site is outside of the species' known elevation range.
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	None/None/1B.2/Covered	Chaparral, cismontane woodland/perennial evergreen shrub/Apr–June/98–2,592	Not expected to occur. Perennial evergreen shrub would have been observed during surveys if present.
Corethrogyne filaginifolia var. *incana*	San Diego sand aster	None/None/1B.1/None	Coastal bluff scrub, chaparral, coastal scrub/perennial herb/June–Sep/10–377	Not expected to occur. Species would have been observed during surveys if present.
Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	None/None/1B.1/Covered, Narrow Endemic	Coastal bluff scrub, chaparral (maritime, openings), coastal scrub; sandy/perennial herb/ May–Sep/49–492	Observed during focused surveys.
Cryptantha wigginsii	Wiggins' cryptantha	None/None/1B.2/None	Coastal scrub; often clay/annual herb/Feb–June/66–902	Not expected to occur. Species would have been observed during surveys if present.
Cylindropuntia californica var. *californica*	snake cholla	None/None/1B.1/None	Chaparral, coastal scrub/ perennial stem succulent/ Apr–May/98–492	Not expected to occur. Perennial stem succulent would have been observed during surveys if present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	None/None/1B.1/Covered	Coastal bluff scrub, chaparral, coastal scrub, valley and foothill grassland; rocky, often clay or serpentinite/perennial herb/ Apr–June/16–1,476	Not expected to occur. Species would have been observed during surveys if present.
Dudleya brevifolia	short-leaved dudleya	None/CE/1B.1/Covered, Narrow Endemic	Chaparral (maritime, openings), coastal scrub; Torrey sandstone/ perennial herb/Apr–May/ 98–820	Not expected to occur. Species would have been observed during surveys if present.
Dudleya variegata	variegated dudleya	None/None/1B.2/Covered, Narrow Endemic	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial herb/ Apr–June/10–1,903	Not expected to occur. Species would have been observed during surveys if present and no clay soils present.
Dudleya viscida	sticky dudleya	None/None/1B.2/Covered	Coastal bluff scrub, chaparral, cismontane woodland, coastal scrub; rocky/perennial herb/ May–June/33–1804	Not expected to occur. Species would have been observed during surveys if present.
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	None/None/1B.1/None	Chaparral, coastal scrub; mesic/perennial evergreen shrub/(July) Sep–Nov/98–1,969	Not expected to occur. Perennial evergreen shrub would have been observed during surveys if present.
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/CE/1B.1/Covered, Narrow Endemic	Coastal scrub, valley and foothill grassland, vernal pools; mesic/ annual / perennial herb/ Apr–June/66–2,034	Not expected to occur. Species would have been observed during surveys if present and there are no vernal pools present within the site.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Eryngium pendletonense	Pendleton button-celery	None/None/1B.1/None	Coastal bluff scrub, valley and foothill grassland, vernal pools; clay, vernally mesic/perennial herb/Apr–June (July)/49–361	Not expected to occur. Species would have been observed during surveys if present and there are no vernal pools or clay soils within the site.
Erysimum ammophilum	sand-loving wallflower	None/None/1B.2/None	Chaparral (maritime), Coastal dunes, Coastal scrub; sandy, openings/perennial herb/ Feb–June/0–195	Not expected to occur. Species would have been observed during surveys if present.
Euphorbia misera	cliff spurge	None/None/2B.2/Covered	Coastal bluff scrub, coastal scrub, Mojavean desert scrub; rocky/perennial shrub/ Dec–Aug (Oct)/33–1,640	Observed planted during May 2021 focused rare plant survey. Not observed growing naturally and this conspicuous shrub would have been observed during surveys if present.
Ferocactus viridescens	San Diego barrel cactus	None/None/2B.1/Covered	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/perennial stem succulent/May–June/10–1,476	Observed during focused surveys.
Frankenia palmeri	Palmer's frankenia	None/None/2B.1/None	Coastal dunes, marshes and swamps (coastal salt), playas/ perennial herb/May–July/0–33	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present.
Geothallus tuberosus	Campbell's liverwort	None/None/1B.1/None	Coastal scrub (mesic), vernal pools; soil/ephemeral liverwort/ N.A./33–1,969	Observed during focused surveys.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Grindelia hallii	San Diego gumplant	None/None/1B.2/None	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland/perennial herb/ May–Oct/607–5,725	Not expected to occur. The site is outside of the species' known elevation range.
Hazardia orcuttii	Orcutt's hazardia	None/CT/1B.1/Covered, Narrow Endemic	Chaparral (maritime), coastal scrub; often clay/perennial evergreen shrub/ Aug–Oct/262–279	Not expected to occur. Perennial evergreen shrub would have been observed during surveys if present and there are no clay soils present within the site.
Heterotheca sessiliflora ssp. *sessiliflora*	beach goldenaster	None/None/1B.1/None	Chaparral (coastal), coastal dunes, coastal scrub/perennial herb/Mar–Dec/0–4,019	Not expected to occur. Species would have been observed during surveys if present.
Horkelia truncata	Ramona horkelia	None/None/1B.3/None	Chaparral, cismontane woodland; clay, gabbroic/ perennial herb/May–June/ 1,312–4,265	Not expected to occur. The site is outside of the species' known elevation range.
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/1B.2/None	Chaparral, coastal scrub (sandy, often in disturbed areas)/ perennial shrub/Apr–Nov/ 33–443	Not expected to occur. Species would have been observed during surveys if present.
Iva hayesiana	San Diego marsh-elder	None/None/2B.2/Covered	Marshes and swamps, playas/ perennial herb/Apr–Oct/ 33–1,640	Not expected to occur. No suitable vegetation present.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1/None	Marshes and swamps (coastal salt), playas, vernal pools/ annual herb/Feb–June/3–4,003	Not expected to occur. No suitable vegetation present.
Leptosyne maritima	sea dahlia	None/None/2B.2/None	Coastal bluff scrub, coastal scrub/perennial herb/ Mar–May/16–492	Observed during May 2021 focused rare plant survey.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Monardella hypoleuca ssp. *lanata*	felt-leaved monardella	None/None/1B.2/None	Chaparral, cismontane woodland/perennial rhizomatous herb/ June–Aug/984–5,167	Not expected to occur. The site is outside of the species' known elevation range.
Monardella viminea	willowy monardella	FE/CE/1B.1/None	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; alluvial ephemeral washes/perennial herb/June–Aug/164–738	Not expected to occur. Perennial species would have been observed if present.
Myosurus minimus ssp. *apus*	little mousetail	None/None/3.1/Covered, Narrow Endemic	Valley and foothill grassland, vernal pools (alkaline)/annual herb/Mar–June/66–2,100	Not expected to occur. Species would have been observed during surveys if present and there are no vernal pools present within the site.
Nama stenocarpa	mud nama	None/None/2B.2/None	Marshes and swamps (lake margins, riverbanks)/annual/ perennial herb/Jan–July/ 16–1,640	Not expected to occur. No suitable vegetation present.
Navarretia fossalis	spreading navarretia	FT/None/1B.1/Covered, Narrow Endemic	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools/annual herb/ Apr–June/98–2,149	Not expected to occur. No suitable vegetation present.
Nemacaulis denudata var. *denudata*	coast woolly-heads	None/None/1B.2/None	Coastal dunes/annual herb/Apr–Sep/0–328	Not expected to occur. No suitable vegetation present.
Nemacaulis denudata var. *gracilis*	slender cottonheads	None/None/2B.2/None	Coastal dunes, desert dunes, Sonoran desert scrub/annual herb/(Mar) Apr–May/ -164–1,312	Not expected to occur. No suitable vegetation present.
Orcuttia californica	California Orcutt grass	FE/CE/1B.1/Covered, Narrow Endemic	Vernal pools/annual herb/ Apr–Aug/49–2,165	Not expected to occur. No suitable vegetation present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Phacelia stellaris	Brand's star phacelia	None/None/1B.1/None	Coastal dunes, coastal scrub/ annual herb/Mar–June/ 3–1,312	Not expected to occur. Species would have been observed during surveys if present.
Pinus torreyana ssp. *torreyana*	Torrey pine	None/None/1B.2/Covered	Closed-cone coniferous forest, chaparral; sandstone/ perennial evergreen tree/ N.A./98–525	Observed during focused surveys.
Pogogyne abramsii	San Diego mesa mint	FE/CE/1B.1/None	Vernal pools/annual herb/ Mar–July/295–656	Not expected to occur. No suitable vegetation present.
Pogogyne nudiuscula	Otay Mesa mint	FE/CE/1B.1/None	Vernal pools/annual herb/ May–July/295–820	Not expected to occur. No suitable vegetation present.
Quercus dumosa	Nuttall's scrub oak	None/None/1B.1/Covered	Closed-cone coniferous forest, chaparral, coastal scrub; sandy, clay loam/perennial evergreen shrub/Feb–Apr (Aug)/49–1,312	Observed during May 2021 focused rare plant survey.
Quercus engelmannii	Engelmann oak	None/None/4.2/Covered	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland/ perennial deciduous tree/ Mar–June/164–4,265	Not expected to occur. Perennial tree species would have been observed if present.
Salvia munzii	Munz's sage	None/None/2B.2/None	Chaparral, coastal scrub/ perennial evergreen shrub/ Feb–Apr/377–3,494	Not expected to occur. Perennial evergreen shrub would have been observed during surveys if present.
Senecio aphanactis	chaparral ragwort	None/None/2B.2/None	Chaparral, cismontane woodland, coastal scrub; sometimes alkaline/annual herb/Jan–Apr/49–2,625	Not expected to occur. Species would have been observed during surveys if present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Sidalcea neomexicana	salt spring checkerbloom	None/None/2B.2/None	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas; alkaline, mesic/perennial herb/ Mar–June/49–5,015	Not expected to occur. Species would have been observed during surveys if present.
Sphaerocarpos drewei	bottle liverwort	None/None/1B.1/None	Chaparral, coastal scrub; openings, soil/ephemeral liverwort/N.A./295–1,969	Not expected to occur. Species would have been observed during surveys if present. Not known from the Encinitas quadrangle (CNPS 2022).
Stemodia durantifolia	purple stemodia	None/None/2B.1/None	Sonoran desert scrub (often mesic, sandy)/perennial herb/ Jan–Dec/591–984	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present.
Suaeda esteroa	estuary seablite	None/None/1B.2/None	Marshes and swamps (coastal salt)/perennial herb/ May–Oct (Jan)/0–16	Not expected to occur. No suitable vegetation present.
Tetracoccus dioicus	Parry's tetracoccus	None/None/1B.2/None	Chaparral, coastal scrub/ perennial deciduous shrub/ Apr–May/541–3,281	Not expected to occur. The site is outside of the species' known elevation range.

Federal Designations
FE: Federally listed as endangered
FT: Federally listed as threatened
State Designations
CE: State listed as endangered
CT: State listed as threatened
CRPR: California Rare Plant Rank (previously known as the CNPS List)
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants about which more information is needed – A Review List
4: Plants of Limited Distribution – A Watch List

Threat Rank
.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 – Fairly threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
.3 – Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
Multiple Habitat Conservation Program (MHCP) Draft Encinitas Subarea Plan
Covered: Covered species under MHCP Draft Encinitas Subarea Plan (City of Encinitas 2001)
Narrow Endemic: Narrow endemic species under MHCP Draft Encinitas Subarea Plan (see Table 4-3 of the Subarea Plan).

References

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Appendix C2

Special-Status Plant Species Observed or Potentially Occurring within the Manchester Avenue Project Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Abronia maritima	red sand-verbena	None/None/4.2/Covered	Coastal dunes/perennial herb/Feb–Nov/0–328	Not expected to occur. No suitable vegetation present.
Acanthomintha ilicifolia	San Diego thorn-mint	FT/CE/1B.1/Covered, Narrow Endemic	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay, openings/annual herb/Apr–June/33–3,150	Not expected to occur. The site is outside of the species' known elevation range and no suitable vegetation present.
Acmispon prostratus	Nuttall's acmispon	None/None/1B.1/Covered, Narrow Endemic	Coastal dunes, coastal scrub (sandy)/annual herb/ Mar–June (July)/0–33	Not expected to occur. No suitable vegetation present.
Adolphia californica	California adolphia	None/None/2B.1/None	Chaparral, coastal scrub, valley and foothill grassland; clay/ perennial deciduous shrub/ Dec–May/30–2,428	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Agave shawii var. *shawii*	Shaw's agave	None/None/2B.1/None	Coastal bluff scrub, coastal scrub/perennial leaf succulent/ Sep–May/10–394	Not expected to occur. This perennial succulent would have been observed during the site visits if present.
Ambrosia pumila	San Diego ambrosia	FE/None/1B.1/Covered, Narrow Endemic	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; sandy loam or clay, often in disturbed areas, sometimes alkaline/perennial rhizomatous herb/Apr–Oct/66–1,362	Not expected to occur. The site is outside of the species' known elevation range.
Aphanisma blitoides	aphanisma	None/None/1B.2/Covered	Coastal bluff scrub, coastal dunes, coastal scrub; sandy or gravelly/annual herb/ Mar–June/3–1,001	Not expected to occur. No suitable vegetation present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	FE/None/1B.1/Covered, Narrow Endemic	Chaparral (maritime, sandy)/ perennial evergreen shrub/ Dec–June/0–1,198	Not expected to occur. This perennial evergreen shrub would have been observed during the site visits if present.
Astragalus tener var. *titi*	coastal dunes milk-vetch	FE/CE/1B.1/None	Coastal bluff scrub (sandy), coastal dunes, coastal prairie (mesic); often vernally mesic areas/annual herb/ Mar–May/3–164	Not expected to occur. This species is not known to occur within the vicinity (i.e., Encinitas quadrangle) and there is no suitable vegetation present.
Atriplex coulteri	Coulter's saltbush	None/None/1B.2/None	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland; alkaline or clay/perennial herb/ Mar–Oct/10–1,509	Not expected to occur. This perennial species would have been observed during the site visits if present and no suitable vegetation present.
Atriplex pacifica	South Coast saltscale	None/None/1B.2/None	Coastal bluff scrub, coastal dunes, coastal scrub, playas/annual herb/ Mar–Oct/0–459	Not expected to occur. There is no suitable vegetation present.
Baccharis vanessae	Encinitas baccharis	FT/CE/1B.1/Covered, Narrow Endemic	Chaparral (maritime), cismontane woodland; sandstone/perennial deciduous shrub/Aug–Nov/197–2,362	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Bergerocactus emoryi	golden-spined cereus	None/None/2B.2/None	Closed-cone coniferous forest, chaparral, coastal scrub; sandy/perennial stem succulent/May–June/10–1,296	Not expected to occur. This perennial species would have been observed during the site visits if present and no suitable vegetation present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Bloomeria clevelandii	San Diego goldenstar	None/None/1B.1/Covered, Narrow Endemic	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial bulbiferous herb/Apr–May/164–1,526	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Brodiaea filifolia	thread-leaved brodiaea	FT/CE/1B.1/Covered, Narrow Endemic	Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay/perennial bulbiferous herb/ Mar–June/82–3,675	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Brodiaea orcuttii	Orcutt's brodiaea	None/None/1B.1/Covered	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay, sometimes serpentinite/ perennial bulbiferous herb/ May–July/98–5,551	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Ceanothus cyaneus	Lakeside ceanothus	None/None/1B.2/None	Closed-cone coniferous forest, chaparral/perennial evergreen shrub/Apr–June/771–2,477	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Ceanothus verrucosus	wart-stemmed ceanothus	None/None/2B.2/Covered	Chaparral/perennial evergreen shrub/Dec–May/3–1,247	Not expected to occur. There is no suitable vegetation present, and this perennial species would have been observed during the site visits if present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Centromadia parryi ssp. *australis*	southern tarplant	None/None/1B.1/None	Marshes and swamps (margins), valley and foothill grassland (vernally mesic), vernal pools/ annual herb/May–Nov/ 0–1,575	Not expected to occur. This species is not known to occur within the vicinity (i.e., Encinitas quadrangle) and there is no suitable vegetation present.
Centromadia pungens ssp. *laevis*	smooth tarplant	None/None/1B.1/None	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland; alkaline/annual herb/Apr–Sep/0–2,100	Not expected to occur. This species is not known to occur within the vicinity (i.e., Encinitas quadrangle) and there is no suitable vegetation present.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/None/1B.1/None	Coastal bluff scrub (sandy), coastal dunes/annual herb/ Jan–Aug/0–328	Not expected to occur. There is no suitable vegetation present.
Chorizanthe orcuttiana	Orcutt's spineflower	FE/CE/1B.1/Covered, Narrow Endemic	Closed-cone coniferous forest, chaparral (maritime), coastal scrub; sandy openings/annual herb/Mar–May/10–410	Not expected to occur. The site is lacking suitable microhabitat conditions and no suitable vegetation present. This species is associated with sandy soils associated with eroded coastal bluffs and old beach ridges (Bauder 2000).
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	None/None/1B.2/None	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools; often clay/annual herb/ Apr–July/98–5,020	Not expected to occur. The site is outside of the species' known elevation range and there is no vernal pool habitat or clays soils present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	None/None/1B.2/Covered	Chaparral, cismontane woodland/perennial evergreen shrub/Apr–June/98–2,592	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Corethrogyne filaginifolia var. *incana*	San Diego sand aster	None/None/1B.1/None	Coastal bluff scrub, chaparral, coastal scrub/perennial herb/June–Sep/10–377	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present.
Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	None/None/1B.1/Covered, Narrow Endemic	Coastal bluff scrub, chaparral (maritime, openings), coastal scrub; sandy/perennial herb/ May–Sep/49–492	Not expected to occur. No suitable vegetation present.
Cryptantha wigginsii	Wiggins' cryptantha	None/None/1B.2/None	Coastal scrub; often clay/annual herb/Feb–June/66–902	Not expected to occur. The site is outside of the species' known elevation range, no suitable vegetation present, and there are no clay soils present.
Cylindropuntia californica var. *californica*	snake cholla	None/None/1B.1/None	Chaparral, coastal scrub/ perennial stem succulent/ Apr–May/98–492	Not expected to occur. The site is outside of the species' known elevation range, no suitable vegetation present, and this perennial species would have been observed during the site visits if present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	None/None/1B.1/Covered	Coastal bluff scrub, chaparral, coastal scrub, valley and foothill grassland; rocky, often clay or serpentinite/perennial herb/Apr–June/16–1,476	Low potential to occur. No suitable vegetation present.
Dudleya brevifolia	short-leaved dudleya	None/CE/1B.1/Covered, Narrow Endemic	Chaparral (maritime, openings), coastal scrub; Torrey sandstone/perennial herb/ Apr–May/98–820	Not expected to occur. The site is outside of the species' known elevation range and no suitable vegetation present.
Dudleya variegata	variegated dudleya	None/None/1B.2/Covered, Narrow Endemic	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial herb/ Apr–June/10–1,903	Not expected to occur. No suitable vegetation present.
Dudleya viscida	sticky dudleya	None/None/1B.2/Covered	Coastal bluff scrub, chaparral, cismontane woodland, coastal scrub; rocky/perennial herb/ May–June/33–1804	Not expected to occur. The site is lacking suitable rocky microhabitat and no suitable vegetation present.
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	None/None/1B.1/None	Chaparral, coastal scrub; mesic/perennial evergreen shrub/(July) Sep–Nov/98–1,969	Not expected to occur. The site is outside of the species' known elevation range and no suitable vegetation present.
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/CE/1B.1/Covered, Narrow Endemic	Coastal scrub, valley and foothill grassland, vernal pools; mesic/annual / perennial herb/Apr–June/66–2,034	Not expected to occur. The site is outside of the species' known elevation range and no suitable vegetation present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Eryngium pendletonense	Pendleton button-celery	None/None/1B.1/None	Coastal bluff scrub, valley and foothill grassland, vernal pools; clay, vernally mesic/perennial herb/Apr–June (July)/49–361	Not expected to occur. The site is outside of the species' known elevation range and no suitable vegetation present.
Erysimum ammophilum	sand-loving wallflower	None/None/1B.2/None	Chaparral (maritime), Coastal dunes, Coastal scrub; sandy, openings/perennial herb/ Feb–June/0–195	Not expected to occur. No suitable vegetation present.
Euphorbia misera	cliff spurge	None/None/2B.2/Covered	Coastal bluff scrub, coastal scrub, Mojavean desert scrub; rocky/perennial shrub/ Dec–Aug (Oct)/33–1,640	Not expected to occur. This conspicuous perennial shrub would have been observed during the site visits if present and no suitable vegetation present.
Ferocactus viridescens	San Diego barrel cactus	None/None/2B.1/Covered	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/perennial stem succulent/May–June/10–1,476	Not expected to occur. This conspicuous perennial species would have been observed during the site visits if present and no suitable vegetation present.
Geothallus tuberosus	Campbell's liverwort	None/None/1B.1/None	Coastal scrub (mesic), vernal pools; soil/ephemeral liverwort/N.A./33–1,969	Not expected to occur. No suitable vegetation present.
Hazardia orcuttii	Orcutt's hazardia	None/CT/1B.1/Covered, Narrow Endemic	Chaparral (maritime), coastal scrub; often clay/perennial evergreen shrub/ Aug–Oct/262–279	Not expected to occur. The site is outside of the species' known elevation range and there are no clay soils suitable vegetation present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Heterotheca sessiliflora ssp. *sessiliflora*	beach goldenaster	None/None/1B.1/None	Chaparral (coastal), coastal dunes, coastal scrub/perennial herb/Mar–Dec/0–4,019	Not expected to occur. No suitable vegetation present.
Horkelia truncata	Ramona horkelia	None/None/1B.3/None	Chaparral, cismontane woodland; clay, gabbroic/ perennial herb/May–June/ 1,312–4,265	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Hulsea californica	San Diego sunflower	None/None/1B.3/None	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest; Burned areas, Openings/ perennial herb/Apr–June/ 3,000–9,560	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/1B.2/None	Chaparral, coastal scrub (sandy, often in disturbed areas)/ perennial shrub/Apr–Nov/ 33–443	Not expected to occur. This perennial species would have been observed during the site visits if present and no suitable vegetation present.
Iva hayesiana	San Diego marsh-elder	None/None/2B.2/Covered	Marshes and swamps, playas/perennial herb/ Apr–Oct/33–1,640	Not expected to occur. This perennial species would have been observed during the site visits if present. and no suitable vegetation present
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1/None	Marshes and swamps (coastal salt), playas, vernal pools/ annual herb/Feb–June/3–4,003	Not expected to occur. No suitable coastal salt marsh habitat present.
Leptosyne maritima	sea dahlia	None/None/2B.2/None	Coastal bluff scrub, coastal scrub/perennial herb/ Mar–May/16–492	Not expected to occur. No suitable vegetation present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Monardella hypoleuca ssp. *lanata*	felt-leaved monardella	None/None/1B.2/None	Chaparral, cismontane woodland/perennial rhizomatous herb/ June–Aug/984–5,167	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Monardella viminea	willowy monardella	FE/CE/1B.1/None	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; alluvial ephemeral washes/perennial herb/June–Aug/164–738	Not expected to occur. The site is outside of the species' known elevation range, no suitable vegetation present, and this perennial species would have been observed during the site visits if present.
Myosurus minimus ssp. *apus*	little mousetail	None/None/3.1/Covered, Narrow Endemic	Valley and foothill grassland, vernal pools (alkaline)/annual herb/Mar–June/66–2,100	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Nama stenocarpa	mud nama	None/None/2B.2/None	Marshes and swamps (lake margins, riverbanks)/annual/ perennial herb/Jan–July/ 16–1,640	Not expected to occur. No suitable vegetation present.
Navarretia fossalis	spreading navarretia	FT/None/1B.1/Covered, Narrow Endemic	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools/annual herb/ Apr–June/98–2,149	Not expected to occur. The site is outside of the species' known elevation range and there is no vernal pool habitat or playas present.
Nemacaulis denudata var. *denudata*	coast woolly-heads	None/None/1B.2/None	Coastal dunes/annual herb/ Apr–Sep/0–328	Not expected to occur. There is no suitable vegetation present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Nemacaulis denudata var. *gracilis*	slender cottonheads	None/None/2B.2/None	Coastal dunes, desert dunes, Sonoran desert scrub/annual herb/(Mar) Apr–May/ -164–1,312	Not expected to occur. There is no suitable vegetation present.
Orcuttia californica	California Orcutt grass	FE/CE/1B.1/Covered, Narrow Endemic	Vernal pools/annual herb/ Apr–Aug/49–2,165	Not expected to occur. The site is outside of the species' known elevation range and there is no vernal pool habitat present.
Phacelia stellaris	Brand's star phacelia	None/None/1B.1/None	Coastal dunes, coastal scrub/annual herb/ Mar–June/3–1,312	Not expected to occur. This species is not known to occur within the vicinity (i.e., Encinitas quadrangle) and there is and no suitable vegetation present.
Pinus torreyana ssp. *torreyana*	Torrey pine	None/None/1B.2/Covered	Closed-cone coniferous forest, chaparral; sandstone/ perennial evergreen tree/ N.A./98–525	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Pogogyne abramsii	San Diego mesa mint	FE/CE/1B.1/None	Vernal pools/annual herb/ Mar–July/295–656	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vernal pool habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Quercus dumosa	Nuttall's scrub oak	None/None/1B.1/Covered	Closed-cone coniferous forest, chaparral, coastal scrub; sandy, clay loam/perennial evergreen shrub/Feb–Apr (Aug)/49–1,312	Not expected to occur. The site is outside of the species' known elevation range, no suitable vegetation present, and this perennial shrub would have been observed during the site visits if present.
Quercus engelmannii	Engelmann oak	None/None/4.2/Covered	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland/ perennial deciduous tree/ Mar–June/164–4,265	Not expected to occur. The site is outside of the species' known elevation range, no suitable vegetation present, and this perennial tree would have been observed during the site visits if present.
Salvia munzii	Munz's sage	None/None/2B.2/None	Chaparral, coastal scrub/ perennial evergreen shrub/ Feb–Apr/377–3,494	Not expected to occur. The site is outside of the species' known elevation range, no suitable vegetation present, and this perennial shrub would have been observed during the site visits if present.
Senecio aphanactis	chaparral ragwort	None/None/2B.2/None	Chaparral, cismontane woodland, coastal scrub; sometimes alkaline/annual herb/Jan–Apr/49–2,625	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Sidalcea neomexicana	salt spring checkerbloom	None/None/2B.2/None	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas; alkaline, mesic/perennial herb/ Mar–June/49–5,015	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Sphaerocarpos drewei	bottle liverwort	None/None/1B.1/None	Chaparral, coastal scrub; openings, soil/ephemeral liverwort/N.A./295–1,969	Not expected to occur. The site is outside of the species' known elevation range and no suitable vegetation present.
Sphenopholis interrupta ssp. californica	prairie false oat	None/None/1B.1/None	Chaparral (coastal); Clay/annual herb/Apr/50–50	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation or clay soils present.
Stemodia durantifolia	purple stemodia	None/None/2B.1/None	Sonoran desert scrub (often mesic, sandy)/perennial herb/ Jan–Dec/591–984	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable desert scrub habitat on site.
Suaeda esteroa	estuary seablite	None/None/1B.2/None	Marshes and swamps (coastal salt)/perennial herb/ May–Oct (Jan)/0–16	Not expected to occur. No suitable coastal salt marsh habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR/ MHCP Draft Encinitas Subarea Plan)	Primary Habitat Associations/Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Tetracoccus dioicus	Parry's tetracoccus	None/None/1B.2/None	Chaparral, coastal scrub/perennial deciduous shrub/Apr–May/541–3,281	Not expected to occur. The site is outside of the species' known elevation range, no suitable vegetation present, and this perennial species would have been observed during the site visits if present.

Federal Designations
FE: Federally listed as endangered
FT: Federally listed as threatened
State Designations
CE: State listed as endangered
CT: State listed as threatened
CRPR: California Rare Plant Rank (previously known as the CNPS List)
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants about which more information is needed – A Review List
4: Plants of Limited Distribution – A Watch List
Threat Rank
.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 – Fairly threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
.3 – Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
MHCP Draft Encinitas Subarea Plan
Covered: Covered species under MHCP Draft Encinitas Subarea Plan
Narrow Endemic: Narrow endemic species under MHCP Draft Encinitas Subarea Plan (see Table 4-3 of the Subarea Plan).

References

Bauder, E.T. 2000. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=64832.

Appendix D1

Special-Status Wildlife Species Observed or Potentially Occurring within the Lake Drive Project Area

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
Amphibians				
arroyo toad	*Anaxyrus californicus*	FE/SSC/Covered	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	Not expected to occur. No suitable stream channels or stream terraces for this species. Outside of known range.
western spadefoot	*Spea hammondii*	None/SSC/Covered	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	Not expected to occur. No suitable wetlands with appropriate upland habitat present.
Reptiles				
Blainville's horned lizard	*Phrynosoma blainvillii*	None/SSC/None	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Moderate potential to occur. Suitable sandy coastal scrub on site. The project site is within the species' geographic range (SDNHM 2021a). Habitat patch isolation reduces potential from high to moderate.
California glossy snake	*Arizona elegans occidentalis*	None/SSC/None	Arid scrub, rocky washes, grasslands, chaparral, open areas with loose soil	Moderate potential to occur. Suitable sandy coastal scrub and chaparral on site. There are historical records of the species in Encinitas and Cardiff-by-the-Sea (SDNHM 2021a). Habitat patch isolation reduces potential from high to moderate.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
coast patch-nosed snake	*Salvadora hexalepis virgultea*	None/SSC/None	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites	Not expected to occur. Suitable shrubby vegetation on site (i.e., coastal sage scrub and southern maritime chaparral). The project site is within the species' geographic range, but the nearest record is at Del Dios (SDNHM 2021a) and they do not appear to be found within the immediate coastal areas of San Diego County.
orange-throated whiptail	*Aspidoscelis hyperythra*	None/WL/Covered	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood	High potential to occur. Coastal scrub present and the site is within the species' geographic range (SDNHM 2021a). Species occasionally occurs in lightly urbanized settings.
red diamondback rattlesnake	*Crotalus ruber*	None/SSC/None	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Moderate potential to occur. Suitable coastal scrub and chaparral present and there are historical records in Encinitas, Cardiff by the Sea, and surrounding areas (SDNHM 2021a). Habitat patch isolation reduces potential from high to moderate.
San Diegan tiger whiptail	*Aspidoscelis tigris stejnegeri*	None/SSC/None	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	High potential to occur. Chaparral present and the site is within the species' geographic range (SDNHM 2021a). Species occasionally occurs in lightly urbanized settings.
south coast garter snake	*Thamnophis sirtalis* ssp.	None/SSC/None	Marsh and upland habitats near permanent water and riparian vegetation	Not expected to occur. No permanent water or riparian vegetation on site.
southern California legless lizard	*Anniella stebbinsi*	None/SSC/None	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and moist sandy or loose, loamy soils	Moderate potential to occur. Suitable soils and scrub and chaparral present and there are historical records in Encinitas, Cardiff by the Sea, and Leucadia (SDNHM 2021a).

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
southwestern pond turtle	*Actinemys pallida*	PFT/None/Covered	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. No intermittent or perennial water sources on site.
two-striped gartersnake	*Thamnophis hammondii*	None/SSC/None	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected to occur. No standing or perennial to intermittent flowing water on site.
Birds				
American peregrine falcon	*Falco peregrinus anatum* (nesting)	FPD/FP, SCD/Covered	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	Not expected to nest given lack of nesting features. May aerially forage anywhere.
bank swallow	*Riparia riparia* (nesting)	None/ST/None	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	Not expected to occur. The bank swallow has been extirpated from its single known colony in San Diego County and is now rare even as a migrant (SDNHM 2021b).
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*	None/SE/Covered	Nests and forages in coastal saltmarsh dominated by pickleweed (Salicornia spp.)	Not expected to occur. No suitable saltmarsh vegetation present.
Bell's sage sparrow	*Artemisiospiza belli belli*	None/WL/Covered	Nests and forages in coastal scrub and dry chaparral; typically, in large, unfragmented patches dominated by chamise; nests in more dense patches but uses more open habitat in winter	Low potential to occur. Bell's sage sparrow has been eliminated from most coastal areas (SDNHM 2021b).
burrowing owl	*Athene cunicularia* (burrow sites and some wintering sites)	None/SSC/None	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not expected to occur. California ground squirrel observed on site, but vegetation is generally too dense to support this species. No suitable small mammal burrows were observed during surveys. Species not commonly found in highly urbanized settings; use of perching sites on site in eucalyptus by Coopers hawk

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
				likely also discourages potential use of the site.
California black rail	*Laterallus jamaicensis coturniculus*	None/FP, ST/None	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation	Not expected to occur. No suitable wet habitats present.
California brown pelican	*Pelecanus occidentalis californicus* (nesting colonies and communal roosts)	FPD/FP, SCD/Covered	Forages in warm coastal marine and estuarine environments; in California, nests on dry, rocky offshore islands	Not expected to occur. No marine or estuarine habitats on site.
California least tern	*Sternula antillarum browni* (nesting colony)	FE/FP, SE/Covered	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats	Not expected to occur. No suitable estuary, beach, or tidal habitat present.
coastal cactus wren	*Campylorhynchus brunneicapillus sandiegensis*	None/SSC/Covered, Narrow Endemic	Southern cactus scrub patches	Not expected to occur. Although there are some cactus species present, they are more scattered and do not constitute the cover nor extent to qualify as cactus scrub that would be suitable for coastal cactus wren. In addition, this conspicuous species would have been detected during surveys if present.
coastal California gnatcatcher	*Polioptila californica californica*	FT, BCC/SSC/Covered	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Observed during 2021 focused surveys. One successfully reproducing pair was detected in the north western portions of the study area
Cooper's hawk	*Accipiter cooperii* (nesting)	None/WL/Covered	Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water	Observed during 2021 focused surveys. Moderate potential to nest in eucalyptus trees on site.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
elegant tern	*Thalasseus elega* (nesting colony)	None/WL/Covered	Inshore coastal waters, bays, estuaries, and harbors; forages over open water	Not expected to occur. No inshore coastal waters on site.
golden eagle	*Aquila chrysaetos* (nesting and wintering)	None/FP, WL/Covered	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	Not expected to occur. The project site is located outside of the species' currently known breeding range, which includes only a few sites west of I-15. Though golden eagle has been observed in the vicinity (SDNHM 2021b), there is no suitable open foraging habitat and they typically avoid areas with human presence. This urban area would typically be avoided by golden eagle.
large-billed savannah sparrow	*Passerculus sandwichensis rostratus* (wintering)	None/SSC/Covered	Nests and forages in open, low saltmarsh vegetation, including low halophytic scrub	Not expected to occur. No suitable saltmarsh habitat on site.
least Bell's vireo	*Vireo bellii pusillus* (nesting)	FE/SE/Covered	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur. No suitable riparian habitat on site.
northern harrier	*Circus hudsonius* (nesting)	None/SSC/None	Nests in open wetlands (marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland, scrubs, rangelands, emergent wetlands, and other open habitats	Not expected to nest. No suitable wetland habitat or fields for nesting is present. May forage on site, particularly during the winter.
osprey	*Pandion haliaetus* (nesting)	None/WL/Covered	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast	Not expected to nest or forage. No suitable large waters on site for foraging and no suitable nesting sites. May occasionally use trees on site to perch while eating prey.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
Ridgway's rail	*Rallus obsoletus levipes*	FE/FP, SE/Covered	Coastal wetlands, brackish areas, coastal saline emergent wetlands	Not expected to occur. No suitable coastal wetland habitat present.
Southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	None/WL/Covered	Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches	Observed in the western portion of the site during 2021 surveys. May use any of the scrub habitat on site.
southwestern willow flycatcher	*Empidonax traillii extimus* (nesting)	FE/SE/Covered	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. No suitable riparian habitat on site.
Swainson's hawk	*Buteo swainsoni* (nesting)	None/ST/None	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Not expected to occur. The site is outside of the species' known breeding range (SDNHM 2021b). Species typically migrates through San Diego further east.
tricolored blackbird	*Agelaius tricolor* (nesting colony)	None/SSC, ST/None	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	Not expected to occur. No suitable emergent wetland vegetation present.
western bluebird	*Sialia mexicana*	None/None/Covered	Nests in old-growth red fir, mixed-conifer, and lodgepole pine habitats near wet meadows used for foraging. Has become more common in San Diego over the last decade and widely breeds.	High potential to occur on site during the non-breeding period. Low potential to nest on site in ornamental trees. Species was not detected during six focused survey visits for California gnatcatcher nor other surveys on site in 2021.
western snowy plover	*Charadrius alexandrinus nivosus* (nesting)	FT/SSC/Covered	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	Not expected to occur. No suitable marine or estuarine habitat present.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
western yellow-billed cuckoo	*Coccyzus americanus occidentalis (nesting)*	FT/SE/None	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. No suitable riparian habitat.
white-faced ibis	*Plegadis chihi* (nesting colony)	None/WL/Covered	Nests in shallow marshes with areas of emergent vegetation; winter foraging in shallow lacustrine waters, flooded agricultural fields, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries	Not expected to occur. Project site is outside of the species' breeding range (SDNHM 2021b) and no suitable shallow marsh habitat is present.
white-tailed kite	*Elanus leucurus* (nesting)	None/FP/None	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	Low potential to nest. The site has ornamental trees that white-tailed kite could use for nesting; however, white-tailed kite was not detected during six focused survey visits for California gnatcatcher nor other surveys on site in 2021. Could occur during the late and post-breeding period for foraging purposes.
yellow warbler	*Setophaga petechia* (nesting)	None/SSC/None	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Not expected to occur. No suitable riparian habitat.
yellow-breasted chat	*Icteria virens* (nesting)	None/SSC/Covered	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Not expected to occur. No suitable riparian habitat.
Fishes				
tidewater goby	*Eucyclogobius newberryi*	FE/None/None	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River	Not expected to occur. The site is outside of the species' known geographic range, and there is no suitable brackish water habitat present.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
Mammals				
American badger	*Taxidea taxus*	None/SSC/None	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Not expected to occur. The site supports suitable habitat; however, the site is isolated and small in size for this widely ranging species; no large burrows or other badger sign were observed during surveys.
big free-tailed bat	*Nyctinomops macrotis*	None/SSC/None	Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water	Not expected to occur. No suitable rocky areas for roosting and no water bodies for foraging.
Dulzura pocket mouse	*Chaetodipus californicus femoralis*	None/SSC/None	Open habitat, coastal scrub, chaparral, oak woodland, chamise chaparral, mixed-conifer habitats; disturbance specialist; 0 to 3,000 feet above mean sea level	Moderate potential to occur. Suitable coastal scrub and chaparral habitat present.
Jacumba pocket mouse	*Perognathus longimembris internationalis*	None/SSC/Covered	Desert scrub and sparse sage scrub in areas with fine sandy soils	Moderate potential to occur. Suitable coastal scrub and chaparral with sandy soils is present.
lesser long-nosed bat	*Leptonycteris yerbabuenae*	FPD/SSC/None	Sonoran desert scrub, semi-desert grasslands, lower oak woodlands	Not expected to occur. There is no suitable vegetation present.
Mexican long-tongued bat	*Choeronycteris mexicana*	None/SSC/None	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon–juniper woodland; roosts in caves, mines, and buildings	Not expected to occur. No suitable desert or riparian habitat present.
mule deer	*Odocoileus hemionus*	None/None/Covered	Coastal sage scrub, chaparral, riparian, woodlands, and forest; often browses in open area adjacent to cover throughout California, except deserts and intensely farmed areas	Low potential to occur. The project site is located in a largely urban setting and lacks large expanses of open space for mule deer.
northwestern San Diego pocket mouse	*Chaetodipus fallax fallax*	None/SSC/Covered	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon–juniper, and annual grassland	Captured during the 2022 live trapping surveys. Suitable coastal scrub and chaparral present.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
Pacific pocket mouse	*Perognathus longimembris pacificus*	FE/SSC/Narrow Endemic	fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium	Not expected to occur. Live trapping surveys conducted in 2022 were negative for this species. While this area is in the historical range and there is coastal sage scrub habitat and sandy soils on site, the 2020 USFWS five-year review considers all but 3 locations to be extirpated (one site on the Dana Point Headlands in Orange County and two sites on Marine Corps Base Camp Pendleton in San Diego County). Additionally, the most recent, closest documented occurrence is at Camp Pendleton (USFWS 2021a). The 82+ negative studies is a pretty good sample with the historical range that PPM has been extirpated from all potential sites other than Dana Point and Pendleton. Given the several negative trapping results in the immediate area, and arguably in better habitat (i.e., more open habitat and gentle terrain than the project site; more contiguous habitat) the chance of occupation in these areas is very low.
pallid bat	*Antrozous pallidus*	None/SSC/None	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Moderate potential to occur. Suitable coastal scrub and chaparral on site; however, no prominent rocky outcrops for roosting. May roost in ornamental trees on site.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
pocketed free-tailed bat	*Nyctinomops femorosaccus*	None/SSC/None	Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in high cliffs or rock outcrops with drop-offs, caverns, and buildings	Not expected to occur. No suitable habitat present.
puma	*Puma concolor*	None/None/Covered	Scrubs, chaparral, riparian, woodland, and forest; rests in rocky areas and on cliffs and ledges that provide cover; most abundant in riparian areas and brushy stages of most habitats throughout California, except deserts	Not expected to occur. The project site is located in a largely urban setting (i.e. adjacent to I-5 and surrounded by residential housing), does not support a sustainable food source (i.e. low potential for mule deer to occur), and lacks large expanses of open space for this species.
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*	BCC/SSC/Covered	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Low potential to occur. The project site is located in a largely urban setting and lacks large expanses of open space for San Diego black-tailed jackrabbit and is generally too densely vegetated.
San Diego desert woodrat	*Neotoma lepida intermedia*	None/SSC/None	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Captured during the 2022 live trapping surveys. Suitable coastal scrub and desert chaparral present.
spotted bat	*Euderma maculatum*	None/SSC/None	Foothills, mountains, desert regions of southern California, including arid deserts, grasslands, and mixed-conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes	Not expected to occur. No suitable prominent rock features for roosting present.
Stephens' kangaroo rat	*Dipodomys stephensi*	FE/ST/None	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas	Not expected to occur. Outside of the range of this species (USFWS 2021b).

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
Townsend's big-eared bat	*Corynorhinus townsendii*	None/SSC/None	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	Not expected to occur. No suitable caves or cave-like structures for roosting present.
western mastiff bat	*Eumops perotis californicus*	None/SSC/None	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	Not expected to occur. No suitable cliffs or crevices for roosting present.
western red bat	*Lasiurus blossevillii*	None/SSC/None	Forest, woodland, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy	Not expected to occur. No suitable forest or woodland habitat for roosting present.
western yellow bat	*Dasypterus xanthinus*	None/SSC/None	Valley–foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 feet above mean sea level; roosts in riparian and palms	Not expected to occur. No suitable riparian, wash, or palm oasis habitat present.
Invertebrates				
Crotch's bumble bee	*Bombus crotchii*	None/SCE/None	Open grassland and scrub communities supporting suitable floral resources.	Moderate potential to occur. Suitable habitat containing floral resources occurs within the site; however, the closest CNDDB (CDFW 2021) occurrence for this species is 5.7 miles northeast of the site located in Rancho Santa Fe.
oblivious tiger beetle	*Cicindela latesignata obliviosa*	None/None/Narrow Endemic	Saline mudflats and moist sandy spots in estuaries of small streams in the lower zone	Not expected to occur. No suitable mudflat or aquatic habitat on site.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
Quino checkerspot butterfly	*Euphydryas editha quino*	FE/None/Covered	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include Plantago erecta, Antirrhinum coulterianum, and Plantago patagonica (Silverado Occurrence Complex)	Not expected to occur. The project site is outside of the USFWS's recommended Quino survey area (USFWS 2014).
Riverside fairy shrimp	*Streptocephalus woottoni*	FE/None/Covered, Narrow Endemic	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. No suitable vernal or ephemeral pools present.
San Diego fairy shrimp	*Branchinecta sandiegonensis*	FE/None/Covered, Narrow Endemic	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. No suitable vernal or ephemeral pools present.
wandering skipper	*Panoquina errans*	None/None/Covered	Saltmarsh	Not expected to occur. No suitable saltmarsh habitat present.

Federal Designations
BCC: USFWS—Birds of Conservation Concern
FE: Federally listed as endangered
FPD: Federally proposed for delisting
FT: Federally listed as threatened
PFT: Proposed federally listed as threatened
State Designations
FP: CDFW Fully Protected Species
SCD: State candidate for delisting
SSC: California Species of Special Concern
SCE: State Candidate for listing as Endangered
SE: State listed as endangered
ST: State listed as threatened
WL: CDFW Watch List Species
Multiple Habitat Conservation Program (MHCP) Draft Encinitas Subarea Plan
Covered: Covered species under the draft City of Encinitas Subarea Plan (City of Encinitas 2001)
Narrow Endemic: Narrow endemic species under the draft City of Encinitas Subarea Plan (see Table 4-3).

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Appendix D2

Special-Status Wildlife Species Observed or Potentially Occurring within the Manchester Avenue Project Area

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
Amphibians				
arroyo toad	*Anaxyrus californicus*	FE/SSC/Covered	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	Not expected to occur. No suitable stream channels or stream terraces for this species. Outside of known range.
western spadefoot	*Spea hammondii*	PFT/SSC/Covered	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	Not expected to occur. No suitable grasslands or vernal pools with appropriate upland habitat present.
Reptiles				
Blainville's horned lizard	*Phrynosoma blainvillii*	None/SSC/None	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Not expected to occur. No suitable habitat present, and site conditions are disturbed by sediment accumulation below the culvert.
California glossy snake	*Arizona elegans occidentalis*	None/SSC/None	Arid scrub, rocky washes, grasslands, chaparral, open areas with loose soil	Not expected to occur. No suitable habitat present. There are historical records of the species in Encinitas and Cardiff-by-the-Sea (SDNHM 2023a).
coast patch-nosed snake	*Salvadora hexalepis virgultea*	None/SSC/None	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites	Not expected to occur. No suitable habitat present. The project site is within the species' geographic range, but the nearest record is at Del Dios (SDNHM 2023a) and they do not appear to be found within the immediate coastal areas of San Diego County.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
orange-throated whiptail	*Aspidoscelis hyperythra*	None/WL/Covered	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood	Not expected to occur. No suitable habitat present, and site conditions are disturbed by sediment accumulation below the culvert. The site is within the species' geographic range (SDNHM 2023a).
red diamondback rattlesnake	*Crotalus ruber*	None/SSC/None	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Not expected to occur. No suitable habitat present, and site conditions are disturbed by sediment accumulation below the culvert. There are historical records in Encinitas, Cardiff by the Sea, and surrounding areas (SDNHM 2023a).
San Diegan tiger whiptail	*Aspidoscelis tigris stejnegeri*	None/SSC/None	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Not expected to occur. No suitable habitat present, and site conditions are disturbed by sediment accumulation below the culvert. The site is within the species' geographic range (SDNHM 2023a).
south coast garter snake	*Thamnophis sirtalis* ssp.	None/SSC/None	Marsh and upland habitats near permanent water and riparian vegetation	Low potential to occur. Limited freshwater marsh and upland habitats, water source is from storm drain, and site conditions are disturbed by sediment accumulation below the culvert. The site is within the species' geographic range (SDNHM 2023a). Adjacency to roadway and urbanization reduces potential from moderate to low.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
southern California legless lizard	*Anniella stebbinsi*	None/SSC/None	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and moist sandy or loose, loamy soils	Not expected to occur. No suitable habitat present, and site conditions are disturbed by sediment accumulation below the culvert. There are historical records in Encinitas, Cardiff by the Sea, and Leucadia (SDNHM 2023a).
southwestern pond turtle	*Actinemys pallida*	PFT/None/Covered	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. No natural streams are present (water source is from storm drain), limited upland habitats, and site conditions are disturbed by sediment accumulation below the culvert.
two-striped gartersnake	*Thamnophis hammondii*	None/SSC/None	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Low potential to occur. Limited freshwater marsh, water source is from storm drain, and site conditions are disturbed by sediment accumulation below the culvert. Adjacency to roadway and urbanization reduces potential from moderate to low.
Birds				
American peregrine falcon	*Falco peregrinus anatum* (nesting)	FPD/FP, SCD/Covered	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	Not expected to nest given lack of nesting features. May aerially forage over the San Elijo Lagoon.
bank swallow	*Riparia riparia* (nesting)	None/ST/None	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	Not expected to occur. The bank swallow has been extirpated from its single known colony in San Diego County and is now rare even as a migrant (SDNHM 2023b).

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*	None/SE/Covered	Nests and forages in coastal saltmarsh dominated by pickleweed (*Salicornia* spp.)	Not expected to occur. No suitable saltmarsh vegetation present.
Bell's sage sparrow	*Artemisiospiza belli belli*	None/WL/Covered	Nests and forages in coastal scrub and dry chaparral; typically, in large, unfragmented patches dominated by chamise; nests in more dense patches but uses more open habitat in winter	Not expected to occur. Bell's sage sparrow has been eliminated from most coastal areas (SDNHM 2023b).
burrowing owl	*Athene cunicularia* (burrow sites and some wintering sites)	None/SSC/None	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not expected to occur. No California ground squirrels were observed on site, and no suitable vegetation or small mammal burrows present. Species not commonly found in highly urbanized settings.
California black rail	*Laterallus jamaicensis coturniculus*	None/FP, ST/None	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation	Low potential to occur. Limited suitable habitat (water source is from storm drain), site conditions are disturbed by sediment accumulation below the culvert and site occurs adjacent to roadway/urbanization (high level of disturbance). There is one CNDDB occurrence for this species (#53; CDFW 2023) that covers the entire San Elijo Lagoon (i.e., accuracy is non-specific bounded area). Because the occurrence is from 1973 and does not give an exact location, the potential is reduced from moderate to low given the limited suitable habitat within the site.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
California brown pelican	*Pelecanus occidentalis californicus* (nesting colonies and communal roosts)	FPD/FP, SCD/Covered	Forages in warm coastal marine and estuarine environments; in California, nests on dry, rocky offshore islands	Not expected to nest given lack of nesting features within site. May aerially forage over the San Elijo Lagoon.
California least tern	*Sternula antillarum browni* (nesting colony)	FE/FP, SE/Covered	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats	Not expected to nest given lack of nesting features within site. May aerially forage over the San Elijo Lagoon.
coastal cactus wren	*Campylorhynchus brunneicapillus sandiegensis*	None/SSC/Covered, Narrow Endemic	Southern cactus scrub patches	Not expected to occur. No cactus scrub habitat present.
coastal California gnatcatcher	*Polioptila californica californica*	FT, BCC/SSC/Covered	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Low potential to occur within site. No suitable habitat present . This conspicuous species was not incidentally observed during field surveys in 2020 or 2023. This species could nest in coastal sage scrub areas adjacent to the site. Known to occur within the San Elijo Lagoon (iNaturalist 2023; CDFW 2023).
Cooper's hawk	*Accipiter cooperii* (nesting)	None/WL/Covered	Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water	Not expected to nest within the site. Majority of site is freshwater marsh with a few scattered willows present (limited suitable habitat) and site occurs adjacent to roadway/urbanization (high level of disturbance). May aerially forage over the San Elijo Lagoon.
elegant tern	*Thalasseus elega* (nesting colony)	None/WL/Covered	Inshore coastal waters, bays, estuaries, and harbors; forages over open water	Not expected to nest given lack of nesting features within site. May aerially forage over San Elijo Lagoon.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
golden eagle	*Aquila chrysaetos* (nesting and wintering)	None/FP, WL/Covered	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	Not expected to occur. The project site is located outside of the species' currently known breeding range, which includes only a few sites west of I-15. Though golden eagle has been observed in the vicinity (SDNHM 2023b), and there is suitable open foraging habitat, they typically avoid areas with human presence. This urban area would typically be avoided by golden eagle.
large-billed savannah sparrow	*Passerculus sandwichensis rostratus* (wintering)	None/SSC/Covered	Nests and forages in open, low saltmarsh vegetation, including low halophytic scrub	Not expected to occur. No suitable saltmarsh habitat on site.
least Bell's vireo	*Vireo bellii pusillus* (nesting)	FE/SE/Covered	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Low potential to occur. Majority of site is freshwater marsh with a few scattered willows present (limited suitable habitat) and site occurs adjacent to roadway/urbanization (high level of disturbance). Not known to occur within the San Elijo Lagoon (CDFW 2023).
northern harrier	*Circus hudsonius* (nesting)	None/SSC/None	Nests in open wetlands (marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland, scrubs, rangelands, emergent wetlands, and other open habitats	Not expected to nest. Site is limited in size, site conditions are disturbed by sediment accumulation below the culvert, and site occurs adjacent to roadway/urbanization (high level of disturbance). May forage over site, particularly during the winter.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
osprey	*Pandion haliaetus* (nesting)	None/WL/Covered	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast	Not expected to nest. Site is limited in size, site conditions are disturbed by sediment accumulation below the culvert, and site occurs adjacent to roadway/urbanization (high level of disturbance). Does forage over San Elijo Lagoon.
Ridgway's rail	*Rallus obsoletus levipes*	FE/FP, SE/Covered	Coastal wetlands, brackish areas, coastal saline emergent wetlands	Low potential to occur. Limited suitable habitat (water source is from existing storm drain), site conditions are disturbed by sediment accumulation below the culvert and site occurs adjacent to roadway/urbanization (high level of disturbance). There is one CNDDB occurrence for this species from 2007 (#3; CDFW 2023) that covers the entire San Elijo Lagoon (i.e., accuracy is non-specific bounded area). Because the occurrence does not give an exact location, the potential is reduced from moderate to low given the limited suitable habitat within the site.
Southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	None/WL/Covered	Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches	Not expected to occur. No scrub habitat present and no areas of rocky or grassy patches.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
southwestern willow flycatcher	*Empidonax traillii extimus* (nesting)	FE/SE/Covered	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. Majority of site is freshwater marsh with a few scattered willows present (limited suitable habitat) and site occurs adjacent to roadway/urbanization (high level of disturbance). Not known to occur within the San Elijo Lagoon (CDFW 2023).
Swainson's hawk	*Buteo swainsoni* (nesting)	None/ST/None	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Not expected to occur. The site is outside of the species' known breeding range (SDNHM 2023b). Species typically migrates through San Diego further east.
tricolored blackbird	*Agelaius tricolor* (nesting colony)	None/SSC, ST/None	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	Not expected to occur. Limited suitable emergent wetland vegetation present and this species is not known to occur within the vicinity (i.e., Encinitas quadrangle; CDFW 2023).
western bluebird	*Sialia mexicana*	None/None/Covered	Nests in old-growth red fir, mixed-conifer, and lodgepole pine habitats near wet meadows used for foraging. Has become more common in San Diego over the last decade and widely breeds.	Moderate potential to forage on site during the non-breeding period. Not expected to nest on site. Species was not observed during field surveys in 2023.
western snowy plover	*Charadrius alexandrinus nivosus* (nesting)	FT/SSC/Covered	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	Not expected to nest given lack of nesting features within site.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
western yellow-billed cuckoo	*Coccyzus americanus occidentalis (nesting)*	FT/SE/None	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. Majority of site is freshwater marsh with a few scattered willows present (limited suitable habitat) and site occurs adjacent to roadway/urbanization (high level of disturbance). Not known to occur within the San Elijo Lagoon (CDFW 2023).
white-faced ibis	*Plegadis chihi* (nesting colony)	None/WL/Covered	Nests in shallow marshes with areas of emergent vegetation; winter foraging in shallow lacustrine waters, flooded agricultural fields, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries	Not expected to nest. Low potential to forage, site is outside of the species' breeding range (SDNHM 2023b) and very limited suitable shallow marsh habitat is present.
white-tailed kite	*Elanus leucurus* (nesting)	None/FP/None	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	Not expected to nest, low potential to forage. Majority of site is freshwater marsh with a few scattered willows present (limited suitable habitat) and site occurs adjacent to roadway/urbanization (high level of disturbance). This species was not detected during field surveys in 2023. Known to occur within the San Elijo Lagoon (iNaturalist 2023).
yellow warbler	*Setophaga petechia* (nesting)	None/SSC/None	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Low potential to occur. Majority of site is freshwater marsh with a few scattered willows present (limited suitable habitat) and site occurs adjacent to roadway/urbanization (high level of disturbance). Not known to occur within the San Elijo Lagoon (CDFW 2023).

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
yellow-breasted chat	*Icteria virens* (nesting)	None/SSC/Covered	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Not expected to occur. Majority of site is freshwater marsh with a few scattered willows present (limited suitable habitat) and site occurs adjacent to roadway/urbanization (high level of disturbance). Known to occur within the San Elijo Lagoon (iNaturalist 2023).
Fishes				
tidewater goby	*Eucyclogobius newberryi*	FE/None/None	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River	Not expected to occur. The site is outside of the species' known geographic range, and there is no suitable brackish water habitat present.
Mammals				
American badger	*Taxidea taxus*	None/SSC/None	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Not expected to occur. The site is isolated and small in size for this widely ranging species; no large burrows or other badger sign were observed during surveys.
big free-tailed bat	*Nyctinomops macrotis*	None/SSC/None	Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water	Not expected to roost, low potential to forage. No suitable rocky areas for roosting. May forage over the San Elijo Lagoon, but species is not known to occur within the vicinity (i.e., Encinitas quadrangle; CDFW 2023).
Dulzura pocket mouse	*Chaetodipus californicus femoralis*	None/SSC/None	Open habitat, coastal scrub, chaparral, oak woodland, chamise chaparral, mixed-conifer habitats; disturbance specialist; 0 to 3,000 feet above mean sea level	Not expected to occur. No suitable habitat present, and site conditions are disturbed by sediment accumulation below the culvert.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
Jacumba pocket mouse	*Perognathus longimembris internationalis*	None/SSC/Covered	Desert scrub and sparse sage scrub in areas with fine sandy soils	Not expected to occur. No suitable habitat present, and site conditions are disturbed by sediment accumulation below the culvert. This species is not known to occur within the vicinity (i.e., Encinitas quadrangle; CDFW 2023).
lesser long-nosed bat	*Leptonycteris yerbabuenae*	FPD/SSC/None	Sonoran desert scrub, semi-desert grasslands, lower oak woodlands	Not expected to occur. There is no suitable habitat present.
Mexican long-tongued bat	*Choeronycteris mexicana*	None/SSC/None	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon–juniper woodland; roosts in caves, mines, and buildings	Not expected to occur. No suitable desert or montane riparian habitat present.
mule deer	*Odocoileus hemionus*	None/None/Covered	Coastal sage scrub, chaparral, riparian, woodlands, and forest; often browses in open area adjacent to cover throughout California, except deserts and intensely farmed areas	Low potential to occur within the site due to surrounding urbanization and isolation. Known to occur within the San Elijo Lagoon, with the majority of observations occurring on the east side of Interstate 5 (iNaturalist 2023), which provides a large open space area for foraging.
northwestern San Diego pocket mouse	*Chaetodipus fallax fallax*	None/SSC/Covered	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon–juniper, and annual grassland	Not expected to occur. No suitable habitat present, and site conditions are disturbed by sediment accumulation below the culvert.
Pacific pocket mouse	*Perognathus longimembris pacificus*	FE/SSC/Narrow Endemic	fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium	Not expected to occur. No suitable habitat present, and site conditions are disturbed by sediment accumulation below the culvert. Region has been well trapped with negative findings and it is assumed that they are now extirpated from the vicinity.

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
pallid bat	*Antrozous pallidus*	None/SSC/None	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Not expected to roost, low potential to forage. Majority of site is freshwater marsh with a few scattered willows present (limited suitable habitat) and site occurs adjacent to roadway/urbanization (high level of disturbance). May forage over the San Elijo Lagoon, but species is not known to occur within the vicinity (i.e., Encinitas quadrangle; CDFW 2023).
pocketed free-tailed bat	*Nyctinomops femorosaccus*	None/SSC/None	Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in high cliffs or rock outcrops with drop-offs, caverns, and buildings	Not expected to occur. No suitable desert habitat for foraging or high cliffs or rock outcrops for roosting habitat are present.
puma	*Puma concolor*	None/SC/Covered	Scrubs, chaparral, riparian, woodland, and forest; rests in rocky areas and on cliffs and ledges that provide cover; most abundant in riparian areas and brushy stages of most habitats throughout California, except deserts	Not expected to occur. The site is located adjacent to an urban setting and this species typically avoids areas with human presence. This species may use the San Elijo Lagoon to move through the regional vicinity.
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*	BCC/SSC/Covered	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Not expected to occur. The site is limited in size, lacks arid habitats, and is generally too densely vegetated.
San Diego desert woodrat	*Neotoma lepida intermedia*	None/SSC/None	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Not expected to occur. No middens were observed during surveys and No suitable habitat present.
spotted bat	*Euderma maculatum*	None/SSC/None	Foothills, mountains, desert regions of southern California, including arid deserts, grasslands, and mixed-conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes	Not expected to occur. No suitable arid desert habitats and no prominent rock features for roosting present. This species is not known to occur within the vicinity (i.e., Encinitas quadrangle; CDFW 2023).

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
Stephens' kangaroo rat	*Dipodomys stephensi*	FE/ST/None	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas	Not expected to occur. Outside of the range of this species (USFWS 2023.
Townsend's big-eared bat	*Corynorhinus townsendii*	None/SSC/None	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	Not expected to occur. No suitable foraging habitat or caves or cave-like structures for roosting present. This species is not known to occur within the vicinity (i.e., Encinitas quadrangle; CDFW 2023).
western mastiff bat	*Eumops perotis californicus*	None/SSC/None	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	Not expected to occur. No suitable habitat present for foraging and no suitable cliffs or crevices for roosting present. This species is not known to occur within the vicinity (i.e., Encinitas quadrangle; CDFW 2023).
western red bat	*Lasiurus blossevillii*	None/SSC/None	Forest, woodland, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy	Not expected to occur. Majority of site is freshwater marsh with a few scattered willows present (limited suitable foraging and roosting habitat). This species is not known to occur within the vicinity (i.e., Encinitas quadrangle; CDFW 2023).
western yellow bat	*Dasypterus xanthinus*	None/SSC/None	Valley–foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 feet above mean sea level; roosts in riparian and palms	Not expected to occur. Majority of site is freshwater marsh with a few scattered willows present (limited suitable foraging and roosting habitat). This species is not known to occur within the vicinity (i.e., Encinitas quadrangle; CDFW 2023).

Common Name	Scientific Name	Status (Federal/State/MHCP)	Habitat	Potential to Occur
Invertebrates				
Crotch's bumble bee	*Bombus crotchii*	None/SCE/None	Open grassland and scrub communities supporting suitable floral resources.	Not expected to occur. There are no suitable grassland or scrub communities within the site and the site does not contain suitable floral resources.
oblivious tiger beetle	*Cicindela latesignata obliviosa*	None/None/Narrow Endemic	Saline mudflats and moist sandy spots in estuaries of small streams in the lower zone	Not expected to occur. No saline mudflats on site and sediment deposition is from existing culvert outfall not a natural stream.
Quino checkerspot butterfly	*Euphydryas editha quino*	FE/None/Covered	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include Plantago erecta, Antirrhinum coulterianum, and Plantago patagonica (Silverado Occurrence Complex)	Not expected to occur. The project site is outside of the USFWS's recommended Quino survey area (USFWS 2014).
Riverside fairy shrimp	*Streptocephalus woottoni*	FE/None/Covered, Narrow Endemic	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. No suitable vernal or ephemeral pools present.
San Diego fairy shrimp	*Branchinecta sandiegonensis*	FE/None/Covered, Narrow Endemic	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. No suitable vernal or ephemeral pools present.
wandering skipper	*Panoquina errans*	None/None/Covered	Saltmarsh	Not expected to occur. No suitable saltmarsh habitat present.

Federal Designations
BCC: USFWS—Birds of Conservation Concern
FE: Federally listed as endangered
FPD: Federally proposed for delisting
FT: Federally listed as threatened
PFT: Proposed federally listed as threatened
State Designations
FP: CDFW Fully Protected Species
SC: State candidate species
SCD: State candidate for delisting
SSC: California Species of Special Concern
SE: State listed as endangered
ST: State listed as threatened

WL: CDFW Watch List Species
North County Multiple Habitat Conservation Program (MHCP)
Covered: Covered species under the draft City of Encinitas Subarea Plan
Narrow Endemic: Narrow endemic species under the draft City of Encinitas Subarea Plan (see Table 4-3).

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Appendix E

2021 Focused Coastal California Gnatcatcher Survey Report for the Proposed Lake Drive Storm Drain Project

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July 8, 2021 (Resent July 30, 2021) 10797.08

U.S. Fish and Wildlife Service
Attention: Recovery Permit Coordinator
2177 Salk Avenue, No. 250
Carlsbad, California 92008

Subject: 2021 Focused Coastal California Gnatcatcher Survey Report for the Proposed Lake Drive Storm Drain Project, Encinitas, County of San Diego, California

Dear Recovery Permit Coordinator:

This letter report documents the results of six protocol-level focused surveys for the coastal California gnatcatcher (*Polioptila californica californica*) that were conducted for the proposed Lake Drive Storm Drain Project (project), which is located on an approximately 25.21-acre site, by Dudek biologist Erin Bergman between April 14, 2021, and June 17, 2021. The surveys were conducted in areas of suitable coastal California gnatcatcher habitat, which included the entire project site.

The coastal California gnatcatcher is a federally listed threatened species and a California Department of Fish and Wildlife species of special concern. It is closely associated with coastal sage scrub habitat and, therefore, threatened primarily by loss, degradation, and fragmentation of this habitat. Coastal California gnatcatcher typically occurs below 820 feet above mean sea level (amsl) within 22 miles of the coast. Studies have suggested that coastal California gnatcatcher avoid nesting on very steep slopes (greater than 40%) (Bontrager 1991). Coastal California gnatcatcher is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism (Braden et al. 1997).

1. Project Location and Existing Conditions

The approximately 25.21-acre project site is located northeast of Interstate 5, south of Sea Village Drive, west of Lake Drive in Encinitas, California (Figure 1). The site is surrounded by developed private parcels on the northern and eastern edge. The western edge of the project site is bordered by the Interstate 5 freeway. The southern portion of the project site consists of open space that allows for wildlife movement into other urban canyons. The study site includes Parcel ID 2611506900.

Elevations range from approximately 130 feet amsl to approximately 290 feet amsl. The site is dominated by Diegan coastal sage scrub. The next most abundant community is southern maritime chaparral. These communities make up the majority of the on-site vegetation onsite (Table 1). Topography of the site consists of rolling hills, steep coastal bluffs, moderately steep coastal bluffs, and a variety of erosive features. The site is intersected by trails in a variety of locations.

2. Vegetation Communities

Three plant communities were identified within the project site as highly suitable coastal California gnatcatcher habitat: Diegan coastal sage scrub-coastal form, southern maritime chaparral, and Diegan coastal sage scrub baccharis-dominated. All other vegetation communities were included within the coastal California gnatcatcher survey

even though they are not considered highly suitable habitat. Due to the small size of the other communities, they were included within the study area because they intersected other areas of high-quality coastal California gnatcatcher habitat. Approximately 25.21 acres of coastal California gnatcatcher-suitable habitat was mapped on site in accordance with Holland (1986) and Oberbauer et al. (2008), as described in Table 1.

The 25.12-acre project site primarily consists of Diegan coastal sage scrub. The vegetation communities and land covers were mapped according to Oberbauer et al. (2008). The project area includes six vegetation communities and two land cover types. The vegetation communities and land cover types recorded on the project site are described in detail in the following sections and their acreages are presented in Table 1.

Table 1. Vegetation Communities and Land Cover Types on the Project Site

Vegetation Community/Land Cover Type	Habitat Code	Acreage
Native Upland Vegetation Communities		
Diegan Coastal Sage scrub: Coastal Form	32510	16.66
Diegan Coastal Sage Scrub: Baccharis-dominated	32530	0.54
Diegan Coastal Sage Scrub (Restored/Landscaped)	32510	0.17
Non-Native Grassland	42200	0.14
Southern Maritime Chaparral	37C30	6.56
Native Upland Vegetation Communities Subtotal		*24.08*
Non-Native Vegetation Communities and Land Covers		
Disturbed Habitat	11300	0.07
Eucalyptus Woodland	79100	0.82
Urban/Developed	12000	0.25
Non-Native Vegetation Communities and Land Covers Subtotal		*1.14*
Total		**25.21**

Note: Some numbers may not sum due to rounding.

2.1 Diegan Coastal Sage Scrub

Approximately 17.37 acres of Diegan coastal sage scrub and communities with patchy or baccharis-dominated Diegan coastal sage scrub habitat occur within the survey site. Diegan coastal sage scrub is a native plant community composed of a variety of soft, low, aromatic shrubs characteristically dominated by drought-deciduous species, such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), and black sage (*Salvia mellifera*). It typically develops on south-facing slopes and other xeric locations (Holland 1986).

Coastal sage scrub is recognized as a sensitive plant community by local, state, and federal wildlife agencies. It supports a rich diversity of sensitive plants and animals, and it is estimated that it has been reduced by 75% to 80% of its historical coverage throughout Southern California. It is the focus of the current California Natural Community Conservation Planning program in Southern California.

On site, Diegan coastal sage scrub is dominated by California sagebrush, California buckwheat, laurel sumac, lemonadeberry *(Rhus integrifolia*), deerweed (*Acmispon glaber*), and black sage (*Salvia mellifera*). The coastal sage scrub has patches of high-quality habitat where native blubs and cryptogamic crusts make up the ground cover. Weed's mariposa lily (*Calochortus weedii* var. *weedii*) occurs in some patches of the coastal sage scrub. Other areas of coastal sage scrub have a ground cover that consists of small amounts of perennial veldt grass (*Ehrharta calycina*), a non-native invasive coastal species. The shrub cover consists of only native species and is all high-quality habitat for the coastal California gnatcatcher.

2.1.1 Diegan Coastal Sage Scrub: Baccharis-Dominated

Diegan coastal sage scrub baccharis-dominated is similar to coastal sage scrub but is dominated by baccharis species. Coastal sage scrub baccharis-dominated typically occurs where soils are nutrient-poor and disturbance is present and typically fills in areas after high levels of disturbance (Oberbauer 2008).

On site, broom baccharis dominates the vegetation community and makes up approximately 50–60% cover of the vegetation. The understory of this community consists mostly native species with few non-native species. Less commonly occurring species include deerweed, buckwheat, fennel (*Foeniculum vulgare*), jimpson weed (*Datura wrightii*), telegraph weed (*Heterotheca grandiflora*), horehound (*Marrubium vulgare*), and sow-thistle (*Sonchus oleraceus*). Some portions consist of bare soils.

2.1.2 Southern Maritime Chaparral

Southern maritime chaparral is a low and fairly open community dominated by wart-stemmed ceanothus (*Ceanothus verrucosus*) and Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*). It develops primarily on weathered stands in the coastal fog belt. Fire may be necessary for long-term persistence of characteristic species, which include chamise (*Adenostoma fasciculatum*), Del Mar manzanita, Encinitas baccharis (*Baccharis vanessae*), wart-stemmed ceanothus, coast spice bush (*Cneoridium dumosum*), summer-holly (*Comarostaphylis diversifolia*), San Diego sea-dahlia (*Leptosyne maritima*), Del Mar mesa sand-aster (*Corethrogyne filaginifolia* var. *linifolia*), western dichondra (*Dichondra occidentalis*), toyon (*Heteromeles arbutifolia*), Torrey pine (*Pinus torreyana* ssp. *torreyana*), Nuttall's scrub oak (*Quercus dumosa*), laurel sumac (*Malosma laurina*), sugar bush (*Rhus ovata*), fragrant sage (*Salvia clevelandii*), mission manzanita (*Xylococcus bicolor*), and Mohave yucca (*Yucca schidigera*) (Oberbauer et al. 2008).

On site, southern maritime chaparral is dominated by wart-stemmed ceanothus, chamise and Nuttall's scrub oak. The understory of southern maritime chaparral consists mostly of cryptogamic crusts, with Del Mar sand-aster also present.

3. Methods

Six focused surveys for coastal California gnatcatcher were performed within suitable habitat between April 14, 2021 and June 17, 2021 by coastal California gnatcatcher-permitted biologist Erin Bergman (TE-53771B-0), according to the schedule in Table 2. The surveys were conducted following the current accepted protocol of the U.S. Fish and Wildlife Service, *Coastal California Gnatcatcher (*Polioptila californica californica) *Presence/Absence Survey*

Protocol (USFWS 1997), using the breeding season survey methods. Coastal California gnatcatchers were documented using a variety of features that helped distinguish individuals from one another to assist with determining the number of pairs. Some distinguishing features include male cap color (variation in the darkness of the black cap) and male cap thickness, width, and length. Coastal California gnatcatcher color patterns, unique markings, behaviors, pitch of call, and song variation were used to separate each observation.

Table 2. Survey Details and Conditions

Date	Time	Survey Effort (acres/hour)	Survey Conditions
4/14/2021	6:00 a.m.–11:25 p.m.	5	58°F–67°F; 50%–60% cloud cover, 0–3 mile per hour winds
4/24/2021	8:00 a.m.–10:53 p.m.	8	57°F–61°F; 0%–100% cloud cover; 0–4 mile per hour winds
5/1/2021	5:59 a.m.–12:02 p.m.	4	55°F–76°F; 0%–100% cloud cover; 0–3 mile per hour winds
5/7/2021	8:00 a.m.-12:12 p.m.	6	66°F–77°F; 0%–100% cloud cover; 0–5 mile per hour winds
6/3/2021	7:34 a.m.-12:17 p.m.	5	59°F–65°F; 0%–100% cloud cover; 0–5 mile per hour winds
6/17/2021	7:30 a.m.-11:25 p.m.	6	63°F–81°F; 0%–100% cloud cover; 0–3 mile per hour winds

Non-coastal California gnatcatcher-permitted biologist Kathleen Dayton accompanied the coastal California gnatcatcher-permitted biologist as a passive observer, which included sitting quietly with little or no movement for prolonged periods while studying coastal California gnatcatcher movements with binoculars and carefully listening to vocalizations. Only the coastal California gnatcatcher-permitted biologist used audio-playback techniques to encourage coastal California gnatcatcher responses.

Survey routes for site visits completely covered the areas of suitable coastal California gnatcatcher habitat on site, as shown on Figure 2. Appropriate birding binoculars (8×42) were used to aid in detecting and identifying bird species. A recording of coastal California gnatcatcher vocalizations was used to elicit a response from the species. The recording was played approximately every 50 to 100 feet, and when a coastal California gnatcatcher was detected, the playing of the recording ceased to avoid harassment. A 100-scale (1 inch = 100 feet) aerial photograph of the study area overlaid with the vegetation and site boundaries was used to map any coastal California gnatcatcher detected. Weather conditions, time of day, and season were within protocol limits and appropriate for the detection of gnatcatchers, as shown in Table 2.

4. Results

During the survey efforts, coastal California gnatcatcher observations included one pair and eventually juveniles that were reared to self-sustaining status during the 2021 season. The following discussion provides the description of the location and the methods of detection for each observation.

Pair 1 with Juveniles

Pair 1 was observed consistently (both visually and acoustically) within the northern and eastern portion of the site. The female and male were together during the first and second survey but did not present any nesting behaviors during this time. This pair did not separate from each other during these visits. The male had a distinct black cap that was large and consisted of a rough edge. During the third, fourth, and fifth surveys, the male was very protective of the female and her nest. The male utilized tactics to keep others away from the nest and spent time moving around the site, likely looking for food and/or distracting predators. The male was consistently singing loudly and traveling throughout the territory. The female was hidden during the third, fourth, and fifth surveys. During survey six, two juveniles were observed flying with the male and female pair. The pair stayed very close together with the juveniles during the entire visit once observed.

Pair 1's most consistent location during the six surveys is shown on Figure 3. Though the pair utilizes the entire site as their territory, they are limited in space by the private housing and roads.

In total, 35 wildlife species were recorded during the survey efforts and are included in Appendix A.

I certify that the information in this survey report and attached exhibits fully and accurately represents my work. Please feel free to contact Erin Bergman at ebergman@dudek.com if you have any questions regarding the contents of this report.

Sincerely,



Erin Bergman

Atts: *Figure 1: Survey Area*
Figure 2: Coastal California Gnatcatcher Survey Route
Figure 3: Coastal California Gnatcatcher Survey Results
Appendix A: Wildlife Species Observed During the 2021 Lake Drive Storm Drain Project Coastal California Gnatcatcher Surveys

cc: *Megan Enright menright@dudek.com*
Danielle Mullen dmullen@dudek.com
Kathleen Dayton Kdayton@dudek.com

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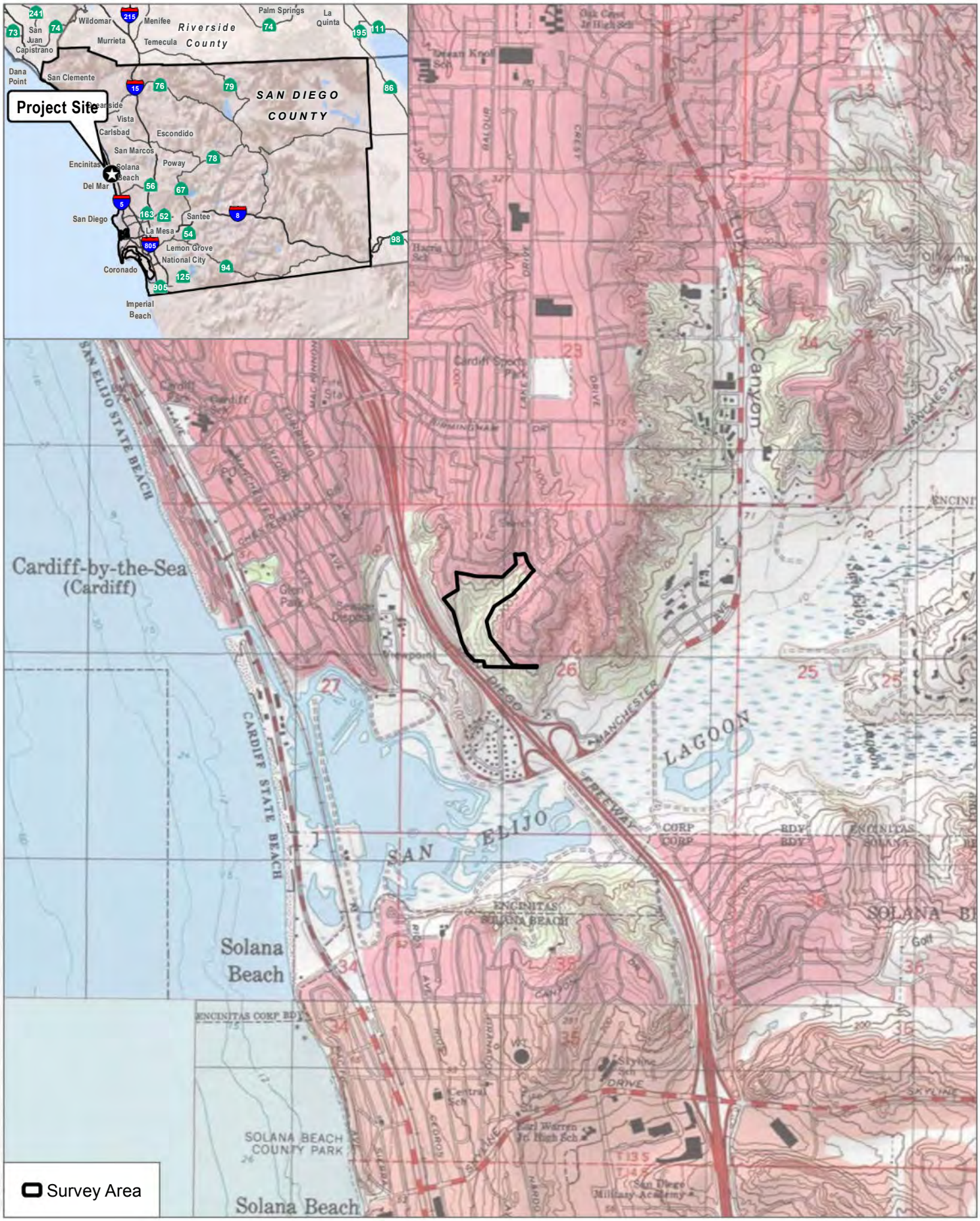


SOURCE: USGS 7.5-Minute Series Encinitas Quadrangle

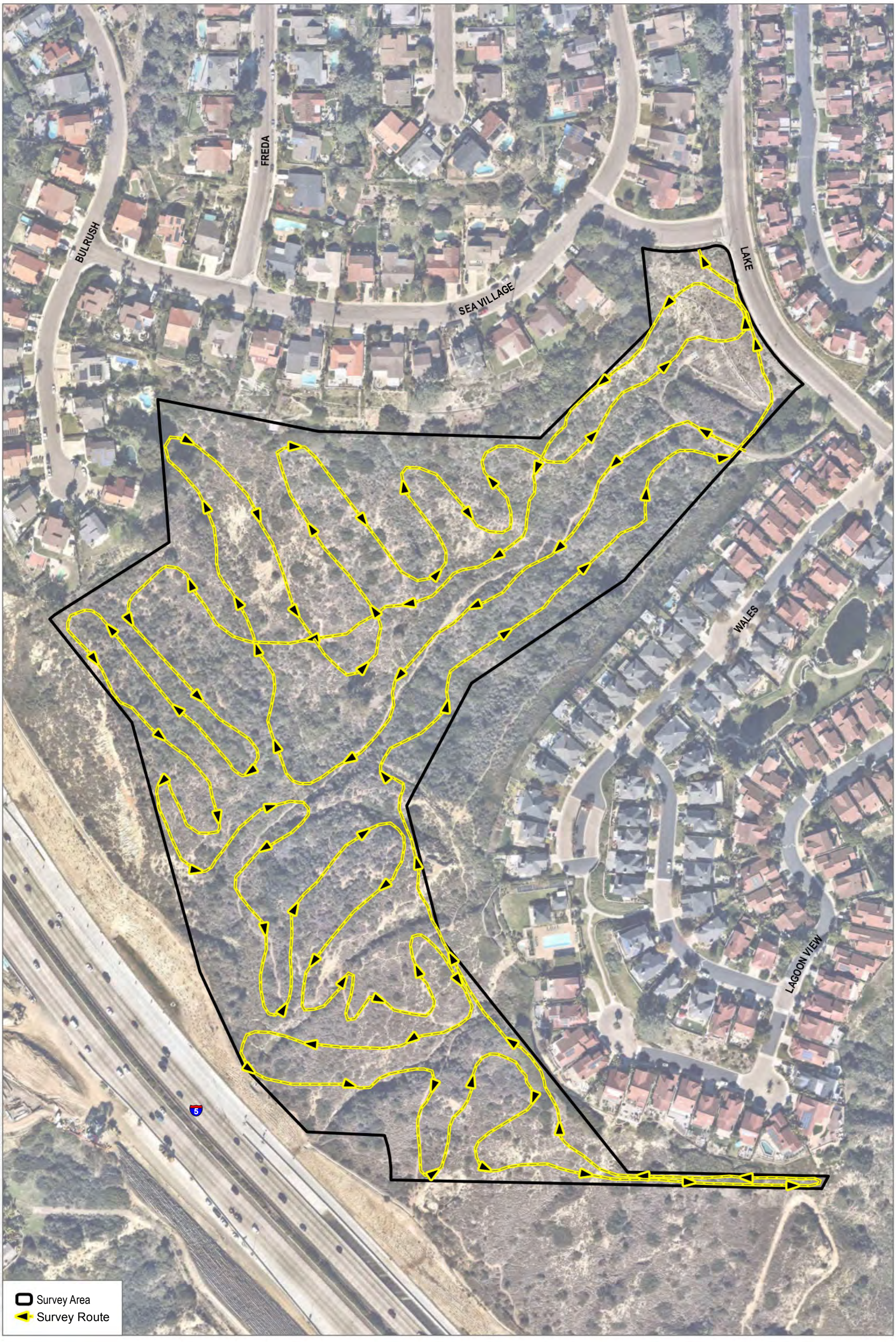
DUDEK

0 1,000 2,000 Feet

FIGURE 1

Survey Area

Lake Drive Storm Drain Project



SOURCE: SanGIS 2019

DUDEK

0 80 160 Feet

FIGURE 2

Coastal California Gnatcatcher Survey Route

Lake Drive Storm Drain Project



SOURCE: SanGIS 2019

DUDEK

0 80 160 Feet

FIGURE 3

Coastal California Gnatcatcher Survey Results

Lake Drive Storm Drain Project

Appendix A

Wildlife Species Observed During the 2021 Lake Drive Storm Drain Project Coastal California Gnatcatcher Surveys

Birds

Blackbirds, Orioles and Allies

ICTERIDAE—BLACKBIRDS

Icterus cucullatus—hooded oriole

Bushtits

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

Finches

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch

Spinus psaltria—lesser goldfinch

Flycatchers

TYRANNIDAE—TYRANT FLYCATCHERS

Sayornis nigricans—black phoebe

Sayornis saya—Say's phoebe

Hawks

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii—Cooper's hawk

Buteo jamaicensis—red-tailed hawk

Hummingbirds

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird

Selasphorus sasin—Allen's hummingbird

Selasphorus sp.—Allen's/rufous hummingbird

Jays, Magpies and Crows

CORVIDAE—CROWS AND JAYS

Corvus brachyrhynchos—American crow

Corvus corax—common raven

Mockingbirds and Thrashers

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird

Toxostoma redivivum—California thrasher

New World Quail

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

New World Vultures

CATHARTIDAE—NEW WORLD VULTURES

Cathartes aura—turkey vulture

Old World Sparrows

PASSERIDAE—OLD WORLD SPARROWS

* *Passer domesticus*—house sparrow

Old World Warblers and Gnatcatchers

POLIOPTILIDAE—GNATCATCHERS

Polioptila californica californica—coastal California gnatcatcher

Pigeons and Doves

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

Vireos

VIREONIDAE—VIREOS

Vireo huttoni—Hutton's vireo

Wood Warblers and Allies

PARULIDAE—WOOD-WARBLERS

Cardellina pusilla—Wilson's warbler

Wrens

TROGLODYTIDAE—WRENS

Troglodytes aedon—house wren

Thryomanes bewickii—Bewick's wren

Waxbills

ESTRILDIDAE—WAXBILLS

* *Lonchura punctulata*—scaly-breasted munia

New World Sparrows

PASSERELLIDAE—NEW WORLD SPARROWS

Aimophila ruficeps canescens—Southern California rufous-crowned sparrow

Melospiza melodia—song sparrow

Melozone crissalis—California towhee

Pipilo maculatus—spotted towhee

Typical Warblers, Parrotbills, Wrentit

SYLVIIDAE—SYLVIID WARBLERS

Chamaea fasciata—wrentit

Invertebrates

Butterflies

LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS

Leptotes marina—marine blue

Nymphalidae—Brush-Footed Butterflies

Danaus plexippus—monarch

Mammals

Hares and Rabbits

LEPORIDAE—HARES AND RABBITS

Sylvilagus audubonii—desert cottontail

Sylvilagus bachmani—brush rabbit

Squirrels

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

Reptiles

Lizards

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

Uta stansburiana—common side-blotched lizard

* signifies introduced (non-native) species

Appendix F

Pacific Pocket Mouse Report,
Lake Drive Storm Drain Project

July 27, 2022

Ms. Stacey Love
U.S. Fish and Wildlife Service
2177 Salk Ave #250,
Carlsbad, CA 92008

Subject: Results of a trapping survey for the federally endangered Pacific pocket mouse (*Perognathus longimembris pacificus*, PPM) at the Lake Drive Storm Drain Project site in Encinitas, San Diego County.

Dear Ms. Love:

This report presents the results of a trapping survey for PPM at the site of the proposed Lake Drive storm drain project in Encinitas. An assessment of the suitability of habitats in the study area (Figure 1) was carried out to inform the live-trapping survey. The purpose of the trapping survey was to determine the presence/absence of PPM and whether impacts to PPM could occur as a result of the proposed project.

The City of Encinitas proposes to remove and replace approximately 2,000 linear feet of existing 48-inch corrugated metal pipe and associated infrastructure from Lake Drive west/southwest through the canyon to Interstate 5. Photo 1 shows the existing pipeline. The new storm drain would generally follow the same alignment to preserve existing hydraulic conditions and minimize site disturbances. During installation of the new storm drain pipeline, a 60 foot-wide temporary work area would be required along the length of the pipeline. Figure 2 shows the area that would be impacted by storm drain replacement.

PPM Background

The Pacific Pocket Mouse (PPM, *Perognathus longimembris pacificus*) historically ranged in coastal southern California from El Segundo in Los Angeles County south to the U.S.-Mexico border in San Diego County. The species occurred in coastal strand, coastal dunes, river alluvium, and coastal sage scrub habitats growing mostly on maritime terraces (Grinnell 1933; Meserve 1976; UFWS, 1994, 1996). PPM occur in open coastal sage scrub and grasslands, which tend to have a diverse community of grasses and annual herbs, the seeds of which are its main diet (Meserve, 1976).

Methods

A habitat assessment that examined soil, vegetation, topographic and disturbance features was carried out on the site on June 12, 2022. The habitat assessment identified potentially suitable PPM habitat, which would be the focus of the live-trapping survey.

along the sandy foot trail at or near the floor of the canyon. Animals were identified and released immediately at the point of capture. A total of 430 trap-nights was accrued during the field survey. Site photos are found in Appendix 1.



Figure 1. Project location on USGS topographic map.



Figure 2. Impact area of the storm drain replacement project (red basin area in northern part of the site and orange polygon to south along centerline).

The live-trapping survey consisted of 86 Sherman live traps, including small (3 x 3.5 x 9") and large (3 x 3.75 x 12") Sherman live-traps with doors shortened to avoid tail damage to small mammals was carried out from June 12 to 16, 2022 by Phil Brylski (USFWS permit TE148555-2). The trapping effort covered suitable habitat within the proposed basin in the northern part of the impact area and within the storm drain alignment. These areas cover approximately 3.5 acres of the 25.4-acre study area. The 86 traps were set nightly at spacing of six meters or less and baited with bird seed. Figure 3 shows the locations of the individual traps, which are clustered along the sandy trail that runs along the centerline of the canyon.



Figure 3. Trap locations

Results

Site Description and Habitat Assessment

The project study area is within a coastal canyon with elevations from approximately 250 feet above mean sea level in the northeastern corner of the site to 100 feet in the southwestern corner. Adjacent land uses include existing residential to the north and east, undeveloped slopes with native scrub habitats to the southeast and northwest, and Interstate 5 to the west. The site is defined by two steep slopes, facing northwest and southeast and a sandy trail that runs winding down the middle of the canyon.

The dominant plant communities are Diegan coastal sage scrub and southern maritime chaparral. Common plants in the coastal sage scrub community include California buckwheat (*Eriogonum fasciculatum*), California brittle bush (*Encelia californica*), white sage (*Salvia apiana*), black

sage (*Salvia mellifera*), lemonade berry (*Rhus integrifolia*), and California sagebrush (*Artemisia californica*). The coastal sage shrub cover is moderately dense to dense. The southern maritime chaparral community is low and fairly open, dominated by wart-stemmed ceanothus (*Ceanothus verrucosus*) and Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), with scattered chamise (*Adenostoma fasciculatum*).

The soils on the project site are mainly loamy alluvial land-Huerhuero complex (9 to 50 percent slopes, severely eroded) and terrace escarpments (NRCS, 2022).

Most of the study area is unsuitable for PPM due to the steep slopes, dense shrub cover, and poor soils (photos 2-4). The centerline of the site contains a narrow (approximately 6 to 12 feet) path of sandy alluvium (photo 5), which represents the only potentially suitable habitat for PPM on the 25.4-acre study area. Due to the small and restricted distribution of this habitat, which is surrounded by unsuitable habitat, it was not expected that PPM would be found on the site.

Small Mammal Survey Results

Weather conditions during the trapping effort were mild. Air temperatures ranged from the 63 to 66 °F, with low winds. Cloud cover ranged from 0 to 100%.

No PPM were captured during the live-trapping survey. Three small mammal species were captured: the northwestern San Diego pocket mouse, California mouse, and San Diego desert woodrat. Table 1 summarizes the captures.

Table 2. Summary of Small Mammal Captures

Date	CFAL	PCAL	NBRY
June 12.	5		1
June 13.	4	1	
June 14.	5		1
June 15.	8	3	2
June 16.	7	2	1
totals	**29**	**6**	**5**

CFAL, northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)
PCAL, California mouse (*Peromyscus californicus*)
NBRY, San Diego desert woodrat (*Neotoma bryanti intermedia*)

Of the three mammal species captured, none are state or federally listed and two are California Species of Special Concern, as follows:

California Mammal Species of Special Concern

- northwestern San Diego pocket mouse
- San Diego desert woodrat

Non-Status Species

- California mouse

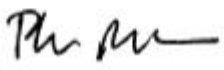
The northwestern San Diego pocket mouse and San Diego desert woodrat are included on the California Department of Fish and Wildlife (CDFW) list of Mammal Species of Concern. However, they are locally and regionally common in scrub habitats throughout their historic range. Localized impacts within the trapping alignment would impact scrub habitat, but would not significantly impact these species.

Conclusion

No PPM were captured in the survey area. The project site is within the historical range of PPM and contains a small area of low-quality habitat for the species. This habitat occurs along the trail that runs down the canyon trail. The absence of PPM in the current trapping survey indicates that there would be no impacts to PPM as a result of the proposed project.

I certify that the information in this survey report and attached exhibits fully and accurately represent my work. Please contact me if you have any questions.

Sincerely,



Phil Brylski, Ph.D.
Permit 148555-2
pbrylski@gmail.com

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Appendix 1 - Site photos



Photo 1. Existing storm drain pipeline.



Photo 2. View of project site from northeastern corner, looking southwest.



Photo 3. Northern part of project site, looking northeast.



Photo 4. Southern part of project site, looking west.



Photo 5. Sandy California sagebrush habitat along the centerline of the canyon.

Appendix G1

Draft Aquatic Resources Delineation Report for the Lake Drive Storm Drain Project (January 2024)

Engineering Department
505 S. Vulcan Ave, Encinitas, CA 92024
760-633-2770
engineering@encinitasca.gov
www.encinitasca.gov

January 23, 2024

Kyle Dahl
U.S. Army Corps of Engineers
Section Chief, San Diego & Imperial Counties Section
Los Angles District, Regulatory Division
5900 La Place Ct., Suite 100
Carlsbad, CA 92008-8832

Subject: Request for an Approved Jurisdictional Determination, Lake Drive Storm Drain Project, Encinitas, San Diego County, California

Dear Mr. Dahl:

The City of Encinitas is requesting an approved jurisdictional determination (AJD) for the Lake Drive Storm Drain Project (Project) in the City of Encinitas in San Diego County, California. The Lake Drive Storm Drain project would replace an existing underground storm drain that has failed. The review area lies within the southwest portion of the Carlsbad Hydrologic Unit of the Escondido Creek Watershed at the intersection of Lake Drive and Sea Village Way at a longitude and latitude of 117°16'7.209"W, 33°1'2.868"N.

The review area contains the existing, failed pipeline that runs through the bottom of the canyon. All mapped features within the review area, with the exception of one non-wetland water and one brow ditch, flow into the pipeline. There are several vertical pipe risers along the alignment. In very large rain events, it appears water flows out of the vertical pipes and into the canyon, as is evidenced by erosion at some of the vertical pipes. The City of Encinitas is requesting an AJD for the pipe and associated non-wetland waters.

The Aquatic Resources Delineation Report for the Lake Drive Storm Drain Project (Dudek 2024), including an AJD form has been attached for your review.

Respectfully Submitted,

Ben Stryker, PE
Engineer II
760-943-2230
bstryker@encinitasca.gov

cc: Jill Bankston PE, City Engineer, Engineering Department
Matt Widelski PE, Principal Engineer, Engineering Department
Esteban Danna, Senior Planning, Development Services Department

DRAFT

Aquatic Resources Delineation Report for the Lake Drive Storm Drain Project

Prepared for:

City of Encinitas
505 South Vulcan Avenue
Encinitas, California 92024
Contact: Ben Stryker

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
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JANUARY 2024

Printed on 30% post-consumer recycled material.

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APT	Antecedent Precipitation Tool
ARC	antecedent runoff condition
CDFW	California Department of Fish and Wildlife
NWW	non-wetland water
OHWM	ordinary high-water mark
PDSI	Palmer Drought Severity Index
project	Lake Drive Storm Drain Project
RWQCB	Regional Water Quality Control Board
SDAM	Streamflow Duration Assessment Method
USACE	U.S. Army Corps of Engineers

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1 Introduction

This Aquatic Resources Delineation Report was prepared in accordance with the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2017). This report and supporting appendices provide the 20 items listed in the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports. This report presents the results of the jurisdictional aquatic resource delineation conducted by Dudek for the proposed Lake Drive Storm Drain Project (project) located in the City of Encinitas, California. The delineation was conducted to identify and map existing aquatic resources potentially subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (33 USC 1344), waters of the state potentially subject to the regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, and stream and riparian habitats potentially subject to the jurisdiction of the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code (collectively defined as jurisdictional aquatic resources).

1.1 Disclaimer Statement

This report presents Dudek's best effort to quantify the extent of aquatic resources potentially regulated by USACE, RWQCB, and CDFW (i.e., regulatory agencies) within the identified review areas using the current regulations, written policies, and guidance from these regulatory agencies. The potential jurisdictional boundaries described in this report are subject to verification by the regulatory agencies. Only the regulatory agencies can make a final determination on whether the features present are subject to USACE, RWQCB, and/or CDFW regulation. The USACE Request for an Approved Jurisdictional Determination is provided in Appendix A.[1]

1.2 Contact Information

Contact information for the project applicant and agent are provided in Table 1.[2] Access to the review area is not restricted, but if a site visit is requested, the project applicant or agent will accompany regulatory staff to the review area.[3] The Nature Collective owns the land, but the City of Encinitas is the project applicant.

Table 1. Contact Information

Project Applicant	City of Encinitas	**Agent**	Dudek
Contact Name	Ben Stryker	**Contact Name**	Megan Enright
Address	505 South Vulcan Avenue Encinitas, California 92024	**Address**	605 3rd Street Encinitas, California 92024
Phone	760.943.2230	**Phone**	760.479.4281
Email	bstryker@encinitasca.gov	**Email**	menright@dudek.com

1 Minimum Standards Item 1 (Request for Jurisdictional Determination)
2 Minimum Standards Item 2 (Contact Information)
3 Minimum Standards Item 3 (Site Access Statement)

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2 Review Area Description and Landscape Setting

The 25.3-acre review area[4] for the Lake Drive Storm Drain Project is located within the City of Encinitas at the intersection of Lake Drive and Sea Village Way at a latitude and longitude of 33.017463, -117.268669 (Figure 1, Vicinity[5]). Directions to the review area are as follows: from Interstate 5, head east on Birmingham Drive; at Lake Drive head south; the review area is located west of Lake Drive between Sea Village Way and Wales Drive.[6] Topography within the review area occurs within a steep escarpment with elevation ranges from approximately 100 feet above mean sea level in the southwestern portion of the review area to 250 feet above mean sea level in the northeastern portion of the review area. Adjacent land uses include existing residential to the north and east, undeveloped land to the south and west, and Interstate 5 to the west. The review area occurs on Section 27, Township 13 South, Range 4 West in the southwest portion of the Encinitas U.S. Geological Survey 7.5-minute quadrangle. The review area occurs primarily on Assessor's Parcel Number 261-150-69, but also intersects the following Assessor's Parcel Numbers: 261-254-04, 261-254-48, 261-254-20, 261-254-03, 264-254-21, 261-232-40, 261-232-39, 261-255-30, 261-254-46, 261-254-05, and 261-254-22 (Figure 1).

2.1 Soils[7]

Two soils types are mapped in the review area: loamy alluvial land-Huerhuero complex, 9% to 50% slopes, severely eroded, and terrace escarpments (USDA 2021a) (Figure 2, Soils). Loamy alluvial land–Huerhuero complex is described as a combination of alluvial deposits from mixed sources with residuum weathered calcareous sandstone and shale ridges. Terrace escarpments are described as a landform of escarpments with a riser landform position and a variable soil profile. Neither of these soil types are ranked as hydric (USDA 2021b).

2.2 Vegetation

The review area is dominated by Diegan coastal sage scrub and southern maritime succulent scrub, with some small patches of non-native grassland. Small stands of eucalyptus occur as patches along the perimeter of the review area. The review area also contains some portions of adjacent houses and an access road, mapped as developed lands. Overall, the review area consists of native upland vegetation. There are no wetland vegetation communities present within the review area.

2.3 Watershed

The review area occurs within the southern portion of the San Luis Rey-Escondido Subbasin and Lower Escondido Creek Subwatershed (Figure 3, Hydrology). The Escondido Creek subwatershed is formed by Escondido Creek, which begins at the upper headwaters in Bear Valley north of Lake Wohlford. The creek flows approximately 26 miles southwest, where it terminates at the San Elijo Lagoon.

4 Minimum Standards Item 10 (Description of Existing Field Conditions)
5 Minimum Standard Item 14 (Site Location Map)
6 Minimum Standards Item 4 (Directions)
7 Minimum Standards Item 13 (Soil Descriptions)

2.4 Review Area Alterations, Current and Past Land Use

In 1982 a storm drain pipeline was placed within the bottom of the canyon to collect and drain water from the surrounding developed area. The canyon and any natural drainage that previously existed was filled during the installation of the storm drain pipe. This existing pipe, which is shown in Figure 4, Potential Jurisdictional Aquatic Resources, has failed in several areas, causing large pockets of erosion along the canyon (see Appendix B for photos). The review area and adjacent open space areas located to the northwest and southeast are owned by the Nature Collective (formerly the San Elijo Lagoon Conservancy) and have been subjected to habitat restoration and enhancement activities consisting of non-native species management. Restoration has been focused on areas occupied by eucalyptus woodland, disturbed habitat, and non-native grassland. The restoration areas are not a part of any mitigation program.

In January 2023 a large sinkhole, roughly 600 feet across and 30 feet deep, developed during the winter storms below Lake Drive, collapsing a portion of the roadway and causing a severe landslide below Lake Drive within the open space canyon. Emergency work was conducted by the City from February 27 to September 27, 2023 and included the following: repair of the Lake Drive roadway (including curb, gutter, and sidewalk); removal and replacement 140 feet of corrugated metal pipe with reinforced concrete pipe; backfill of the slope with native soils/material and then hydroseeded; and installation of a new energy dissipator at the bottom of the slope, which will reduce storm flow velocities and flooding and prevent further threats to public health and safety. The remaining 1,820 feet of existing corrugated metal pipe is proposed for replacement under the current project.

3 Precipitation Data and Analysis[8]

Dudek utilized the USACE's Antecedent Precipitation Tool (APT) to assess whether the site visits outlined above occurred in a drier, average, or wetter than normal period for the review area. The information generated from the APT can help to determine whether normal hydrologic and/or climatic conditions were present during the site visits. 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 -4 (extreme drought) to +4 (very wet) (NOAA 2021) to assess drought conditions (i.e., PDSI Class). The APT determines wet vs. dry season based on related procedures provided in the applicable regional supplement for the review area (in this case, the Arid West Supplement). If the antecedent runoff condition (ARC) score is less than 10 then the antecedent precipitation condition is classified as drier than normal; normal conditions are present with an ARC score of 10 to 14; conditions are wetter than normal when an ARC score is greater than 14 (USACE 2021).

Table 2 summarizes the key data extrapolated from the APT output: estimated drought conditions (PDSI Class), wet or dry season determination, ARC score, and antecedent precipitation condition. Based on the APT output provided in Appendix C and summarized in Table 2, the precipitation and climatic conditions for the review area were within the normal range during the time of the delineation.

Table 2. Antecedent Precipitation Tool Data for the Review Area

Field Survey Date	PDSI Class	Season	ARC Score	Antecedent Precipitation Condition
06/17/2021	Extreme drought	Dry season	11	Normal conditions

Notes: PDSI = Palmer Drought Severity Index; ARC = antecedent runoff condition

[8] Minimum Standards Item 11 (Discussion of Hydrology)

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4 Investigation Methods[9]

The jurisdictional delineation was conducted by Dudek biologist Patricia Schuyler on June 17, 2021. Prior to conducting the jurisdictional delineation, U.S. Fish and Wildlife Service's National Wetland Inventory data (USFWS 2021) was reviewed to determine if the review area contained any features mapped by the U.S. Fish and Wildlife Service. Site-specific topographical data was reviewed in conjunction with aerials, both current and historical, to determine the potential presence of non-wetland waters. Current vegetation mapping was reviewed to assess whether the review area supported wetland vegetation. Because the review area did not support any wetland vegetation, the delineation focused on mapping of non-wetland waters. Jurisdictional boundaries were mapped in the field using ESRI Collector on a mobile device. Remote sensing was not used for the delineation.

4.1 USACE

The USACE wetlands delineation was conducted in accordance with the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 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 (USACE 2008b) was used to determine the limits of non-wetland waters. Non-wetland waters were delineated on topographical maps in conjunction with ESRI Collector on a mobile device. The widths of each non-wetland water were determined in the field according to the OHWM manual.

In addition, each of the non-wetland waters within the review area was evaluated using the Beta Streamflow Duration Assessment Method for the Arid West (SDAM) (Mazor et al. 2021). The non-wetland waters were sampled at the downstream end working under the assumption that if the downstream portion of non-wetland water was ephemeral then the upstream portions of those non-wetland waters would also be ephemeral.

Because the review area did not contain any wetland vegetation, wetland sampling points were not required. Each potential non-wetland water was reviewed in conjunction with the classification table provided in the Beta SDAM (Mazor et al. 2021). None of the channels contained hydrophytic plant species, aquatic invertebrates, EPT taxa, algae, or fish, and are therefore all classified as ephemeral waters.

4.2 RWQCB

Waters of the state regulated by the RWQCB were mapped in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State, adopted April 2, 2019 (SWRCB 2019). As described in these procedures, wetland waters of the state are mapped based on the procedures in USACE's 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and its 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a). Non-wetland waters (regardless of whether they appeared to be ephemeral or not) are mapped at the OHWM based on the procedures defined in USACEs 2008 A Field Guide to Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2008b).

[9] Minimum Standards Item 8 (Dates of Field Work), Item 5 (Use of 1987 Manual, Regional Supplement, and OHWM guide), Item 12 (Statement Regarding Use of Remote Sensing), Item 18 (Data Forms) and Item 19 (Methods)

4.3 CDFW

CDFW jurisdictional areas were mapped to include the bank of the stream/channel and outer dripline of adjacent riparian vegetation, as set forth under California Fish and Game Code 1602. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979).

5 Aquatic Resource Narrative[10]

5.1 Waters of the United States (USACE)

There are no non-wetland waters, culverts, or wetlands potentially regulated by USACE present in the review area (Figure 4, Potential Jurisdictional Aquatic Resources).[11] The aquatic resource delineation identified nine features and three associated culverts that have the potential to be regulated as non-wetland waters by the USACE. However, based on field review, non-wetland waters (NWW)-1 and NWW-5 are categorized as erosional features and would be excluded from USACE jurisdiction per 33 CFR 328.3(b)(8). NWW-2 is a brow ditch excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water and would be excluded from USACE jurisdiction per 33 CFR 328.3(b)(3). The remaining features do not meet the definition of any excluded waters of the U.S. per 33 CFR 328.3(b)(1) through (b)(8). However, none of the features identified in the delineation would be considered a USACE-jurisdictional feature they are not a waters of the U.S. per 33 CFR 328.3(a)(1), (a)(2), (a)(4), or (a)(5). Furthermore, none of the features identified on Figure 4 meet the definition of a waters of the U.S. per 33 CFR 328.3(a)(3) due to the lack of "relatively permanent, standing or continuously flowing bod[y] of water."

A copy of the ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet is not submitted with this report because none of the features identified during the delineation are regulated by USACE.[12]

The existing pipeline that runs through the bottom of the canyon is shown in Figure 4. All of the features within the review area, with the exception of NWW-2 and NWW-9, flow into the pipeline through an existing culvert or inlet. There are several vertical pipes or inlets along the alignment that extend up from the underground pipe. In some areas, due to pipeline failures, it appears that water flows out of the vertical pipes and into the canyon, as is evident by large erosional features at some of the vertical pipes (see Appendix B, Review Area Photos). Because this is an underground storm drain feature, it is not mapped as an aquatic resource.

5.2 Waters of the State (RWQCB)

All of the features within the review area, including culverts 1 through 3, have been identified as waters of the state and are potentially regulated by the RWQCB (Table 3). NWW-1 and NWW-5 are both erosional features with no clear bed and bank or OHWM present. NWW-5 connects to the underground pipeline through CUL-1. NWW-2 is a concrete lined brow ditch which runs along the manufactured slope associated with Lake Drive. The review area supports 0.087 acres of non-wetland waters and culverts which may be regulated by RWQCB. Of those 0.087 acres, 0.087 acres was delineated as non-wetland waters and 0.001 acres was delineated as culverts.

10 Minimum Standards Item 6 (Aquatic Resource Narrative)
11 Minimum Standards Items 7 and 16 (Delineation Maps)
12 Minimum Standards Item 15 (ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet)

Table 3. RWQCB/CDFW Jurisdictional Aquatic Resource Summary for the Review Area[13]

Feature Name	Cowardin[1]	OHWM Indicators	Location (Latitude/Longitude)	Acres/ linear feet
Non-Wetland Waters				
NWW-1	N/A	N/A, erosional feature with no clear connection to the existing pipeline or other feature	33.01874954, -117.2665075	0.004/190
NWW-2	N/A	Concrete brow ditch	33.01900508, -117.2665309	0.008/347
NWW-3	N/A	BBS, CVC	33.01808293, -117.2684216	0.009/372
NWW-4	N/A	BBS, CAST	33.01759823, -117.2694647,	0.022/972
NWW-5	N/A	N/A, erosional feature	33.0167184, -117.2684797	0.004/182
NWW-6	N/A	BBS	33.01659216, -117.2688589	0.006/254
NWW-7	N/A	BBS	33.01588298, -117.2696869	0.002/108
NWW-8	N/A	BBS	33.01566254, -117.2688909	0.021/449
NWW-9	N/A	BBS	33.01521164, -117.2684626	0.010/424
			Non-Wetland Waters Subtotal	*0.086/3,298*
Culverts				
CUL-1	N/A	Culvert	33.01682048, -117.2688738	0.0003/13
CUL-2	N/A	Culvert	33.01580602, -117.2695024	0.0005/23
CUL-3	N/A	Culvert	33.0152342, -117.2693818	0.0006/30
			Culverts Subtotal	*0.001/66*
			Grand Total	**0.087/3,364**

Notes: OHWM = ordinary high-water mark; NWW = non-wetland water; N/A = not applicable; CAST = change in average sediment texture; BBS = break in bank slope; CVC = change in vegetation cover

1 Pursuant to Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979).

5.3 CDFW Jurisdiction

All of the features described in Section 5.2 have been identified as streambeds potentially regulated by CDFW. The OHWM and top of bank for each of the features is identical.

5.4 National Wetland Inventory

The review area does not contain any mapped resources from the U.S. Fish and Wildlife Service's National Wetland Inventory database (see Figure 3).

13 Minimum Standards Item 9 (Table Listing All Aquatic Resources)

6 Results and Conclusions

Based on the aquatic resource delineation and review of relevant information provided in this Aquatic Resources Delineation Report, none of the features identified during the delineation would be regulated by USACE because they are either excluded per 33 CFR 328.3(b)(8) or 33 CFR 328.3(b)(3) or do not meet the definition of waters of the U.S. per 33 CFR 328.3(a)(1) through (5). The review area supports 0.087 acres of non-wetland waters and culverts which may be regulated by RWQCB and CDFW. Of those 0.087 acres, 0.087 acres was delineated as non-wetland waters and 0.001 acres was delineated as culverts. This report can be used by those agencies to determine if they would regulate the features described herein. The GIS data for the delineation is provided in Appendix D (digital only).

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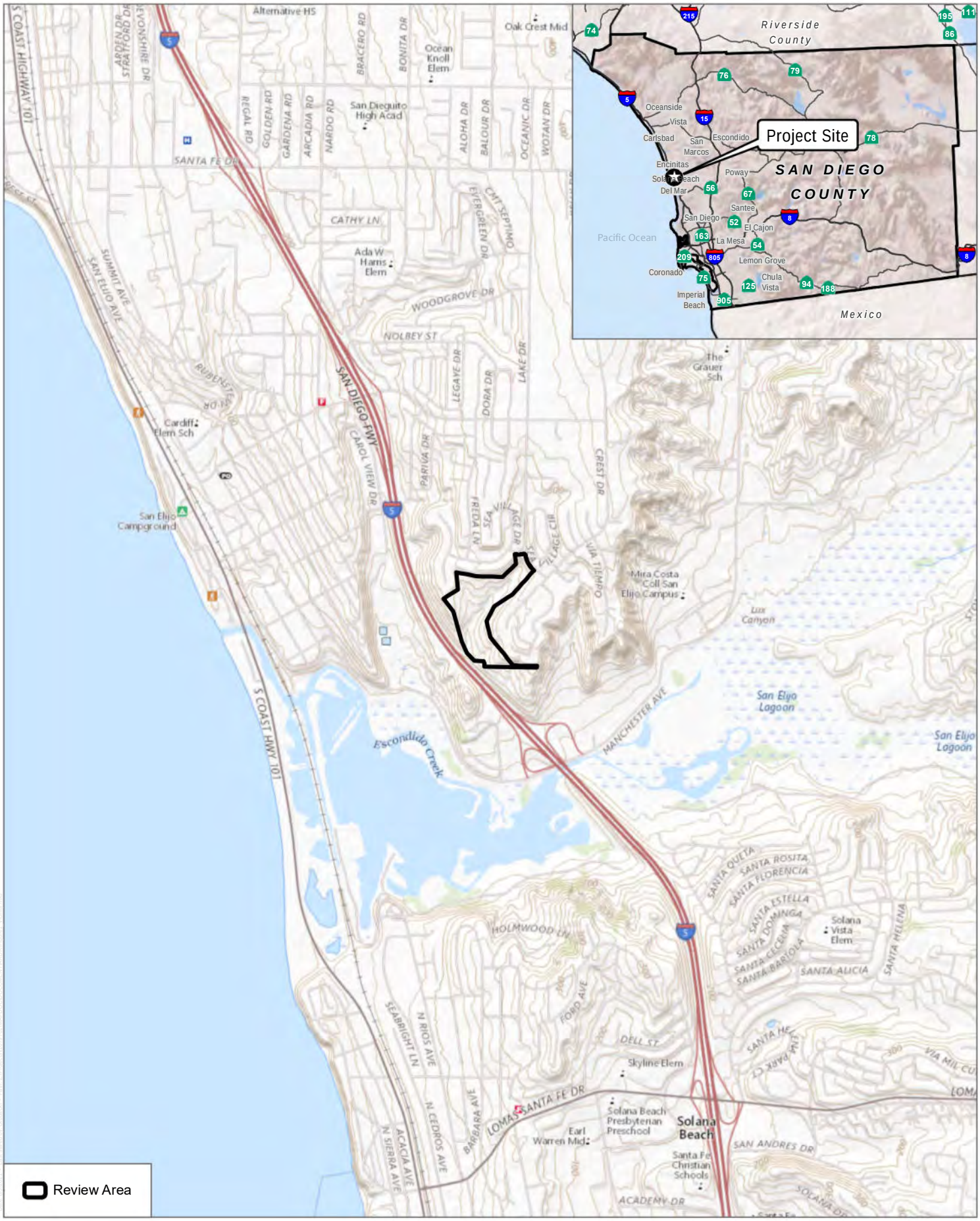

FIGURE 1

Vicinity

Aquatic Resources Delineation Report for the Lake Drive Storm Drain Project

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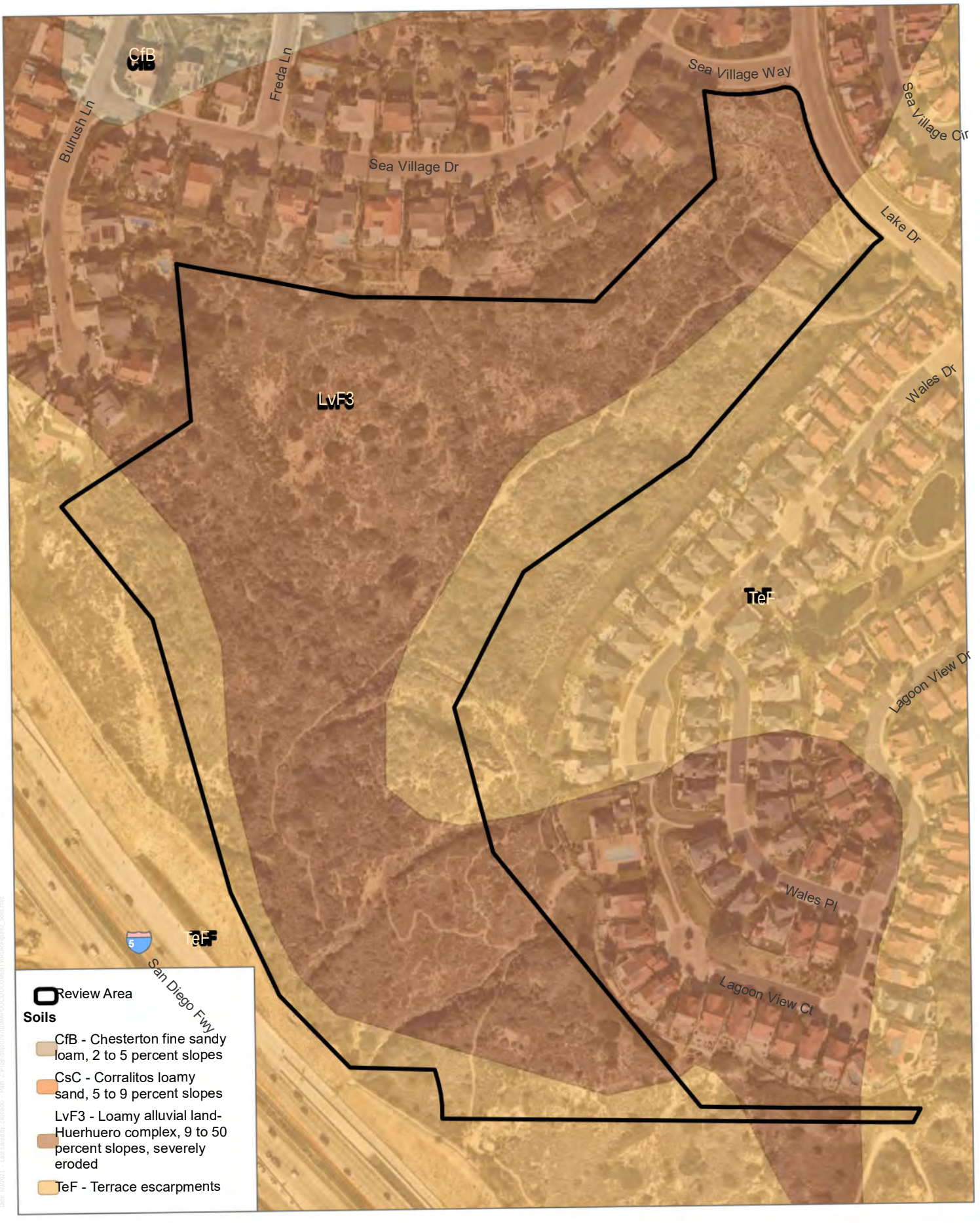

SOURCE: SanGIS 2019; USDA 2021

Coordinate System: NAD 1983, Zone 6, US Feet
Datum: North American 1983
Vertical Datum: NAVD88, US Feet
Created: August 2, 2021

DUDEK

0 110 220 Feet

FIGURE 2
Soils
Aquatic Resources Delineation Report for the Lake Drive Storm Drain Project

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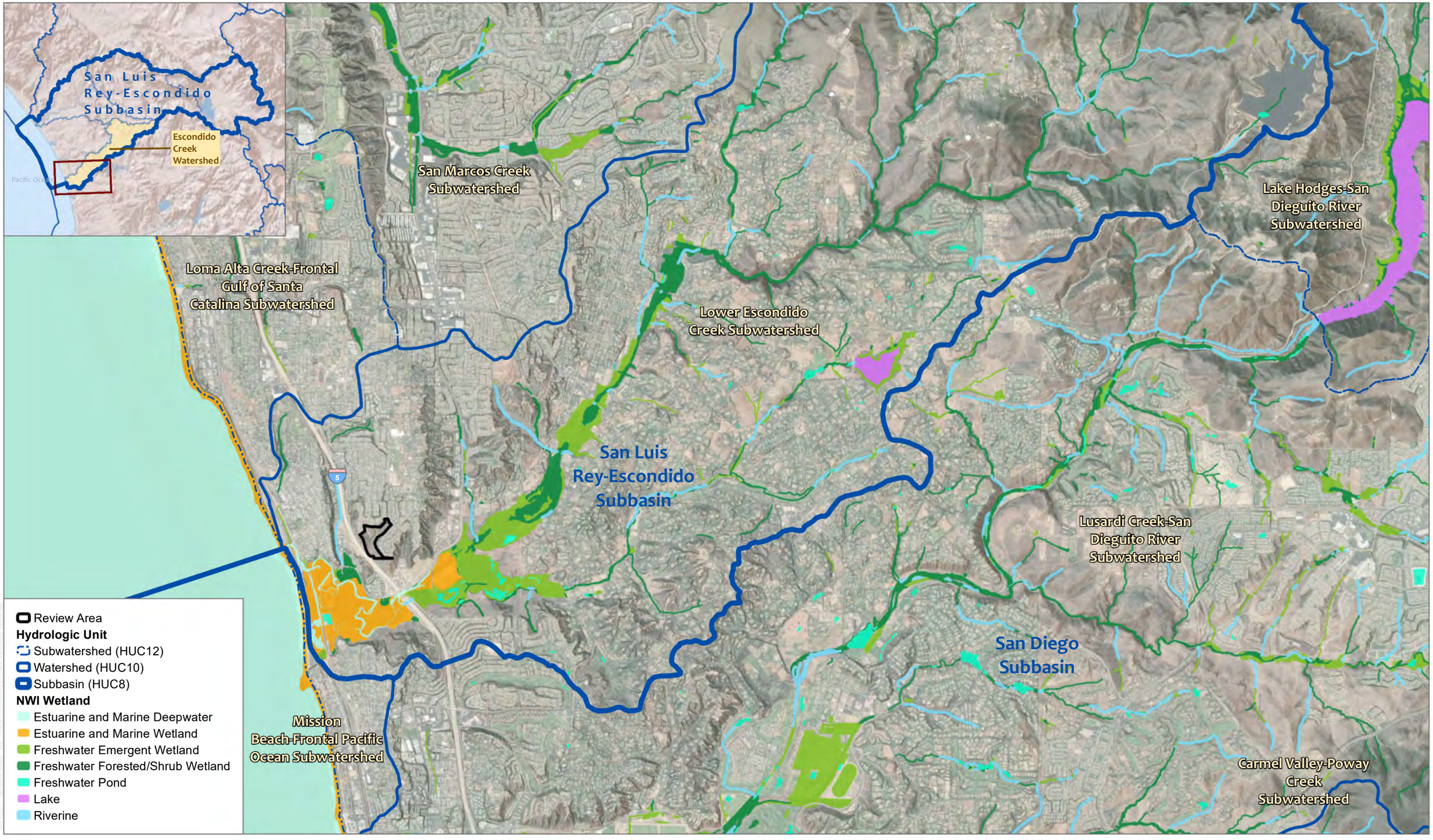

SOURCE: Esri World Imagery 2021; USFWS NWI 2021; USGS 2021

DUDEK

0 2,000 4,000 Feet

Coordinate System: NAD 1983, Zone 6, US Feet
Datum: North American 1983
Vertical Datum: NAVD88, US Feet
Created: August 2, 2021

FIGURE 3

Hydrology

Aquatic Resources Delineation Report for the Lake Drive Storm Drain Project

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SOURCE: SanGIS 2019; NV5 2023

DUDEK

0 80 160 Feet

Coordinate System: NAD 1983, Zone 6, US Feet
Datum: North American 1983
Vertical Datum: NAVD88, US Feet
Created: August 2, 2021
Revised: January 12, 2024

FIGURE 4

Potential Jurisdictional Aquatic Resources

Aquatic Resources Delineation Report for the Lake Drive Storm Drain Project

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Appendix A

Request for Approved Jurisdictional Determination

As described in the Aquatic Resources Delineation Report, a jurisdictional delineation was conducted for the Lake Drive Storm Drain Project (review area) in 2021. The jurisdictional delineation resulted in the delineation of ephemeral non-wetland waters within the review area, which are not subject to regulation by the U.S. Army Corps of Engineers. These features may be regulated by the Regional Water Quality Control Board and/or California Department of Fish and Wildlife. The project applicant is requesting an approved jurisdictional determination from USACE for the review area.

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Print Form | Save As

U.S. Army Corps of Engineers (USACE)

REQUEST FOR JURISDICTIONAL DETERMINATION (JD)

For use of this form, see Sec 404 CWA, Sec 10 RHA, Sec 103 MPRSA; the proponent agency is CECW-COR.

Form Approved - OMB No. 0710-0024 Expires 2024-04-30

DATA REQUIRED BY THE PRIVACY ACT OF 1974

Authority Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332.

Principal Purpose The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the review area that are or that may be subject to federal jurisdiction under the regulatory authorities referenced above.

Routine Uses This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice or FOIA request as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in any approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.

Disclosure Submission of requested information is voluntary, however, if the information is not provided there may be some delay in processing your request. Failure to provide this information will not result in an adverse action.

System of Record Notice (SORN): The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website:

The Agency Disclosure Notice (ADN)

The Public reporting burden for this collection of information, 0710-0024, is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at . Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. To (*District Name*): U.S. Army Corps of Engineers, Los Angeles District (SPL)

2. I am requesting a JD on property located at (*Street Address*): intersection of Lake Drive and Sea Village Way

City/Township/Parish: Encinitas County: San Diego State: California

Acreage of Parcel/Review Area for JD: 25.3 acres

Section: 27 Township: 13 South Range: 4 West

Latitude (*decimal degrees*): 33.017463 ° Longitude (*decimal degrees*): -117.26866 °

(*For linear projects, please include the center point of the proposed alignment.*)

3. Please attach a survey/plat map and vicinity map identifying location and review area for the JD.

4. ☐ I currently own this property. ☐ I plan to purchase this property.

☐ I am an agent/consultant acting on behalf of the requester.

☑ Other (*please explain*):

The review area and adjacent open space areas located to the northwest and southeast are owned by the Nature Collective (formerly the San Elijo Lagoon Conservancy). The City of Encinitas is proposing to repair an existing stormdrain facility within

the review area.

5. Reason for request: (*check as many as applicable*)

- [ ] I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
- [ ] I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
- [ ] I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
- [ ] I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
- [ ] I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.
- [ ] A Corps JD is required in order to obtain my local/state authorization.
- [x] I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
- [ ] I believe that the site may be comprised entirely of dry land.
- [ ] Other:

N/A

6. Type of determination being requested:

- [x] I am requesting an approved JD.
- [ ] I am requesting a preliminary JD.
- [x] I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.
- [ ] I am unclear as to which JD I would like to request and require additional information to inform my decision.

Print Form | Save As

7. Typed or Printed Name: Ben Stryker | Daytime Phone No.: 760.943.2230

Company Name: City of Encinitas | Email Address: bstryker@encinitasca.gov

Address: 505 South Vulcan Avenue
Encinitas, California 92024

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

Signature: B Stryker | Date: 01/23/2024

Appendix B

Review Area Photos



Photo 1: Brow ditch located at the top of the canyon



Photo 2: Damaged pipeline



Photo 3: Damaged pipeline



Photo 4: Pipeline alignment buried underground



Photo 5: Area of exposed underground pipe in canyon



Photo 6: Broken brow ditch, NWW-4



Photo 7: NWW-4 tributary facing upstream



Photo 8: NWW-4 tributary facing downstream



Photo 9: Standpipe located along NWW-4

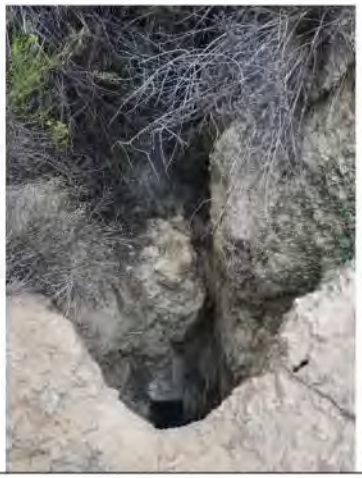

Photo 10: Erosional feature



Photo 11: NWW-7 facing upstream



Photo 12: NWW-8 facing downstream



Photo 13: NWW-8 facing upstream



Photo 14: Cul-3 located at the terminus of NWW-8



Photo 15: NWW-9 facing upstream

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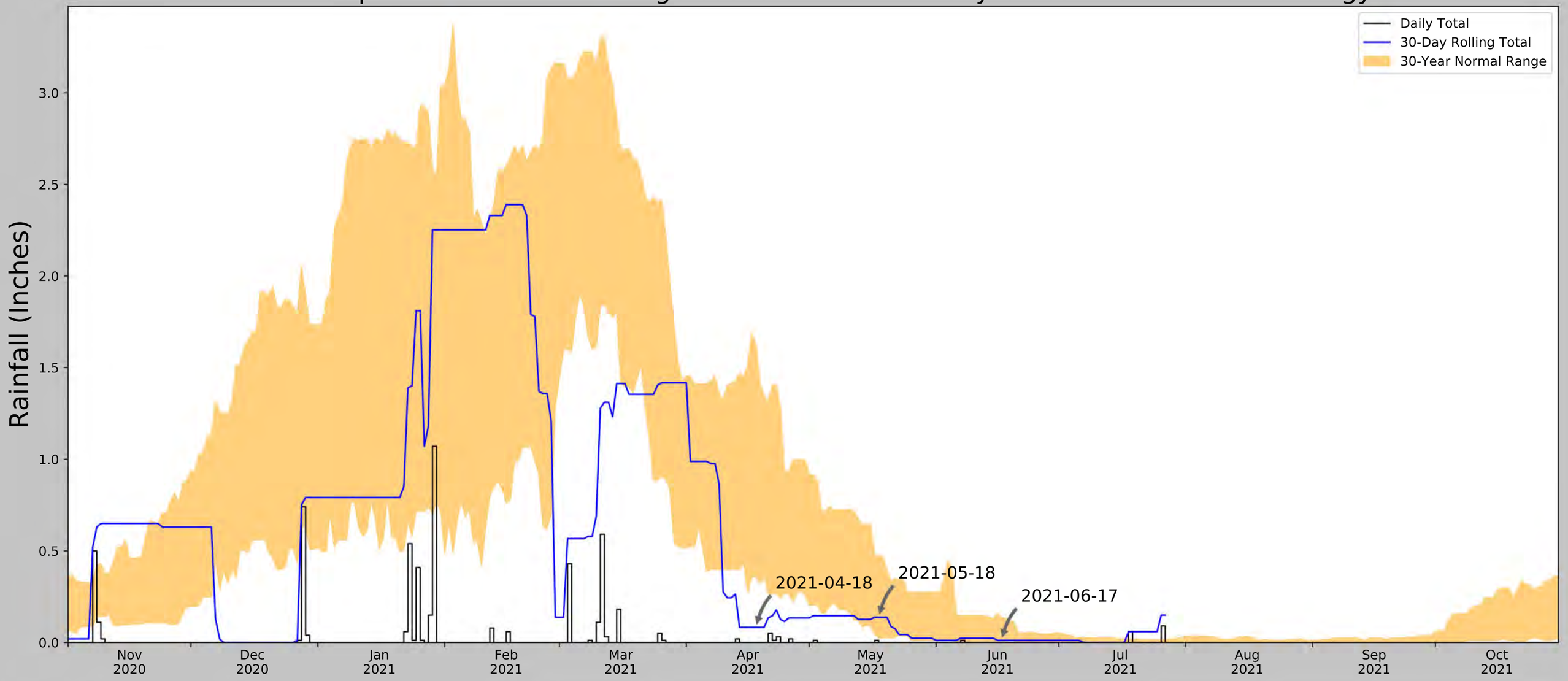
Appendix C

Antecedent Precipitation Tool Output

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	33.017754, -117.268084
Observation Date	2021-06-17
Elevation (ft)	161.31
Drought Index (PDSI)	Extreme drought

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-06-17	0.008268	0.133465	0.011811	Normal	2	3	6
2021-05-18	0.025591	0.470079	0.137795	Normal	2	2	4
2021-04-18	0.359449	1.632677	0.082677	Dry	1	1	1
Result							Normal Conditions - 11

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)
CARLSBAD PALOMAR AP	33.1281, -117.2794	328.084	7.652	166.774	4.72	8215	90
CARDIFF BY THE SEA 0.2 E	33.0267, -117.2712	266.076	0.644	104.766	0.357	2	0
OCEANSIDE MUNI AP	33.2194, -117.3494	27.887	14.706	133.423	8.58	2	0
OCEANSIDE MARINA	33.2097, -117.395	9.843	15.16	151.467	9.118	2940	0
SAN DIEGO MIRAMAR NAS	32.8667, -117.1333	477.034	13.039	315.724	9.984	193	0
CAMP PENDLETON MCAS	33.3, -117.35	75.131	20.069	86.179	10.76	1	0

Appendix D

Digital GIS Data

Appendix G2

Draft Aquatic Resources Delineation Report for the Manchester Avenue Culvert Outlet Project (January 2024)

Engineering Department
505 S. Vulcan Ave, Encinitas, CA 92024
760-633-2770
engineering@encinitasca.gov
www.encinitasca.gov

January 23, 2024

Kyle Dahl
U.S. Army Corps of Engineers
Section Chief, San Diego & Imperial Counties Section
Los Angles District, Regulatory Division
5900 La Place Ct., Suite 100
Carlsbad, CA 92008-8832

Subject: Request for a Preliminary Jurisdictional Determination, Manchester Avenue Culvert Outfall Project, Encinitas, San Diego County, California

Dear Mr. Dahl:

The City of Encinitas is requesting a preliminary jurisdictional determination (PJD) for the Manchester Avenue Culvert Outfall Project (project) in the City of Encinitas in San Diego County, California. The review area lies within the southern portion of the San Luis Rey-Escondido Subbasin and Lower Escondido Creek Subwatershed on the south side of Manchester Avenue at a longitude and latitude of 33°00'34.010"N, 117°16'01.320"W. The proposed project would remove sediment below an existing culvert outfall to prevent a back-up of surface waters that could cause flooding over Manchester Avenue. The review area contains the existing culvert outfall and the aquatic resources approximately 110 feet below the culvert, which conveys upstream flows from the storm drain system into the San Elijo Lagoon. The City of Encinitas is requesting a PJD for the aquatic resources present within the review area.

The Aquatic Resources Delineation Report for the Manchester Avenue Culvert Outfall Project (Dudek 2024), including a PJD form, has been attached for your review.

Respectfully Submitted,

Ben Stryker, PE
Engineer II
760-943-2230
bstryker@encinitasca.gov

cc: Jill Bankston PE, City Engineer, Engineering Department
Matt Widelski PE, Principal Engineer, Engineering Department
Esteban Danna, Senior Planning, Development Services Department

DRAFT

Aquatic Resources Delineation Report

Manchester Avenue Culvert Outfall Project

JANUARY 2024

Prepared for:

CITY OF ENCINITAS
505 South Vulcan Avenue
Encinitas, California 92024
Contact: Ben Stryker

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Contact: Patricia Schuyler

Printed on 30% post-consumer recycled material.

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B Antecedent Precipitation Tool Output
C Data Forms
D Review Area Photos
E Digital GIS Data

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APT	Antecedent Precipitation Tool
ARC	antecedent runoff condition
CDFW	California Department of Fish and Wildlife
NWW	non-wetland water
OHWM	ordinary high-water mark
PDSI	Palmer Drought Severity Index
project	Manchester Avenue Culvert Outfall Project
RWQCB	Regional Water Quality Control Board
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

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1 Introduction

This Aquatic Resources Delineation Report was prepared in accordance with the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2017). This report and supporting appendices provide the 20 items listed in the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports. This report presents the results of the jurisdictional aquatic resource delineation conducted by Dudek for the proposed Manchester Avenue Culvert Outfall Project (project) located in the City of Encinitas, California. The delineation was conducted to identify and map existing aquatic resources potentially subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (33 USC 1344), waters of the state potentially subject to the regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, and stream and riparian habitats potentially subject to the jurisdiction of the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code (collectively defined as jurisdictional aquatic resources).

1.1 Disclaimer Statement

This report presents Dudek's best effort to quantify the extent of aquatic resources potentially regulated by USACE, RWQCB, and CDFW (i.e., regulatory agencies) within the identified review areas using the current regulations, written policies, and guidance from these regulatory agencies. The potential jurisdictional boundaries described in this report are subject to verification by the regulatory agencies. Only the regulatory agencies can make a final determination on whether the features present are subject to USACE, RWQCB, and/or CDFW regulation. A request for a USACE Preliminary Jurisdictional Determination is provided in Appendix A.[1]

1.2 Contact Information

Contact information for the project applicant and agent are provided in Table 1.[2] Access to the review area is not restricted, but if a site visit is requested, the project applicant or agent will accompany regulatory staff to the review area.[3] The review area is located within the San Elijo Lagoon Ecological Reserve, which is jointly owned by the Nature Collective, CDFW, and San Diego County Parks and Recreation, and City of Encinitas-owned lands. The City of Encinitas is the project applicant.

Table 1. Contact Information

Project Applicant	City of Encinitas	**Agent**	Dudek
Contact Name	Ben Stryker	**Contact Name**	Patricia Schuyler
Address	505 South Vulcan Avenue Encinitas, California 92024	**Address**	605 3rd Street Encinitas, California 92024
Phone	760.943.2230	**Phone**	760.479.4264
Email	bstryker@encinitasca.gov	**Email**	pschuyler@dudek.com

1 Minimum Standards Item 1 (Request for Jurisdictional Determination)
2 Minimum Standards Item 2 (Contact Information)
3 Minimum Standards Item 3 (Site Access Statement)

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2 Review Area Description and Landscape Setting

The review area[4] for the project is located within the City of Encinitas on the south side of Manchester Avenue, just adjacent to Interstate 5, at a longitude and latitude of 33°00'34.010"N, 117°16'01.320"W (Figure 1, Vicinity[5]). Directions to the review area are as follows: from Interstate 5, exit at Manchester Avenue and head west. The review area is located just to the south of Manchester Avenue, adjacent to the lagoon.[6] Topography within the review area is highest adjacent to Manchester Avenue at approximately 13 feet above mean sea level and drops to approximately 8 feet above mean sea level as the review area enters the San Elijo Lagoon. Adjacent land uses include existing residential to the north and undeveloped lands that are part of the San Elijo Lagoon Ecological Reserve to the east, south, and west. The review area is located in Section 26, Township 13 South, Range 4 West in the southeast portion of the Encinitas, California, U.S. Geological Survey 7.5-minute quadrangle. The review area occurs on Assessor's Parcel Number 261-210-300.

2.1 Soils[7]

Two soil types are mapped in the review area: Corralitos loamy sand, 5% to 9% slopes, and lagoon water (USDA 2019) (Figure 2, Manchester Avenue Culvert Outfall Soils). The Corralitos series consists of deep, somewhat excessively drained soils that formed in recent sandy alluvium derived from acid sandstone and related rocks. Lagoons of San Diego Area was mapped in the southern portion of the review area. Neither of these soil types is ranked as hydric (USDA 2024).

2.2 Vegetation

The review area contains three vegetation communities or land cover types: disturbed habitat, coastal and valley freshwater marsh, and open water. Disturbed habitat occurs in the northern portion of the review area adjacent to Manchester Avenue. Coastal and valley freshwater marsh is present in the southern portion of the review area, and open water occurs below the culvert headwall. Coastal and valley freshwater marsh is typically considered a wetland vegetation community and open water is typically considered a non-wetland water or streambed by the aquatic resource agencies.

2.3 Watershed

The review area occurs within the southern portion of the San Luis Rey-Escondido Subbasin and Lower Escondido Creek Subwatershed (Figure 3, Hydrology). The Escondido Creek Subwatershed is formed by Escondido Creek, which begins at the upper headwaters in Bear Valley north of Lake Wohlford. The creek flows approximately 26 miles southwest, where it terminates at the San Elijo Lagoon.

4 Minimum Standards Item 10 (Description of Existing Field Conditions)
5 Minimum Standard Item 14 (Site Location Map)
6 Minimum Standards Item 4 (Directions)
7 Minimum Standards Item 13 (Soil Descriptions)

2.4 Review Area Alterations, Current and Past Land Use

The review area consists of an existing culvert outfall located on the south side (i.e., downstream side) of Manchester Avenue and conveys upstream stormwater through the distribution alignment and into San Elijo Lagoon. In December 2020, the City of Encinitas conducted emergency work due to the buildup of sediment within the culvert outfall, which hindered the stormwater system to function as designed, and a backup of sediment and surface waters spilled onto Manchester Avenue and throughout areas of the Cardiff Cove residential development. The proposed project would include long-term maintenance (i.e., removal of accumulated sediment) at the existing culvert outfall to facilitate flows into the San Elijo Lagoon and prevent threats to public health and safety.

3 Precipitation Data and Analysis[8]

Dudek utilized USACE's Antecedent Precipitation Tool (APT) to assess whether the site visits outlined above occurred in a drier, average, or wetter than normal period for the review area. The information generated from the APT can help to determine whether normal hydrologic and/or climatic conditions were present during the site visits. 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 -4 (extreme drought) to +4 (very wet) (NOAA 2021) 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 (in this case, the Arid West Supplement). If the antecedent runoff condition (ARC) score is less than 10, then the antecedent precipitation condition is classified as drier than normal; normal conditions are present with an ARC score of 10 to 14; conditions are wetter than normal when an ARC score is greater than 14 (USACE 2024a).

Table 2 summarizes the key data extrapolated from the APT output: estimated drought conditions (PDSI Class), wet or dry season determination, ARC score, and antecedent precipitation condition. Based on the APT output provided in Appendix B and summarized in Table 2, the precipitation and climatic conditions for the review area were within the normal range during the time of the delineation.

Table 2. Antecedent Precipitation Tool Data for the Review Area

Field Survey Date	PDSI Class	Season	ARC Score	Antecedent Precipitation Condition
11/28/2023	Mild wetness	Wet season	15	Wetter than Normal
12/20/2023	Incipient wetness	Wet season	11	Normal

Notes: PDSI = Palmer Drought Severity Index; ARC = antecedent runoff condition.

8 Minimum Standards Item 11 (Discussion of Hydrology)

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4 Investigation Methods[9]

The jurisdictional delineation was conducted by Dudek biologists Olivia Koziel and Kathleen Dayton on November 28 and December 20, 2023. Prior to conducting the jurisdictional delineation, the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory data (USFWS 2024) were reviewed to determine if the review area contained any features mapped by USFWS. Site-specific topographical data were reviewed in conjunction with aerials, both current and historical, to determine the potential presence of non-wetland waters. Current vegetation mapping was reviewed to assess whether the review area supported wetland vegetation. Jurisdictional boundaries were mapped in the field using Esri Collector on a mobile device. Remote sensing was not used for the delineation.

4.1 USACE

The USACE wetlands delineation was conducted in accordance with the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 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 (USACE 2008b) was used to determine the limits of non-wetland waters. Non-wetland waters were delineated on topographical maps in conjunction with Esri Collector on a mobile device.

The review area supports wetland vegetation, and therefore one Wetland Determination Form (WSP-1) was completed within the coastal and valley freshwater marsh. A second Wetland Determination Form (WSP-2) was completed within the southern riparian woodland, which occurs just outside of the review area. Additionally, one OHWM Form (T-01) was also completed within the Manchester Avenue site to delineate the channel.

4.2 RWQCB

Waters of the state regulated by RWQCB were mapped in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State, adopted April 2, 2019 (SWRCB 2019). As described in these procedures, wetland waters of the state are mapped based on the procedures in USACE's 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and its 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a). Non-wetland waters are mapped at the OHWM based on the procedures defined in USACE's 2008 A Field Guide to Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2008b).

4.3 CDFW

CDFW jurisdictional areas were mapped to include the bank of the streambed and associated riparian vegetation, as set forth under California Fish and Game Code 1602. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979).

[9] Minimum Standards Item 8 (Dates of Field Work), Item 5 (Use of 1987 Manual, Regional Supplement, and OHWM guide), Item 12 (Statement Regarding Use of Remote Sensing), Item 18 (Data Forms) and Item 19 (Methods)

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5 Aquatic Resource Narrative[10]

5.1 Waters of the United States (USACE)

Approximately 0.06 acres of non-wetland waters potentially regulated by USACE are present in the review area[11] (Figure 4, Potential Jurisdictional Aquatic Resources).[12] Table 3 provides a detailed summary of aquatic resources delineated within the review area that are potentially regulated by USACE.[13] Table 3 also includes information on the feature identified within the review area; its Cowardin type, if available (Cowardin et al. 1979; USACE 2024b); any OHWM indicators present; the location; and the acreage. A narrative description of the non-wetland water feature is included below. A copy of the ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet is not submitted with this ARDR because Table 3 in this section provides all the information requested.[14]

Non-Wetland Water 1

Non-Wetland Water (NWW) 1 represents the Manchester Avenue Culvert Outfall. Water from the culvert is normally conveyed to the south into the San Elijo Lagoon and contributes to the formation of a freshwater marsh (Figure 4). However, this flow is obstructed and the freshwater marsh immediately south of the culvert is covered in a thick layer of sediment. Additionally, due to sediment buildup below the culvert causing a blockage, some of the water is flowing off site to the east. This small section of open water in the eastern portion of the review area is temporarily ponded due to the blockage and is not considered jurisdictional because it is artificially created will not persist once regular maintenance occurs.

A wetland sampling point, WSP-1, was completed in the coastal and valley freshwater marsh. Hydrophytic vegetation was observed at this location; however, the area did not meet wetland hydrology or hydric soil parameters (Appendix C, Data Forms). While WSP-1 did not meet wetland hydrology or soil parameters, it should be acknowledged that conditions for the area are not normal due to the obstructed human-made culvert causing significant sediment deposition. While primary hydrology indicator A2 – High Water Table and primary hydric soil indicator A4 - Hydrogen Sulfide both require conditions to be met at 12 inches or less, sediment deposition on site may have obfuscated results. This is evidenced by the presence of a water table at 29 inches and faint rotten egg odor below 12 inches. Therefore, both wetland hydrology and soils may have been met at this point if conditions were normal.

An additional sampling point (WSP-2) was established just outside of the review area to determine if wetland conditions occur farther downstream of the outfall. Hydrophytic vegetation was observed at this location; however, the area did not meet wetland hydrology or hydric soil parameters (Appendix C). Therefore, the presence of freshwater marsh may be a result of the sedimentation and stagnant flows and may not occur under normal conditions. Because the freshwater marsh does not meet all three criteria to be considered a wetland, and occurs below the OHWM, the freshwater marsh and open water have been categorized as a non-wetland water (NWW-1). NWW-1 encompasses approximately 0.06 acres. OHWM transect T-01, which was completed to delineate the channel, exhibits the OHWM indicator of a change in vegetation species. Photos of the aquatic feature delineated

10 Minimum Standards Item 6 (Aquatic Resource Narrative)
11 Minimum Standards Item 6 (Aquatic Resource Narrative)
12 Minimum Standards Items 7 and 16 (Delineation Maps)
13 Table 3 meets Minimum Standards Item 9 (Table Listing All Aquatic Resources)
14 Minimum Standards Item 15 (ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet)

within the review area and at each wetland sampling point and OHWM transect are provided in Appendix D. The locations of these photos are shown on Figure 4.

Table 3. USACE Aquatic Resource Summary for the Review Area

Feature Name	Cowardin[1]	Vegetation Community/Land Cover	Primary OHWM Indicators	Location (Latitude/ Longitude; Decimal Degrees)	Acres
Non-Wetland Waters					
NWW-1	RP1EM	Coastal and Valley Freshwater Marsh	CVS	33.009368, -117.266938	0.06
	R4	Open Water			
				Total	0.06

Notes: USACE = U.S. Army Corps of Engineers; OHWM = ordinary high-water mark; NWW = Non-Wetland Water; RP1EM = Emergent, Lotic, Riparian; R4 = Riverine Intermittent; CVS = change in vegetation species.

1 Pursuant to Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) and USACE Cowardin Codes for ORM Data Entry (USACE 2024b).

5.2 Waters of the State (RWQCB)

The State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State, adopted April 2, 2019, relies on the wetlands determination provided by the USACE manual and regional supplement (SWRCB 2019). Therefore, NWW-1, as described in Section 5.1, Waters of the United States (USACE), and shown on Figure 4, would also be regulated by RWQCB as a non-wetland water.

5.3 CDFW Jurisdiction

The feature described in Section 5.1 (NWW-1) has been identified as streambed (open water) and riparian habitat (coastal and valley freshwater marsh) potentially regulated by CDFW. The riparian habitat is composed of coastal and valley freshwater marsh and falls below the OHWM; therefore, the CDFW and USACE jurisdictional aquatic resource totals are the same. These areas are shown on Figure 4. CDFW jurisdictional areas are listed in Table 4.

Table 4. CDFW Aquatic Resource Summary for the Review Area

Feature Name	Aquatic Resource Type	Vegetation Community	Location (Latitude/Longitude; Decimal Degrees)	Acres
NWW-1	Streambed	Open Water	33.0095, –117.267	0.01
	Riparian	Coastal and Valley Freshwater Marsh	33.0093, –117.267	0.05
			Total	0.06

Notes: CDFW = California Department of Fish and Wildlife; NWW = Non-Wetland Water.

5.4 National Wetlands Inventory

The majority of the review area is located outside areas mapped in the USFWS National Wetlands Inventory database (USFWS 2024) (Figure 3). As shown on Figure 3, the northeastern corner of the review area overlaps a small area mapped as Freshwater Forested/Shrub Wetland in the USFWS National Wetlands Inventory database.

However, this area is composed of disturbed habitat (i.e., compacted soils with no vegetation cover) and occurs adjacent to Manchester Avenue. The area immediately surrounding the review area, associated with the San Elijo Lagoon, is also mapped as Freshwater Forested/Shrub Wetland in the USFWS National Wetlands Inventory database (USFWS 2024) (Figure 3).

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6 Results and Conclusions

Based on the aquatic resource delineation and review of relevant information provided in this Aquatic Resources Delineation Report, one non-wetland water feature potentially under the jurisdiction of USACE was delineated within the review area, totaling approximately 0.06 acres. This feature may also be regulated by RWQCB as a non-wetland water. Of the 0.06 acres delineated within the review area, 0.05 acres is mapped as riparian habitat potentially regulated by CDFW, while 0.01 acres is mapped as streambed/open water potentially regulated by CDFW. This report can be used by those regulatory agencies to determine if they would regulate the features described herein. The GIS data for the delineation are provided in Appendix E (digital only).

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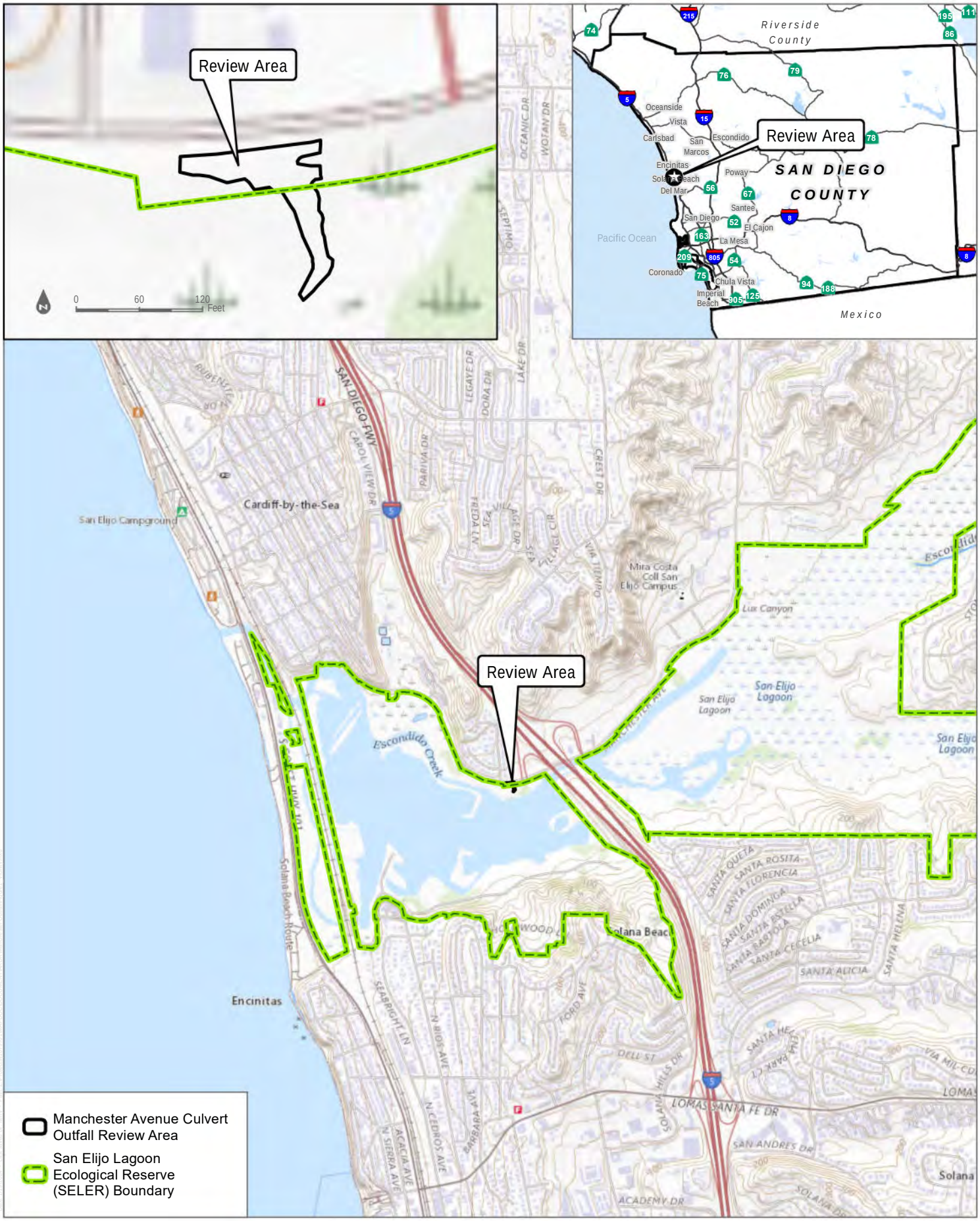

SOURCE: USGS 7.5-Minute Series Encinitas Quadrangle
Township 13S / Range 4W / Section 26

DUDEK 0 1,000 2,000 Feet

FIGURE 1
Vicinity

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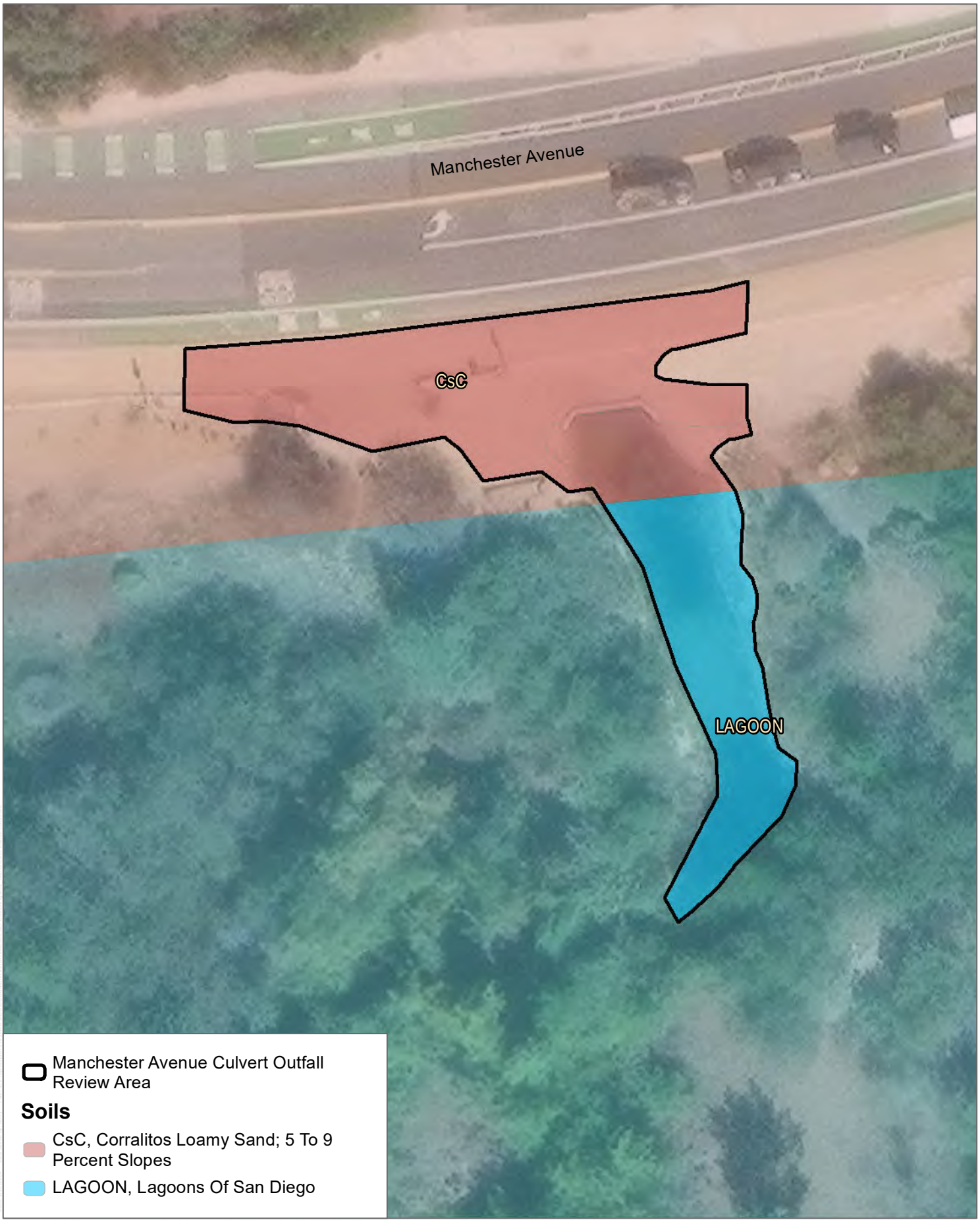

SOURCE: AERIAL-ESRI 2022

DUDEK

0 15 30 Feet

FIGURE 2

Manchester Avenue Culvert Outfall Soils

Aquatic Resources Delineation Report for the Manchester Avenue Culvert Outfall Project

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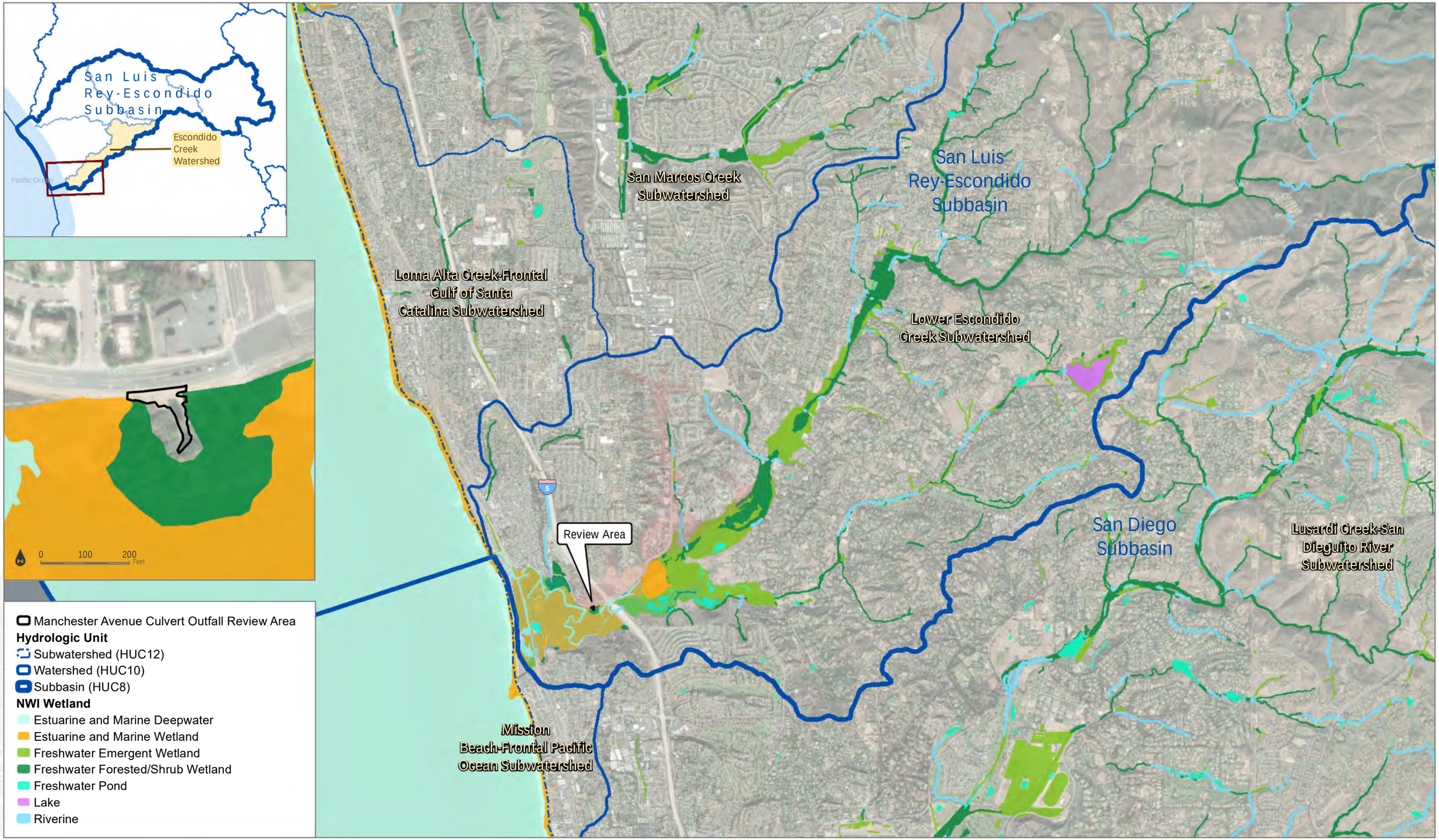

SOURCE: Esri World Imagery 2021; USFWS NWI 2021; USGS 2021

Coordinate System: NAD 1983, Zone 6, US Feet
Datum: North American 1983
Vertical Datum: NAVD88, US Feet
Created: August 2, 2021

FIGURE 3
Hydrology
Aquatic Resources Delineation Report for the Manchester Avenue Culvert Outfall Project

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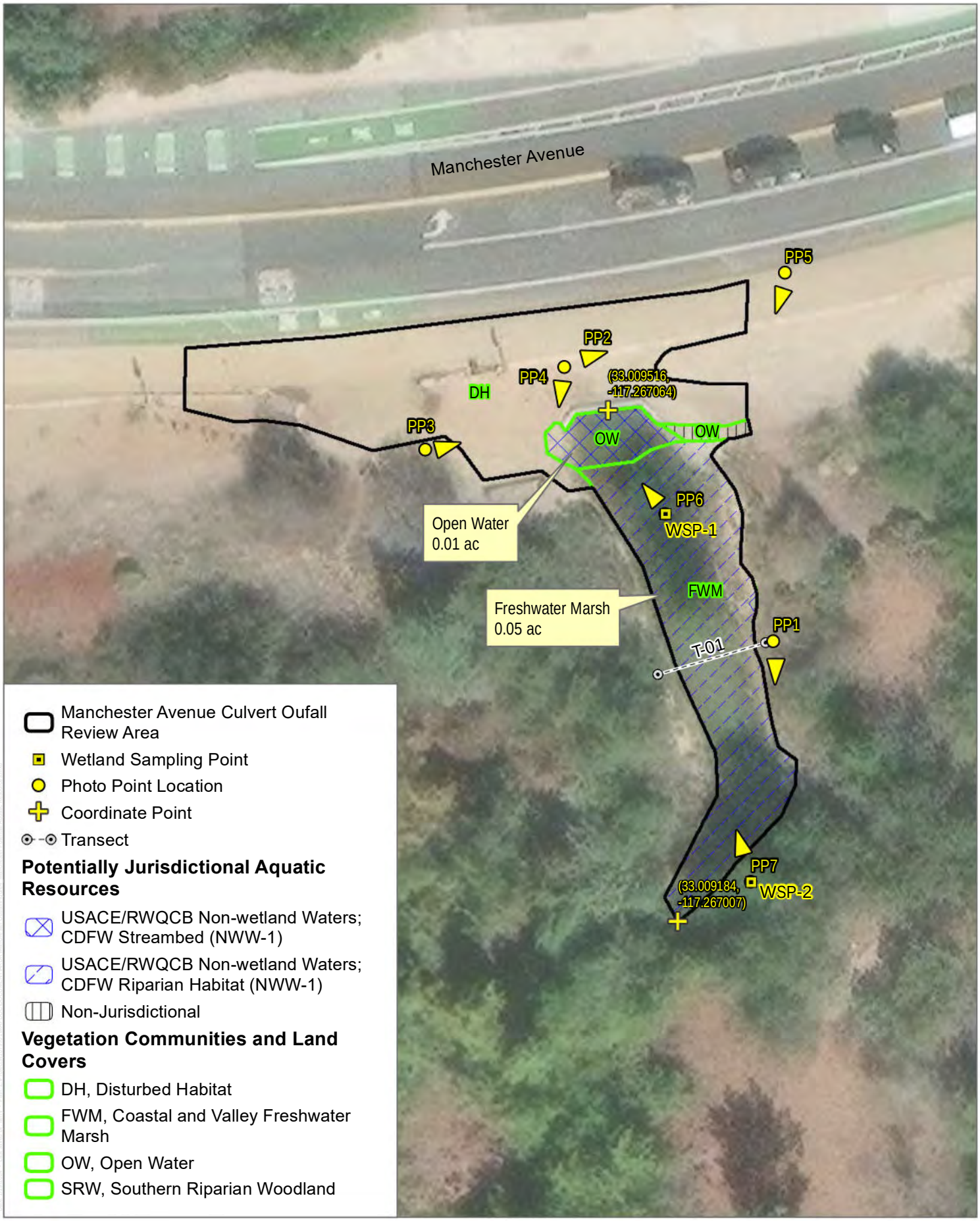

SOURCE: AERIAL-ESRI 2022

Coordinate System: NAD 1983, Zone 6, US Feet
Datum: North American 1983
Vertical Datum: NAVD88, US Feet
Created: January 12, 2024

0 15 30 Feet

DUDEK

FIGURE 4

Potential Jurisdictional Aquatic Resources

Aquatic Resources Delineation Report for the Manchester Avenue Culvert Outfall Project

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Appendix A

Request for Preliminary Jurisdictional Determination

As described in the Aquatic Resources Delineation Report, a jurisdictional delineation was conducted for the Manchester Avenue Culvert Outfall Project (review area) in 2023. The jurisdictional delineation resulted in the delineation of non-wetland waters within the review area. These features may be regulated by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board, and/or California Department of Fish and Wildlife. The project applicant is requesting a preliminary jurisdictional determination from USACE for the review area.

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: January 17, 2024

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: Contact: Ben Stryker
City of Encinitas, 505 South Vulcan Avenue, Encinitas, California 92024

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: California County/parish/borough: San Diego City: Encinitas

Center coordinates of site (lat/long in degree decimal format):

Lat.: xx.xxx° Long.: yy.yyy° 33.0096, -117.2671

Universal Transverse Mercator:

Name of nearest waterbody: San Elijo Lagoon

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☑ Field Determination. Date(s): November 28, 2023 and December 20, 2023

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
N/A	33.0096	-117.2671	0.06	Non-wetland waters	Section 404

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

☑ Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
Map: Figures 1-4.

☑ Data sheets prepared/submitted by or on behalf of the PJD requestor.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report. Rationale: _____.

☐ Data sheets prepared by the Corps: _____.

☐ Corps navigable waters' study: _____.

☑ U.S. Geological Survey Hydrologic Atlas: Figure 3.
☑ USGS NHD data.
☑ USGS 8 and 12 digit HUC maps.

☑ U.S. Geological Survey map(s). Cite scale & quad name: 7.5-minute Encinitas

☑ Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey. USDA Natural Conservation Service, Soil Survey Staff. Accessed December 2023.

☑ National wetlands inventory map(s). Cite name: USFWS (U.S. Fish and Wildlife Service). 2024. "National Wetland Inventory" [map]. Accessed 2024. http://www.fws.gov/data.

☐ State/local wetland inventory map(s): _____.

☐ FEMA/FIRM maps: _____.

☐ 100-year Floodplain Elevation is: ____. (National Geodetic Vertical Datum of 1929)

☑ Photographs: ☐ Aerial (Name & Date): _____.
or ☑ Other (Name & Date): Appendix D

☐ Previous determination(s). File no. and date of response letter: _____.

☐ Other information (please specify): _____.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

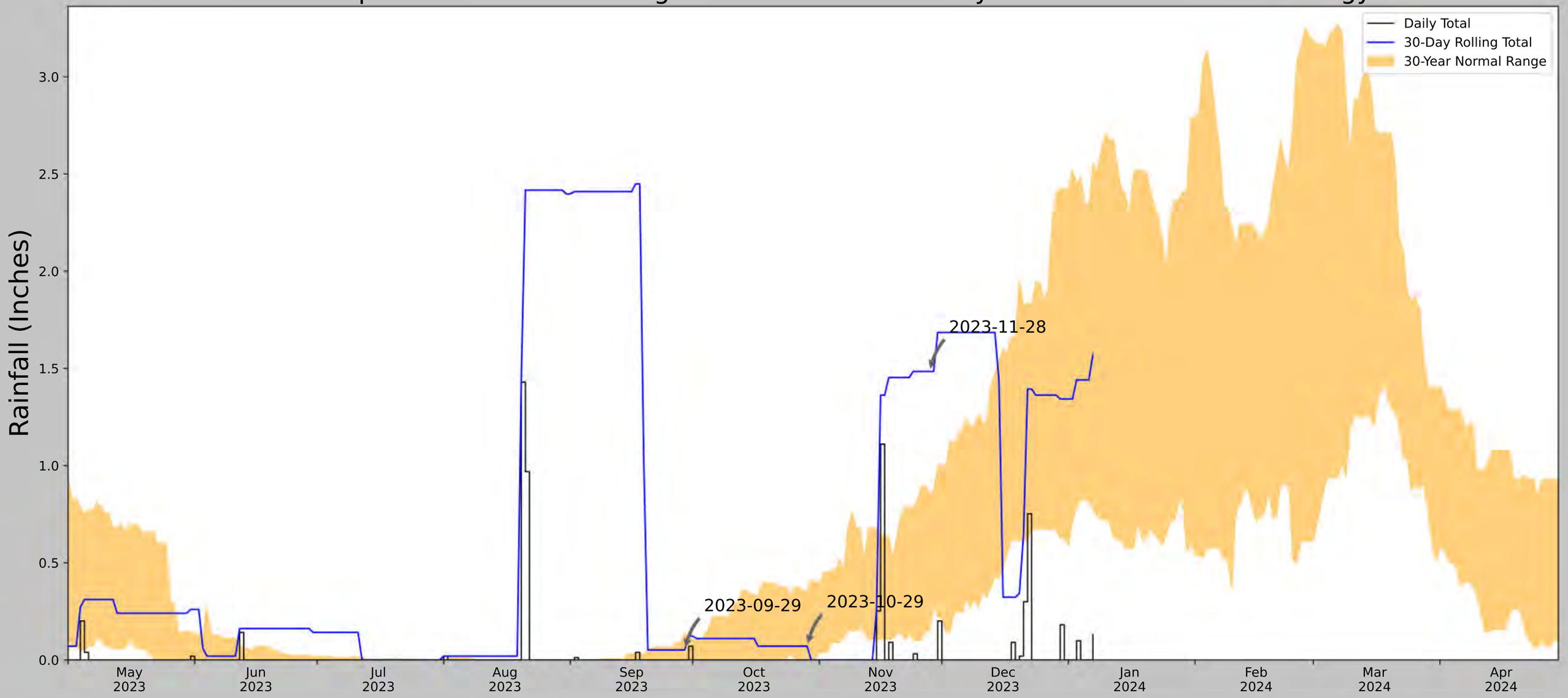
_____	01/23/2024
Signature and date of Regulatory staff member completing PJD	Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

Appendix B

Antecedent Precipitation Tool Output

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	33.0095, -117.267
Observation Date	2023-11-28
Elevation (ft)	11.4
Drought Index (PDSI)	Mild wetness

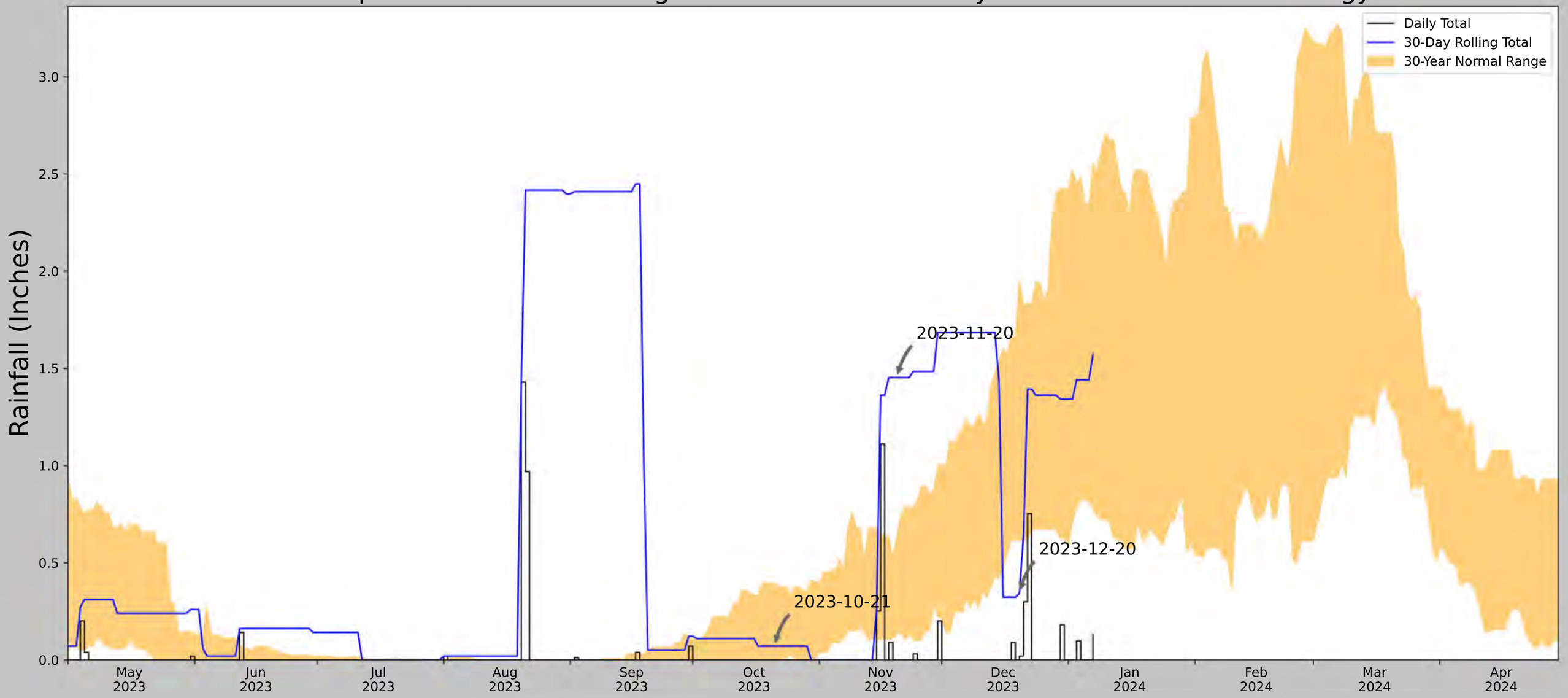
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-11-28	0.149213	0.856299	1.484252	Wet	3	3	9
2023-10-29	0.0	0.355118	0.070866	Normal	2	2	4
2023-09-29	0.0	0.137402	0.051181	Normal	2	1	2
Result							Wetter than Normal - 15

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 MARINA	33.2097, -117.395	9.843	15.691	1.557	7.086	11036	90
OCEANSIDE MUNI AP	33.2194, -117.3497	29.856	2.703	20.013	1.27	191	0
CAMP PENDLETON MCAS	33.3042, -117.355	69.882	6.926	60.039	3.533	125	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	33.0095, -117.267
Observation Date	2023-12-20
Elevation (ft)	11.4
Drought Index (PDSI)	Incipient wetness

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
2023-12-20	0.617717	1.952362	0.34252	Dry	1	3	3
2023-11-20	0.137795	0.633465	1.452756	Wet	3	2	6
2023-10-21	0.0	0.395276	0.070866	Normal	2	1	2
Result							Normal Conditions - 11

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
OCEANSIDE MARINA	33.2097, -117.395	9.843	15.691	1.557	7.085	11036	77
OCEANSIDE MUNI AP	33.2194, -117.3497	29.856	2.703	20.013	1.27	191	13
CAMP PENDLETON MCAS	33.3042, -117.355	69.882	6.926	60.039	3.533	125	0

Appendix C
Data Forms

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Manchester Outfall
Project Number:
Stream: San Elijo Lagoon (edge)
Investigator(s): Kathleen Dayton, Olivia Koziel

Date: 2023-12-20 **Time:** 0900
Town: Encinitas **State:** CA
Photo begin file#: **Photo end file#:**
See photo points in Field Maps

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details: Ocean Cove Dr. and Manchester Ave , adjacent S. side of Manchester Ave

Projection: **Datum:**
Coordinates: 33.009368 N 117.266938 W

Potential anthropogenic influences on the channel system:

Defined (human-influenced) channel associated with the previous stormwater drainage infrastructure is evident here in historic aerials from several years ago. Sediment deposition has altered flow and no distinct channel currently exists.

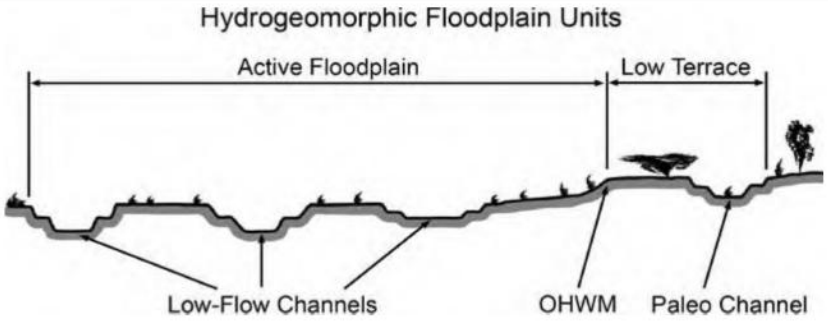
Brief site description:

Site is near a culvert near the north side of the lagoon area, west of the I-5 and just south of Manchester Avenue.

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

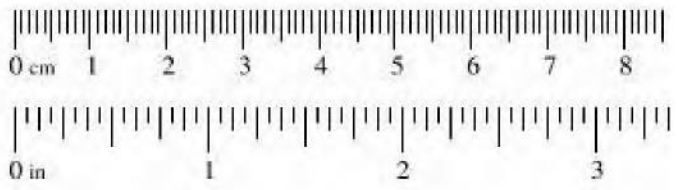


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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:

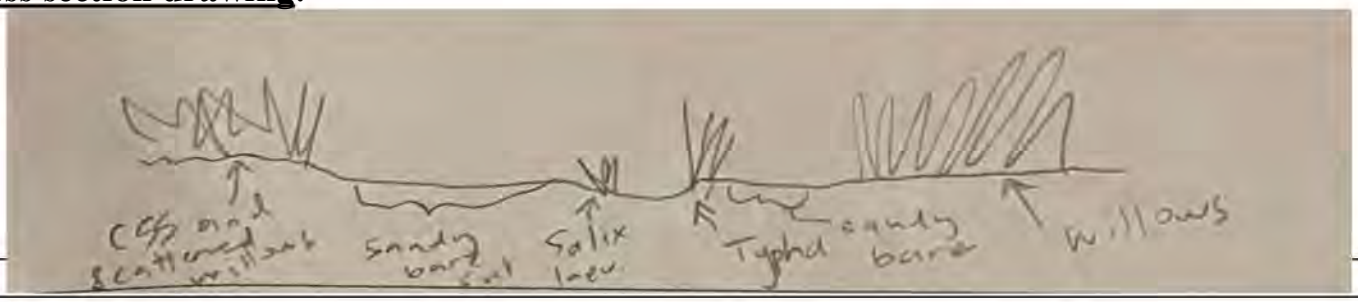
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** T-1 **Date:** 2023-12-20 **Time:** 0900

Cross section drawing:



OHWM

GPS point: See generic line layer in Field Maps.

Indicators:

- ☐ Change in average sediment texture
- ☒ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Willows present throughout transect. Typha only in center of transect. More bare ground in center of transect. No break in slope. No visible elevation gradient. Soils throughout transect are sandy with patches of cracked soils. Evidence of dispersed flows but no distinct channel.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

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:

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

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:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Manchester Outfall City/County: Encinitas, San Diego Sampling Date: 2023-12-20

Applicant/Owner: City of Encinitas State: CA Sampling Point: WSP-1

Investigator(s): Kathleen Dayton, Olivia Koziel Section, Township, Range: S26 T13S R4W

Landform (hillslope, terrace, etc.): Upland; edge of lagoon area Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C19 Lat: 33.009449 N Long: 117.267019 W Datum: NAD83

Soil Map Unit Name: Corralitos loamy sand, 5 to 9 percent slopes (CsC) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

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 X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks: Sample point taken in Typha-dominated freshwater marsh area. Circumstances are not "normal" in that the sampling point is taken near an obstructed human-made culvert and there is sediment deposition at the sampling point as a result. According to Web Soil Survey, a line near the point divides to the north as Corralitos loamy sand, 5 to 9 percent slopes (CsC), and to south as Lagoon Water (LG-W). Likely coarsely mapped, straight line.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	5	Y	FACW
2.			
3.			
4.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. Salix lasiolepis	2	Y	FACW
2.			
3.			
4.			
5.			
	2	= Total Cover	
Herb Stratum (Plot size:)			
1. Typha domingensis	60	Y	OBL
2. Ambrosia psilostachya	3	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	63	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
	70	= 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: 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:

X 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 X No _____

Remarks:

Culvert is obstructed and there appears to be more sediment deposition as a result.

SOIL

Sampling Point: WSP-1

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
0-20	10YR 5/3	100					sand	
20-30	10YR 5/3	100					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: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

There is a faint rotten egg odor, but at much deeper than 12 inches deep. Soil deposition may be influencing results.

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 X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 29

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 28

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No current evidence of hydrology. Defined (human-influenced) channel associated with the previous stormwater drainage infrastructure is evident here in historic aerials from several years ago.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Manchester Outfall City/County: Encinitas, San Diego Sampling Date: 2023-12-20

Applicant/Owner: City of Encinitas State: CA Sampling Point: WSP-2

Investigator(s): Kathleen Dayton, Olivia Koziel Section, Township, Range: S26 T13S R4W

Landform (hillslope, terrace, etc.): Upland; edge of lagoon area Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C19 Lat: 33.009210 N Long: 117.266950 W Datum: NAD83

Soil Map Unit Name: Lagoon Water (LG-W)* NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

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 X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks: Sample point taken in willow-dominated area of southern riparian woodland mapping unit. Sampling point is taken near an obstructed human-made culvert and there is sediment deposition at the sampling point as a result. *According to Web Soil Survey, a line near WSP-1 divides to the north as Corralitos loamy sand, 5 to 9 percent slopes (CsC), and to south as Lagoon Water (LG-W). Likely coarsely mapped, straight line.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	70	Y	FACW
2.			
3.			
4.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Typha domingensis	5	Y	OBL
2. Euphorbia peplus	<1	N	NL
3. Asparagus asparagoides	<1	N	NL
4.			
5.			
6.			
7.			
8.			
	63 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	70 = 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: 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:

X 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 X No _____

Remarks:

Culvert is obstructed and there appears to be more sediment deposition as a result. Less here than at WSP-1.

SOIL

Sampling Point: WSP-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 %	Type[1]	Loc[2]	Texture	Remarks
0-20	2.5YR 5/4	100					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: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

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 X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of hydrology.
Defined (human-influenced) channel associated with the previous stormwater drainage infrastructure is evident in this area in historic aerials from several years ago.

Appendix D
Review Area Photos



Photo 1. OHWM T-01, within the freshwater marsh, facing downstream showing OHWM indicator change in vegetation species.



Photo 2. Due to sediment buildup below the culvert causing a blockage, some of the open water is flowing to the east. This open water area is not considered jurisdictional because it is artificially created and will not persist once regular maintenance occurs.



Photo 3. Open water and freshwater marsh below culvert headwall.



Photo 4. Disturbed habitat with sediment buildup adjacent to culvert along the north side.



Photo 5. Overview of the review area showing disturbed habitat, open water, and freshwater marsh downstream of the culvert headwall.



Photo 6. WSP-1 taken within freshwater marsh (USDA soil type Corralitos loamy sand, 5% to 9% slopes [CsC]) was determined to be a non-wetland water.



Photo 7. WSP-2 taken outside the review area (USDA soil type Lagoon Water [LG-W]) was determined to be a non-wetland water.

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Appendix E
Digital GIS Data

Appendix H

Upland Habitat Mitigation and Monitoring Plan

DRAFT

Uplands Habitat Mitigation and Monitoring Plan

Lake Drive Storm Drain Project, City of Encinitas, California

DECEMBER 2024

Prepared for:

CITY OF ENCINITAS
505 South Vulcan Avenue
Encinitas, California 92024
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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BMP	best management practice
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
City	City of Encinitas
CRPR	California Rare Plant Rank
FPA	Focused Planning Area
HMMP	Uplands Habitat Mitigation and Monitoring Plan
MHCP	Multiple Habitat Conservation Program
MM	Mitigation Measure
project	Lake Drive Storm Drain Project

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Executive Summary

This Uplands Habitat Mitigation and Monitoring Plan (HMMP) outlines the mitigation strategy for implementation of the City of Encinitas Lake Drive Storm Drain Project (project), which would result in impacts to sensitive upland habitat communities, including southern maritime chaparral and coastal sage scrub (occupied by coastal California gnatcatchers [*Polioptila californica californica*]). As stipulated in Mitigation Measure (MM)-BIO-1 of the Biological Resources Technical Report (Dudek 2024a), on-site compensatory mitigation is required in accordance with the City of Encinitas Multiple Habitat Conservation Program (MHCP) Draft Encinitas Subarea Plan (City of Encinitas 2001) and acceptable to the wildlife agencies (i.e. the U.S. Fish and Wildlife Services and California Department of Fish and Wildlife). The 25.34-acre project site is in Encinitas at the intersection of Lake Drive and Sea Village Way at a longitude and latitude of 117°16′7.209″W, 33°1′2.868″N (Figure 1, Project Location). The proposed project would consist of removal and replacement of an existing 48-inch-diameter corrugated metal pipe and installation of associated appurtenances. Work would occur from the curb inlet along Lake Drive, at the northeast end of the project site, southwest through the canyon to connect to the storm drain that flows under Interstate 5.

This HMMP addresses 0.26 acres of permanent impacts to southern maritime chaparral, 1.97 acres of Diegan coastal sage scrub (coastal form), 0.16 acres of Diegan coastal sage scrub (Baccharis-dominated), and 1.06 acres of temporary impacts. Temporary impacts would include 0.75 acres of coastal sage scrub (Baccharis-dominated and coastal form), 0.25 acres of southern maritime chaparral, and 0.06 acres of non-native communities and land covers. Mitigation for all waters impacts and associated revegetation of habitat existing within waters resources impact areas is outlined in the Non-Wetland Waters Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project (Dudek 2024b), and therefore is not covered in this HMMP.

This HMMP also addresses impacts to five special-status plant species that would be mitigated through MM-BIO-1, MM-BIO-3, MM-BIO-5, MM-BIO-6, and MM-BIO-7. Per the requirements of the avoidance and mitigation measures, special-status plant species within the impact footprint and a 20-foot buffer will be flagged and avoided to the greatest feasible extent. If avoidance of significant impacts is not possible, then appropriate mitigation to either translocate, plant, or seed will be conducted for the specified species.

Per the requirements of MM-BIO-1, 0.26 acres of permanent impacts to southern maritime chaparral will be mitigated at a 3:1 ratio for a total of 0.79 acres of compensation, 1.97 acres of Diegan coastal sage scrub (coastal form) will occur at a 2:1 ratio for a total of 3.95 acres of compensation, and 0.16 acres of Diegan coastal sage scrub (Baccharis-dominated) will occur at a 2:1 ratio for a total of 0.33 acres of compensation. Permanent impact acreage compensation for Baccharis-dominated Diegan coastal sage scrub will be enhanced to the coastal form, which is of a higher quality and more diverse community, bringing the total acreage compensation for Diegan coastal sage scrub (coastal form) to 4.28 acres. All upland temporary impacts will be restored in place and mitigated at a 1:1 ratio, for a total of 1.00 acres of restoration (0.70 acres of Diegan coastal sage scrub coastal form, 0.05 acres of Diegan coastal sage scrub [Baccharis-dominated], and 0.25 acres of southern maritime chaparral). All mitigation activities are proposed to occur within The Nature Collective–owned and managed property/project boundary.

The proposed mitigation and restoration sites are located within Encinitas conservation areas, managed by The Nature Collective. Proposed restoration for temporary impacts to upland sensitive habitats is proposed to occur in-kind, in-place through revegetation activities (planting and seeding). Mitigation to compensate for permanent impacts to upland sensitive vegetation communities is proposed to occur through enhancement of disturbed

habitat within the southwestern portion of the project site, and The Nature Collective–owned property through non-native invasive species removal and planting and seeding of native species.

The proposed 5-year maintenance and monitoring program will support site development and achievement of success criteria required by the City of Encinitas and the wildlife agencies. This HMMP outlines goals and objectives, the regulatory setting, site selection, baseline site information, restoration design approach, rationale for success, the implementation program (including the construction period and the 5-year maintenance and monitoring program), performance standards, and long-term site protection and management.

1 Introduction

The 25.34-acre Lake Drive Storm Drain Project (project) site is in the City of Encinitas at the intersection of Lake Drive and Sea Village Way (Figure 1, Project Location). Currently, the Lake Drive project site and adjacent open space areas located to the northwest and southeast occur within the Multiple Habitat Conservation Program (MHCP) hardline and softline Focused Planning Areas (FPAs) (City of Encinitas 2001), as shown in Figure 2, Regulatory Setting, and are owned by The Nature Collective (formerly the San Elijo Lagoon Conservancy). In 1975, the Cardiff Sea Village Map 8067 was approved and finalized by the County of San Diego, and the project site was designated as open space to mitigate for the Cardiff Sea Village impacts (Stryker, pers. comm., 2024). In 1982, a storm drain pipeline was constructed by the County of San Diego within the project site along the bottom of the canyon to collect and drain water from the surrounding developed area. The canyon and any natural drainage that previously existed was filled during installation of the storm drain pipeline. This existing pipe has failed in several areas, causing large pockets of erosion along the canyon. In very large rain events, it appears that water flows out of the vertical pipes and into the canyon, as is evidenced by erosion at some of the vertical pipes. The pipeline alignment exists within the open space easement without a designated drainage easement. The open space easement is owned by the City of Encinitas (City). Once the project design is complete, a drainage easement will be dedicated to the City over the permanent impact areas (i.e., detention basin and maintenance access road) (Stryker, pers. comm., 2024).

The City has proposed the removal and replacement of approximately 2,000 linear feet of existing 48-inch-diameter corrugated metal pipe and associated appurtenances from the curb inlet along Lake Drive west through the canyon to Interstate 5. The existing alignment would be replaced with new pipes and appurtenances of similar size. The new storm drain would generally follow the same alignment to preserve existing hydraulic conditions and minimize site disturbances as much as possible. In January 2023, a large sinkhole, roughly 600 feet across and 30 feet deep, developed during the winter storms below Lake Drive, collapsing a portion of the roadway and causing a severe landslide below Lake Drive within the open space canyon. Emergency work was conducted by the City from February 27 to September 27, 2023, and included repair of the Lake Drive roadway (including curb, gutter, and sidewalk), removal and replacement 140 feet of corrugated metal pipe with reinforced concrete pipe, backfill of the slope with native soils/material and then hydroseeding of the slope, and installation of a new energy dissipator at the bottom of the slope to reduce storm flow velocities and flooding and prevent further threats to public health and safety. The temporarily impacted area along Lake Drive that was repaired in response to the January 2023 emergency work was revegetated by The Nature Collective in December 2023. Because this area is already revegetated, this Uplands Habitat Mitigation and Monitoring Plan (HMMP) only includes maintenance and monitoring requirements for the success of this area. Additional emergency work was conducted within the Lake Drive project site in January and February 2024 in response to 2023/2024 winter rain events, which caused the existing corrugated metal pipe to convey sediment from the canyon and flood several homes downstream of the Lake Drive project site. In response to the flooding, the City implemented a minimally invasive temporary solution that included a hi-line bypass with approximately 1,200 linear feet of 48-inch-diameter high-density polyethylene pipe through the canyon, associated storm drain riser inlets, desilting basins, and erosion/sediment control best management practices (BMPs) to prevent further erosion within the canyon and sedimentation downstream in the drainage system. The proposed project would remove the temporary 48-inch-diameter high-density polyethylene pipe and associated structures and replace it with a new 40-inch-diameter reinforced concrete pipe. The remaining portion of the existing corrugated metal pipe is also proposed for replacement under the project.

During installation of the new storm drain pipeline at Lake Drive, a temporary work area would be required along the length of the pipeline. The pipe would be installed in an excavated trench in accordance with the San Diego

Regional Standard Drawings, Pipe Bedding and Trench Backfill for Storm Drains (i.e., drawing number D-60) (County of San Diego 2022). Shoring would be used to construct the needed trench to install the new storm drainpipe. Crushed rock (3/4 inches) would be placed below the new pipe, and backfill would be placed in the trench per the D-60 drawing (County of San Diego 2022). Permanent impacts would occur from the detention basin at the northern end of the project site, which would reduce storm flow velocities and flooding, and from the maintenance access road along the pipeline alignment. Any areas impacted outside the limits of the maintenance access road would be stabilized with a native vegetation hydroseed mix. The project also includes construction of an access road from Lake Drive down along the length of the pipeline for entry to the detention basin and future maintenance of the pipeline. As of December 2024, construction is expected to start January 2026 and end November 2026. Ongoing operation would include basin maintenance and checking pipes. The existing 20-foot-wide road easement off Lake Drive would provide access to the basin during future maintenance operations, and pipeline access would be provided by the 25-foot-wide access road drainage easement along the length of the pipeline.

1.1 Responsible Parties

Applicant/Permittee

City of Encinitas
505 South Vulcan Avenue
Encinitas, California 92024
Contact: Ben Stryker
Phone: 760.943.2230
Email: bskryker@encinitasca.gov

Regulatory Permitting Consultant

Dudek
605 Third Street
Encinitas, California 92024
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Restoration Ecologist

Dudek
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Property Owner

The Nature Collective
777 South Coast Highway 101, Suite 112
Solana Beach, California 92075
Contact: Bradley Nussbaum
Phone: 858.704.4554
Email: bradley.nussbaum@thenaturecollective.org

1.2 Project Location and Ownership

The 25.34-acre project site is in the City of Encinitas at the intersection of Lake Drive and Sea Village Way at a longitude and latitude of 117°16′7.209″W, 33°1′2.868″N (Figure 1). The project site occurs on Section 26, Township 13 South, Range 4 West in the southeast portion of the Encinitas U.S. Geological Survey 7.5-minute quadrangle. The project site occurs primarily on Assessor's Parcel Number 261-150-69, but also intersects the following Assessor's Parcel Numbers: 261-254-04, 261-254-48, 261-254-20, 261-254-03, 264-254-21, 261-232-40, 261-232-39, 261-255-30, 261-254-46, 261-254-05, and 261-254-22.

The project site and adjacent open space areas are owned and managed by The Nature Collective (formerly the San Elijo Lagoon Conservancy) within the MHCP Hardline Preserve and is within the Coastal Zone (Figure 2). The

site has been the subject of previous habitat restoration and enhancement activities, primarily consisting of non-native species or weed control and management, and revegetation treatments to parkway and slope landscape areas adjacent to Lake Drive.

1.3 Regulatory Setting

California Fish and Game Code

Under the California Fish and Game Code, the California Department of Fish and Wildlife (CDFW) provides protection from take for a variety of species, including fully protected species. "Fully protected" is a legal protective designation administered by CDFW intended to conserve wildlife species that risk extinction within California. Lists have been created for birds, mammals, fish, amphibians, and reptiles.

According to California Fish and Game Code Sections 3511 and 4700, which regulate birds and mammals, respectively, a fully protected species may not be taken or possessed without a permit from the Fish and Game Commission, and incidental takes of these species are not authorized.

According to California Fish and Game Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 states that 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. Finally, Section 3513 states that is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act.

For the purposes of these state regulations, CDFW currently defines an active nest as one that is under construction or in use, and includes existing nests that are being modified. For example, if a hawk is adding to or maintaining an existing stick nest in a transmission tower, then it would be considered to be active and covered under these California Fish and Game Code sections.

City of Encinitas Local Coastal Program

Under the California Coastal Act, the California Coastal Commission regulates the coastal zone and requires a Coastal Development Permit for almost all development within this zone. The California Coastal Act also directs each coastal city or county to prepare a Local Coastal Program to guide development in the coastal zone, which is certified by the California Coastal Commission (California Public Resources Code Section 30500). After a Local Coastal Program has been approved, the permitting authority of the California Coastal Commission is transferred to the local government. The City of Encinitas General Plan (City of Encinitas 1989) is an approved Local Coastal Program. The project site is within the boundaries of the coastal zone (Figure 2) (City of Encinitas 1989, 2001).

Draft Encinitas Subarea Plan for the North County Multiple Habitat Conservation Program and General Plan

Several conservation planning efforts are currently in progress in San Diego County, with the long-term goal of establishing a regional habitat reserve system that will protect native habitat lands and their associated biota. The

Final North County Multiple Habitat Conservation Program (MHCP) Plan (SANDAG 2003) and Final Environmental Impact Statement/Environmental Impact Report for the North County Multiple Habitat Conservation Program (USFWS and SANDAG 2003) were adopted by the San Diego Association of Governments on March 28, 2003. The City is within the MHCP planning area, and the draft Encinitas Subarea Plan was prepared in June 2001 (City of Encinitas 2001).

In the draft Encinitas Subarea Plan, lands identified for conservation are designated as Hardline or Softline Focused Planning Areas (FPAs). Hardline FPAs include lands with existing development agreements that identify designated development and biological preserve areas. Softline FPAs include lands where conservation will be achieved through the application of development and conservation standards and criteria as outlined in the draft Encinitas Subarea Plan (City of Encinitas 2001). The project site occurs within a Hardline FPA and is encompassed entirely by land designated as existing single-family residential (Figure 2). The majority of impacts occurring from the proposed project would be temporary (i.e., the site would continue to function as open space after project implementation), and replacement of an existing storm drain is a compatible use with the biological objectives of the draft Encinitas Subarea Plan. Therefore, the project would not interfere with the implementation of conservation required under the MHCP or the future completion of the draft Encinitas Subarea Plan.

1.4 Mitigation Goals and Objectives

This HMMP outlines the mitigation strategy for temporary and permanent impacts to sensitive vegetation communities and special-status plant species anticipated from implementation of the project. Mitigation is proposed on site through enhancement and restoration of upland sensitive vegetation communities of southern maritime chaparral and Diegan coastal sage scrub (coastal form). Special-status plant species will be flagged and avoided to the maximum extent feasible, but will be translocated, planted, or seeded if significant impacts are unavoidable.

The objective of on-site enhancement/restoration is to restore vegetation communities that were permanently and temporarily impacted during project construction activities. Restoration aims to foster growth of the appropriate native plant species that were known to be present before impacts occurred. The goals of this enhancement/restoration effort are as follows:

- Comply with City requirements outlined in Mitigation Measure (MM)-BIO-1 and acceptable to the wildlife agencies.
- Restore temporary impact areas with vegetation communities of similar or higher functions and services than those vegetation communities temporarily impacted by the project.
- Enhance existing disturbed southern maritime chaparral and Diegan coastal sage scrub vegetation communities on site adjacent to project impacts to offset permanent impacts.
- Restore native vegetation communities that provide suitable nesting, foraging, and/or breeding habitat for native animal species.
- Ensure vegetation communities are self-sustaining and functional beyond the maintenance and monitoring period.

This HMMP outlines a mitigation strategy to conduct on-site mitigation through restoration and enhancement within the project site open space area per the requirements of MM-BIO-1, which is as follows (Dudek 2024a):

MM-BIO-1 As compensation for direct permanent and temporary impacts to sensitive vegetation communities, the City of Encinitas shall be required to provide on-site compensatory mitigation and in-place restoration in accordance with the City of Encinitas' 2001 Multiple Habitat Conservation

Program (MHCP) Draft Encinitas Subarea Plan and acceptable to the wildlife agencies (the U.S. Fish and Wildlife Services and the California Department of Fish and Wildlife). The Upland Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project, City of Encinitas, California includes the mitigation for permanent impacts and restoration of all temporary impact areas. The Upland Habitat Mitigation and Monitoring Plan includes the goals and objectives, regulatory setting, site selection, baseline site information, restoration design approach, rationale for success, implementation program (including the construction period and the 5-year maintenance and monitoring program), performance standards and long-term site protection and management of the upland mitigation site.

A total of 5.07 acres of mitigation for permanent impacts to sensitive vegetation communities shall be conducted in accordance with the ratios provided in the MHCP Draft Encinitas Subarea Plan as described in the Upland Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project, City of Encinitas, California.

All temporary impacts to sensitive vegetation communities shall be restored in-place at a 1:1 ratio. For temporary impacts to non-native communities and land covers, hydroseeding shall occur for stabilization and erosion control purposes using appropriate native species as directed by the Upland Habitat Mitigation and Monitoring Plan.

Table 1 outlines project impacts (permanent and temporary), mitigation ratio requirements, and proposed mitigation. All permanent impacts are proposed to be mitigated on site within the southwestern portion of the project site, and on The Nature Collective owned property, through enhancement of disturbed sensitive vegetation communities. Temporary impacts to native upland vegetation communities are proposed to be mitigated in place, in-kind. All temporary impacts to non-native vegetation communities and land covers will be revegetated with a native erosion control seed mix for stabilization purposes.

Table 1. Proposed Mitigation and Revegetation for Upland Sensitive Vegetation Communities

Vegetation Communities	Impacts (acres)	Mitigation Ratio	Proposed Mitigation	
			Enhancement (acres)	Restoration (acres)
Mitigation for Permanent Impacts				
Southern Maritime Chaparral	0.26	3:1	0.79	*0*
Diegan Coastal Sage Scrub (Coastal Form)	1.97	2:1	4.28[3]	*0*
Diegan Coastal Sage Scrub (Baccharis-dominated)	0.16	2:1	*0*	*0*
Total[1]	**2.40**	*N/A*	***5.07***	***0***
Mitigation for Temporary Impacts				
Diegan Coastal Sage Scrub: Baccharis-dominated	0.05	1:1	*0*	0.05
Diegan Coastal Sage Scrub: Coastal form	0.70	1:1	*0*	0.70
Southern Maritime Chaparral	0.25	1:1	*0*	0.25
Total[1]	**1.00**	*N/A*	*0*	**1.00**

Table 1. Proposed Mitigation and Revegetation for Upland Sensitive Vegetation Communities

Vegetation Communities	Impacts (acres)	Mitigation Ratio	Proposed Mitigation	
			Enhancement (acres)	Restoration (acres)
Non-Native Vegetation Temporary Impacts[2]				
Eucalyptus Woodland (Erosion Control)	0.05	*0*	*0*	0.05
Urban/Developed (Erosion Control)	0.01	*0*	*0*	0.01
Total[1]	**0.06**	*0*	*0*	**0.06**

Notes:
1 Acreage may not total due to roundng.
2 Temporary Impacts to eucalyptus woodland and urban/developed will be stabilized with an erosion control seed mix (0.06 acres).
3 Diegan coastal sage scrub (Baccharis-dominated) will be enhanced to the coastal form.

This HMMP outlines mitigation strategies to conduct on-site avoidance and mitigation of special status plant species within the project site per the requirements of MM-BIO-3, MM-BIO-5, MM-BIO-6, MM-BIO-7 (Dudek 2024a), as follows:

MM-BIO-3 Del Mar Mesa Sand Aster Avoidance/Mitigation. Prior to construction activities, all individuals of Del Mar Mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*) within the impact footprint and a 20-foot buffer of the impact footprint shall be flagged by a qualified biologist for avoidance. If avoidance is not possible, individuals of Del Mar Mesa sand aster in the impact footprint shall be translocated to a permanently conserved location of suitable habitat outside of the impact footprint on site. The translocation site shall be selected using appropriate habitat factors (e.g., vegetation, soils, aspect, steepness) and shall be prepared prior to translocation (e.g., weeds removed, soil amended), if needed. The Del Mar Mesa sand aster mitigation shall be included in the Upland Habitat Mitigation and Monitoring Plan, which includes the goals and objectives, site selection, baseline site information, restoration design approach, rationale for success, implementation program (including the construction period and the 5-year maintenance and monitoring program), performance standards, and long-term site protection and management of the mitigation site.

MM-BIO-5 Torrey Pine Avoidance/Mitigation. Prior to construction activities, all individuals of Torrey pine (*Pinus torreyana* ssp. *torreyana*) within the impact footprint and a 20-foot buffer shall be flagged by a qualified biologist for avoidance. If avoidance is not possible, impacts to Torrey pine during construction shall be documented, and Torrey pine shall be planted on site post-construction at a 1:1 ratio. Trees shall be sourced locally or from a reputable vendor. The planting site shall be selected using appropriate habitat factors (e.g., vegetation, soils, aspect, steepness) and shall be prepared prior to planting (e.g., scraping, weeds removed, soil amended), if needed. The Torrey pine mitigation shall be included in the Upland Habitat Mitigation and Monitoring Plan, which includes the goals and objectives, site selection, baseline site information, restoration design approach, rationale for success, implementation program (including the construction period and the 5-year maintenance and monitoring program), performance standards, and long-term site protection and management of the mitigation site.

MM-BIO-6 Sea Dahlia Avoidance/Mitigation. Prior to construction activities, all individuals of sea dahlia (*Leptosyne maritima*) within the impact footprint and a 20-foot buffer shall be flagged by a qualified biologist for avoidance. If avoidance is not possible, impacts to sea dahlia during construction shall be documented, and sea dahlia shall be planted on site post-construction at a 1:1 ratio. Seed shall be sourced locally or from a reputable vendor. The planting site shall be selected using appropriate habitat factors (e.g., vegetation, soils, aspect, steepness) and shall be prepared prior to planting (e.g., scraping, weeds removed, soil amended), if needed. The sea dahlia mitigation shall be included in the Upland Habitat Mitigation and Monitoring Plan, which includes the goals and objectives, site selection, baseline site information, restoration design approach, rationale for success, implementation program (including the construction period and the 5-year maintenance and monitoring program), performance standards, and long-term site protection and management of the mitigation site.

MM-BIO-7 Campbell's Liverwort Avoidance/Mitigation. Prior to construction activities, all individuals of Campbell's liverwort (*Geothallus tuberosus*) within the impact footprint and a 20-foot buffer shall be flagged by a qualified biologist for avoidance. If avoidance is not possible, but impacts would be limited to trampling or other disturbance that does not require removal of the soil, tarps and/or plywood shall be used to cover Campbell's liverwort to protect it during construction. If more extensive impacts are proposed, Campbell's liverwort shall be salvaged by removing the bryophyte along with its host soil and re-establishing it outside of the impact footprint. The translocation site shall be selected using appropriate habitat factors (e.g., vegetation, soils, aspect, steepness) and shall be prepared prior to planting (e.g., scraping, weeds removed), if needed. The Campbell's liverwort mitigation shall be included in the Upland Habitat Mitigation and Monitoring Plan, which includes the goals and objectives, site selection, baseline site information, restoration design approach, rationale for success, implementation program (including the construction period and the 5-year maintenance and monitoring program), performance standards, and long-term site protection and management of the mitigation site.

Impacts to special-status plants from implementation of the proposed project are summarized in Table 2. Additionally, impacts occurred to one wart-stemmed ceanothus (*Ceanothus verrucosus*) individual and three sea dahlia (*Leptosyne maritima*) individuals during the January 2023 sinkhole and landslide emergency. These species were replanted by The Nature Collective in December 2023 as part of the slope revegetation efforts, and are therefore not included in the proposed project impacts listed below.

Because wart-stemmed ceanothus is a characteristic species in southern maritime chaparral (Oberbauer et al. 2008), mitigation for impacts to native vegetation communities would also mitigate for impacts to this species. Therefore, with implementation of MM-BIO-1, direct impacts to wart-stemmed ceanothus on site would be reduced to less than significant.

Table 2. Impacts to Special-Status Plant Species

Species	Status*	Total Number on Site	Number Impacted (Percent of Total)
Campbell's liverwort	CRPR 1B.1	17 locations	12 locations (71%)**
Del Mar Mesa sand aster	CRPR 1B.1, Narrow Endemic	194	3 (2%)
Torrey pine	CRPR 1B.2, Covered	6	3 (50%)

Table 2. Impacts to Special-Status Plant Species

Species	Status*	Total Number on Site	Number Impacted (Percent of Total)
Wart-stemmed ceanothus	CRPR 2B.2, Covered	107	19 (18%)
Sea dahlia	CRPR 2B.2	117	6 (2%)

Notes: CRPR = California Rare Plant Rank.
* California Rare Plant Rank (CNPS 2024), Multiple Habitat Conservation Program Draft Encinitas Subarea Plan (City of Encinitas 2001).
** Only the impact footprint was surveyed for bryophytes; Campbell's liverwort locations may occur outside of the impact footprint.

2 Baseline Information

Previous restoration efforts by The Nature Collective have been focused on the areas within the project site occupied by eucalyptus woodland, disturbed habitat, and non-native grassland. Surveys within the project site were conducted by The Nature Collective in 2018 and included rare plant surveys, vegetation mapping, and non-native species mapping (Rothberg, pers. comm. 2021). The surveys and mapping conducted by The Nature Collective were not used in the Biological Resources Technical Report analysis for the project site because more recent comprehensive biological resources surveys were conducted by Dudek in 2022. The current surveys captured all species previously observed by The Nature Collective within the project site, including special-status plant species planted in the restored/landscape areas. The biological resources information is included in the Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project (Dudek 2024a).

Conditions at the Lake Drive storm drain mitigation site were assessed by Dudek biologists during surveys conducted in 2022. Surveys conducted included vegetation mapping, jurisdictional delineation, rare plant surveys, and protocol-level surveys for coastal California gnatcatcher (*Polioptila californica californica*) and Pacific pocket mouse (*Perognathus longimembris pacificus*). Vegetation community classifications used in this HMMP follow the Draft Vegetation Communities of San Diego County (Oberbauer et al. 2008). The jurisdictional delineation for aquatic resources was conducted in 2021 (Dudek 2024c).

Topography within the project site occurs within a steep escarpment with elevations ranging from approximately 100 feet above mean sea level in the southwestern portion of the site to 250 feet above mean sea level in the northeastern portion of the site. Adjacent land uses include existing residential development to the north and east, undeveloped land to the south and west, and Interstate 5 to the west. The project site occurs within the San Luis Rey–Escondido Subbasin of the Lower Escondido Creek Sub-watershed, within the larger Escondido Creek Watershed.

The project site supports 0.087 acres of non-wetland waters/streambeds and culverts (Regional Water Quality Control Board and CDFW jurisdictional). Of those 0.087 acres, 0.086 acres was delineated as non-wetland waters and 0.001 acres was delineated as culverts. Jurisdictional resource impacts and mitigation are outlined in the Non-Wetland Waters Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project (Dudek 2024b).

2.1 Soils

Two soil types were mapped on the project site: loamy alluvial land–Huerhuero complex, 9% to 50% slopes, severely eroded, and terrace escarpments (Figure 3, Lake Drive Storm Drain Soils) (USDA 2021). Loamy alluvial land–Huerhuero complex is described as a combination of alluvial deposits from mixed sources with residuum weathered calcareous sandstone and shale ridges. Terrace escarpments are described as a landform of escarpments with a riser landform position and a variable soil profile. The loamy alluvial land–Huerhuero complex soils are present in the temporarily and permanently impacted areas. Terrace escarpment soils were also found in some of the temporarily impacted areas, but are primarily at higher elevations within the site (Figure 3).

2.2 Vegetation Communities

The 25.34-acre project site primarily consists of Diegan coastal sage scrub (Figure 4, Lake Drive Storm Drain Impacts to Biological Resources). The vegetation communities and land covers were mapped according to

Oberbauer et al. (2008) and are grouped according to the habitat groups in the draft Encinitas Subarea Plan (City of Encinitas 2001). The project site contains six vegetation communities and two land cover types (Table 3).

Sensitive habitats are those that are considered rare within the region or support special-status plant and/or wildlife species. Sensitive upland habitat within the project site consists of coastal sage scrub (including Baccharis-dominated and restored/landscaped), southern maritime chaparral, and non-native grassland.

Table 3. Vegetation Types and Land Covers in the Project Site

Vegetation Community/Land Cover Type	Habitat Code	Acreage
Group B, Rare Upland		
Southern Maritime Chaparral	37C30	6.56
Group C, Coastal Sage Scrub		
Diegan Coastal Sage Scrub: Coastal Form	32510	16.49
Diegan Coastal Sage Scrub: Baccharis-Dominated	32530	0.54
Diegan Coastal Sage Scrub (Restored/Landscaped)	32510	0.17
	Group C Subtotal	*17.20*
Group E, Annual Grassland		
Non-Native Grassland	42200	0.14
Group F, Other		
Disturbed Habitat	11300	0.07
Eucalyptus Woodland	79100	0.73
Urban/Developed	12000	0.64
	Group F Subtotal	*1.44*
	Total	**25.34**

Sources: City of Encinitas 2001 (Groupings); Oberbauer et al. 2008 (Habitat Codes)
Note: Some numbers may not sum due to rounding.

A complete description of all plant communities and land covers, as well as sensitive species, occurring within the project site is included in the Biological Technical Report (Dudek 2024a). The following describes the vegetation communities occurring within permanent and temporary impact areas requiring mitigation or revegetation, as outlined in this HMMP.

Southern Maritime Chaparral

Southern maritime chaparral is a low and fairly open community dominated by wart-stemmed ceanothus. It develops primarily on weathered stands in the coastal fog belt. Fire may be necessary for long-term persistence of characteristic species. Characteristic species associated with stands of this chaparral community include chamise (*Adenostoma fasciculatum*), wart-stemmed ceanothus, coast spice bush (*Cneoridium dumosum*), summer-holly (*Comarostaphylis diversifolia*), San Diego sea-dahlia (*Leptosyne maritima*), Del Mar Mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*), western dichondra (*Dichondra occidentalis*), toyon (*Heteromeles arbutifolia*), Torrey pine (*Pinus torreyana* ssp. *torreyana*), Nuttall's scrub oak (*Quercus dumosa*), laurel sumac (*Malosma laurina*), sugar bush (*Rhus ovata*), fragrant sage (*Salvia clevelandii*), mission manzanita (*Xylococcus bicolor*), and Mohave yucca (*Yucca schidigera*) (Oberbauer et al. 2008).

On site, southern maritime chaparral was characterized by dominance or co-dominance of wart-stemmed ceanothus, chamise, Nuttall's scrub oak, Mohave yucca, mission manzanita, and Del Mar Mesa sand aster. A few Torrey pines are also present within this community on site. Southern maritime chaparral tends to intergrade with Diegan coastal sage scrub on site, so lesser cover of species typically associated with coastal sage scrub, such as lemonade berry (*Rhus integrifolia*), black sage (*Salvia mellifera*), California sagebrush (*Artemisia californica*), laurel sumac, coast prickly pear (*Opuntia littoralis*), and coyote brush (*Baccharis pilularis*), were also present in areas mapped as southern maritime chaparral. Some areas were disturbed by the presence of perennial veldtgrass (*Ehrharta calycina*). The project site contains 6.56 acres of southern maritime chaparral (Figure 4).

Diegan Coastal Sage Scrub (Including Baccharis-Dominated and Restored/Landscaped)

Diegan coastal sage scrub is a native vegetation community. According to Oberbauer et al. (2008), coastal sage scrub is composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species—such as California sagebrush, California buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.)—with scattered evergreen shrubs, including lemonade berry and laurel sumac.

Diegan coastal sage scrub covers 16.49 acres of the project site. The Diegan coastal sage scrub on site is dominated by California buckwheat, California brittle bush (*Encelia californica*), lemonade berry, black sage (*Salvia mellifera*), and/or California sagebrush. Other associated species include common deerweed (*Acmispon glaber* var. *glaber*), laurel sumac, red bush monkeyflower (*Diplacus puniceus*), and rod wirelettuce (*Stephanomeria virgata* ssp. *Virgata*). Low cover of species generally associated with chaparral, such as chamise, chaparral yucca (*Hesperoyucca whipplei*), and Mohave yucca, were present in some areas mapped as Diegan coastal sage scrub. Portions of the Diegan coastal sage scrub on the project site were disturbed by high cover of perennial veldtgrass.

In addition, 0.17 acres of the project site contains Diegan coastal sage scrub that has been restored/landscaped by The Nature Collective. This area is mapped as restored/landscaped Diegan coastal sage scrub. This area includes several species that, when occurring naturally, have special-status designations, including Shaw's agave (*Agave shawii* var. *shawii*), golden-spined cereus (*Bergerocactus emoryi*), cliff spurge (*Euphorbia misera*), and red-flowered buckwheat (*Eriogonum grande* var. *rubescens*). None of these species were observed in the natural areas of the project site.

Diegan coastal sage scrub–Baccharis-dominated is similar to Diegan coastal sage scrub but is dominated by *Baccharis* species (desert broom [*B. sarothroides*] and/or coyote brush) (Oberbauer et al. 2008). This community typically occurs on disturbed sites or those with nutrient-poor soils, and is often found within other forms of Diegan coastal sage scrub and on upper terraces of river valleys. This community is distributed along coastal and foothills areas in San Diego County.

On site the Diegan coastal sage scrub–Baccharis-dominated is dominated by coyote brush, with relatively low cover of California buckwheat, California sagebrush, Menzies' goldenbush (*Isocoma menziesii* var. *vernonioides*), and western ragweed (*Ambrosia psilostachya*), along with non-native perennial veldtgrass and hottentot fig (*Carpobrotus edulis*). There is 0.54 acres of Diegan coastal sage scrub–Baccharis-dominated within the project site (Figure 4).

Eucalyptus Woodland

Oberbauer et al. (2008) describes eucalyptus woodland as a non-native vegetation type that is fairly widespread in Southern California. It typically consists of monotypic stands of introduced Australian eucalyptus trees (*Eucalyptus*

spp.). The understory is either poor or lacking, owing to shade and possible allelopathic (toxic) properties of the eucalyptus leaf litter. Although eucalyptus woodlands are of limited value to most native plants and animals, they frequently provide nesting and perching sites for some raptors.

Eucalyptus woodland within the project site (0.82 acres) occurs adjacent to the residential development along the outer boundary of the project site, as shown in Figure 4. These areas contain Bald Island marlock (*Eucalyptus conferruminata*) and red ironbark (*Eucalyptus sideroxylon*).

Urban/Developed

Urban/developed refers to areas that have been constructed on or disturbed so severely that native vegetation is no longer supported. Urban/developed land includes areas with permanent or semi-permanent structures, pavement or hardscape, landscaped areas, and areas with a large amount of debris or other materials (Oberbauer et al. 2008). Urban/developed land within the project site (0.64 acres) includes paved roads and portions of the residential homes adjacent to the project site (Figure 4).

2.3 Special-Status Plant Species

Seven sensitive plant species—Campbell's liverwort, Del Mar Mesa sand aster, Nuttall's scrub oak, Torrey pine, San Diego barrel cactus (*Ferocactus viridescens*), wart-stemmed ceanothus, and sea dahlia—were observed naturally occurring within the project site during the 2021 and 2022 survey effort (Figure 4). Of the seven special-status species observed, five would be directly impacted by the proposed project, excluding Nuttall's scrub oak and San Diego barrel cactus. All special-status species will be avoided to the maximum extent feasible.

Shaw's agave, golden-spined cereus, red-flowered buckwheat, and cliff spurge were observed planted in the restored/landscaped Diegan coastal sage scrub along Lake Drive on site. Direct impacts would occur to planted Shaw's agave and golden-spined cereus; however, because these species were planted outside of their native range, impacts to these individuals would be less than significant and are therefore not included in this HMMP.

Campbell's liverwort, a California Rare Plant Rank (CRPR) 1B.1 species, is an ephemeral liverwort that occurs in mesic coastal scrub and vernal pools (CNPS 2024). It occurs in Riverside and San Diego Counties (CNPS 2024). There are at least 17 locations of Campbell's liverwort throughout the project site. Each location in Figure 4 represents a patch or cluster of patches.

Del Mar Mesa sand aster, a CRPR 1B.1 and narrow endemic species under the draft Encinitas Subarea Plan, is a perennial herb that occurs in sandy coastal bluff scrub, maritime chaparral, and coastal scrub (City of Encinitas 2001; CNPS 2024). It occurs in coastal regions from Encinitas south to Torrey Pines (CCH 2024). The project site overlaps a major population area of Del Mar Mesa sand aster, as recognized by the MHCP, but does not include any critical locations of this variety (SANDAG 2003). Approximately 194 individuals of Del Mar Mesa sand aster were observed in the southern, northern, and central portions of the project site.

Nuttall's scrub oak, a CRPR 1B.1 and covered species under the draft Encinitas Subarea Plan, is a perennial evergreen shrub that occurs in sandy or clay loam soils in closed-cone conifer forest, chaparral, and coastal scrub habitats from Santa Barbara County south to San Diego County (City of Encinitas 2001; CNPS 2024). The project site does not contain any major population areas or critical locations of this species (SANDAG 2003). There were

10 individuals of Nuttall's scrub oak observed in the southern maritime chaparral in the northwestern portion of the project site.

Torrey pine, a CRPR 1B.2 and covered species under the draft Encinitas Subarea Plan, is a perennial evergreen tree that occurs in sandstone in closed-cone coniferous forest and chaparral habitats and is endemic to San Diego County (City of Encinitas 2001; CNPS 2024). The project site does not contain any major population areas or critical locations of this species (SANDAG 2003). Six individuals of Torrey pine, including one immature individual and one individual in poor health, were observed in the southern maritime chaparral and Diegan coastal sage scrub in the western and eastern portions of the project site.

San Diego barrel cactus, a CRPR 2B.1 and covered species under the draft Encinitas Subarea Plan, is a perennial stem succulent that occurs in chaparral, coastal scrub, valley and foothill grassland, and vernal pools and is endemic to San Diego County (City of Encinitas 2001; CNPS 2024). The project site does not contain any major population areas or critical locations of this species (SANDAG 2003). A total of 43 individuals of San Diego barrel cactus were observed, primarily in the southern portion of the Lake Drive project site.

Wart-stemmed ceanothus, a CRPR 2B.2 and covered species under the draft Encinitas Subarea Plan, is a perennial evergreen shrub that occurs in chaparral (City of Encinitas 2001; CNPS 2024). It generally occurs in coastal regions from Carlsbad south to Point Loma (CCH 2024). The project site does not contain any major population areas or critical locations of this species (SANDAG 2003). Approximately 107 individuals of wart-stemmed ceanothus were observed throughout the Lake Drive project site, primarily in southern maritime chaparral.

Sea dahlia, a CRPR 2B.2 species, is a perennial herb that occurs in coastal bluff scrub and coastal scrub (City of Encinitas 2001; CNPS 2024). In California, it primarily occurs in coastal regions from Camp Pendleton south to Border Field State Park, but there is a record as far north as Rancho Palos Verde and as far east as Potrero (CCH 2024). Approximately 117 individuals of sea dahlia were observed in the northeastern portion of the Lake Drive project site in Diegan coastal sage scrub.

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3 Proposed Mitigation Design Approach

See Section 1.4, Mitigation Goals and Objectives, for a summary of project impacts, mitigation ratio requirements, special-status plant species, and proposed mitigation.

3.1 Enhancement/Restoration Mitigation

Proposed mitigation for 2.40 acres of permanent impacts to sensitive vegetation communities includes 0.79 acres of southern maritime chaparral enhancement (to compensate for 0.26 acres of impacts) and 4.28 acres of Diegan coastal sage scrub (Coastal Form) enhancement (to compensate for 1.97 acres of impacts and 0.16 acres of impacts to Baccharis-dominated Diegan coastal sage scrub). Permanent impact mitigation is proposed within the southwestern portion of the project site within disturbed southern maritime chaparral and Diegan coastal sage scrub habitat (Figure 5, Uplands Mitigation Plan). These areas were identified during baseline surveys and site assessment, as well as by The Nature Collective, as disturbed habitat areas due to the non-native cover existing within these areas, dominated by perennial veldtgrass and hottentot fig. Enhancement would include removal of non-native species and subsequent planting and seeding of native species. Non-native species requiring removal include (but are not limited to) perennial veldtgrass, hottentot fig, fountain grass (*Pennisetum setaceum*), eucalyptus (seedlings), acacia (*Acacia redolens, A. cyclops*), and tree tobacco (*Nicotiana glauca*). All native species will be avoided and preserved during all enhancement activities. A 5-year maintenance and monitoring program is proposed for all mitigation areas.

Proposed mitigation for 1 acre of temporary impacts will include restoration of temporary impact areas at a 1:1 ratio, including 0.70 acres of Diegan coastal sage scrub (Coastal Form), 0.05 acres of Diegan coastal sage scrub (Baccharis-dominated), and 0.25 acres of southern maritime chaparral (Figure 5). Restoration is proposed through planting and seeding of native vegetation communities and implementation of a 5-year maintenance and monitoring program. Additionally, 0.06 acres of temporary impacts to non-native vegetation and land covers will be revegetated with an erosion control seed mix for stabilization purposes (Figure 5). Erosion control areas are proposed to include a 2-year maintenance and monitoring program to ensure successful stabilization of these temporary impact areas.

3.2 Special-Status Plant Species Mitigation

Proposed mitigation for impacts to special-status plant species includes flagging all special-status individuals within the impact footprint and a 20-foot buffer by a qualified biologist prior to construction activities. If avoidance is not possible, impacts to each special-status species will be documented and individuals either translocated, planted, or seeded on site outside of the project impact footprint (see Section 1.4). Translocation sites will be permanently conserved locations of suitable habitat that are determined by the habitat restoration specialist and selected using appropriate habitat factors (e.g., vegetation, soils, aspect, steepness) prior to construction. These locations will be prepared prior to translocation (e.g., weeds removed, soil amended), if determined necessary by the habitat restoration specialist. Seed and replacement plants will be sourced locally or from a reputable vendor.

3.2.1 Campbell's Liverwort Mitigation Method

Campbell's liverwort is a non-vascular plant species that grows low to the ground. If flagging and avoidance is not possible, but impacts would be limited to trampling or other disturbance that does not require removal of the soil,

plywood will be used to cover the liverwort to protect it during construction. If more extensive impacts are proposed, Campbell's liverwort will be salvaged by removing the bryophyte along with its host soil (6 inches depth) and re-establishing it outside the project's impact footprint in a suitable location selected by the habitat restoration specialist.

If translocation of Campbell's liverwort is determined necessary by the habitat restoration specialist, then the liverwort will be salvaged during the dry season and planted before the first rain event of the winter season. The translocated liverwort and soil patches will be lightly watered immediately following translocation to blend the soil substrate into the receptor site to provide stabilization before the first rain event.

3.3 Mitigation Site Selection Criteria

Following analysis of existing baseline conditions and evaluation of on-site mitigation opportunities owned by The Nature Collective, implementation of permittee-responsible mitigation on site was determined to be adequate to meet the mitigation requirements, goals, and objectives of the project. The proposed mitigation locations provide equal or improved functions as the pre-project condition of impacted resources. The selected mitigation locations provide a net benefit because they support or have the potential to support "like" habitats in the project impact area and will continue to be conserved and managed in perpetuity by The Nature Collective as City open space following the completion of the mitigation program.

The enhancement areas were selected based on the high cover of non-native invasive species. Enhancement activities within these areas will provide a net benefit to improve functions and services within those habitat types, providing an increase of suitable habitat for sensitive species.

Receptor locations for significantly impacted special-status plant species will be on site but outside of the project's impact footprint and on The Nature Collective–owned land. Final receptor locations for each species will be determined by the habitat restoration specialist.

3.4 Rationale for Expecting Project Success

The purpose for mitigation activities is to restore vegetation communities that were permanently and temporarily impacted during project construction activities. All temporary impact areas are proposed to be restored in-place, in-kind to pre-project conditions. The natural condition of these areas is the target community; therefore, the areas proposed for temporary impact restoration are suitable for the proposed vegetation communities.

Permanent impacts are proposed to be mitigated within on-site vegetation communities, consistent with the sensitive vegetation communities being impacted, through enhancement activities. There are established native plant species suitable for southern maritime chaparral and Diegan coastal sage scrub vegetation communities, showing health and vigor. However, the restoration areas were selected due to their high disturbance from non-native species cover. Success is anticipated given the suitability of these areas (e.g., soils, slope, aspect, water availability) to support the target vegetation communities, and the current presence of sensitive wildlife, such as California gnatcatcher (*Polioptila californica*). A functional lift is anticipated within these areas due to proposed non-native vegetation removal and native planting and seeding.

4 Implementation Plan

This chapter describes the mitigation activities that will be implemented for permanent and temporary impacts to sensitive vegetation communities and impacts to special-status plant species. Proposed mitigation includes on-site enhancement and restoration activities, revegetation of erosion control areas, and avoidance of special-status species. Implementation would include the following:

- Site preparation within all mitigation and erosion control sites, including the clearing of woody and herbaceous non-native plant species.
- Focused non-native invasive weed removal within enhancement areas.
- Flagging of special-status plant species.
- Determination of receptor sites for special-status plant species, if necessary.
- Installation of native container plants and native seed application within all mitigation sites.
- Implementation of a 120-day plant establishment period for all mitigation sites.
- Implementation of a 5-year maintenance and monitoring period for all mitigation sites.

During the minimum 5-year maintenance and monitoring period, mitigation sites will be restricted from public access and will be delineated with temporary fencing and signage at all public and utility access points. Signage will state the nature of the mitigation project and access restrictions, as appropriate.

4.1 Mitigation Implementation Personnel

4.1.1 Applicant

The City is financially responsible for the costs associated with implementing, monitoring, maintaining, and protecting the mitigation sites as defined in this HMMP. Mitigation oversight will be provided by the City and its designated representative. The City is also responsible for all costs associated with completion of the mitigation requirements stated herein. Further, the City will provide access to the mitigation sites for environmental specialists, contractors, and permitting agency officials.

4.1.2 Habitat Restoration Specialist

Consistent with this HMMP, a qualified habitat restoration specialist will be hired by the City to implement monitoring of the mitigation installation, the 120-day plant establishment period, and the post-installation (5-year) maintenance and monitoring period. The habitat restoration specialist will be either a private consultant and/or other qualified entity. The City will be responsible for the costs associated with this effort. The habitat restoration specialist, in coordination with the City, will review all aspects of the pertinent contract documents, including site protection information, submittals, scheduling of formal site observations, lines of communication, and persons with stop-work authority prior to project implementation. The habitat restoration specialist will oversee and coordinate implementation of this HMMP, including final construction drawings; interpret said plans; conduct or oversee field work for installation and monitoring during the 120-day initial maintenance period; and conduct biological monitoring throughout the 5-year maintenance and monitoring period. The habitat restoration specialist

will possess specific knowledge and project-level experience with upland habitat restoration projects, and at least 5 years of restoration experience in Southern California.

The habitat restoration specialist will be required to advise all personnel of the on-site construction restrictions resulting from implementation of this HMMP, and the presence or potential presence of sensitive species and vegetation communities within or adjacent to the project site, as well as known biological-related dangers on site (e.g., rattlesnakes, beehives, poison oak). Information about federal, state, and local laws relating to these biological resources will be discussed as part of mandatory environmental education for construction personnel. Access and staging areas will be established outside of environmentally sensitive areas. Monitoring will occur throughout the mitigation site construction period. Monitoring time may increase or decrease as required by field conditions and construction activities.

4.1.3 Restoration Contractor

The City will hire a project installation contractor and/or maintenance contractor (restoration contractor). The restoration contractor will be a qualified, licensed company. During the implementation phase, the restoration contractor will be responsible for performing installation, including initial site clearing, plant salvage, irrigation system installation, seeding, planting, and erosion control. During the maintenance and monitoring program, the restoration contractor will be responsible for weed control; erosion control; trash removal; replanting; and, if necessary, supplemental watering and/or maintenance of temporary irrigation systems. In addition to the tasks listed above and described in this HMMP, the restoration contractor will be responsible for implementation of all tasks required to promote mitigation success as directed by the habitat restoration specialist and the City.

4.2 Schedule

Work is anticipated to occur within 1 year following initial impacts from the proposed project. Work for the Lake Drive storm drain on-site mitigation sites will be coordinated with the Lake Drive Storm Drain Project construction based on timing of work and the restoration of areas following the storm drain repair work. It is recommended that all work be conducted in consideration of wildlife breeding seasons and seasonal weather conditions. A preliminary implementation schedule is shown in Table 4.

Table 4. Preliminary Mitigation Implementation Schedule

Restoration Activity	Mitigation Site	Timing/Restrictions	Month/Season
Setting up seed acquisition and collection, if necessary	All mitigation sites	Spring prior to installation	Prior Winter–Spring
Special-status plant species flagging and receptor site identification (if necessary)	All mitigation sites	Spring prior to installation	Spring
Initial weed control/invasive plant removal	All mitigation sites	Outside of nesting bird season	Summer–Fall
Seed application (and special-status plant species translocation and/or planting, if necessary)	All mitigation sites	Following completion of above activities	Fall
Start of 5-year monitoring period (including 120-day plant establishment period)	All mitigation sites	Following completion of installation	Fall

4.3 Initial Non-Native Invasive Plant Removal

Focused weed control will be required within enhancement areas due to the level of non-native invasive plant species cover. Repeated weed control efforts may be necessary to reduce the weed seed bank and remove biomass. It is anticipated that temporary impact areas will primarily consist of bare ground following impacts; therefore, initial weed removal within temporary impact areas is anticipated to be minimal. All non-native individuals that may occur following impacts will be removed prior to restoration activities.

Implementation will include an initial, comprehensive non-native invasive plant and thatch removal effort, followed by regular control of new seedlings and re-sprouts throughout the long-term maintenance period. The initial removal effort will focus on all areas proposed for revegetation. Weed eradication will be performed within 10 days prior to initiating seed application. A combination of physical removal and herbicide treatment will be used to control any non-native invasive plants that have recruited into the temporary impact areas since construction activities were completed.

Physical removal of non-native plants, including the roots, may be the best method for those plant species for which the root ball can readily be pulled out along with the aboveground portions of the plant. These species will be physically removed before seed-set. If hand removal is possible only after seed-set, then seed heads will be cut off, bagged, and removed from the site. Physical removal of the plants and their roots will only be done when non-native plants are growing separate from desirable natives and when their root systems are not intertwined.

Herbicides will be used for invasive non-native plant species that have root systems that regenerate from small root fragments or that are impractical to remove. Any herbicide use will be conducted using methods that minimize effects to adjacent/desirable native species, such as brush application or spot spraying. Only herbicides registered for aquatic use can legally be used in locations where herbicide may come in contact with open water.

All herbicide treatment will be performed in compliance with all applicable federal and state laws and regulations, safety precautions, and pesticide label directions. The restoration contractor will possess a valid California Qualified Applicator Certificate or Qualified Applicator License, and Pest Control Business License or Maintenance Gardener Pest Control Business License, as appropriate. The restoration contractor will refer to the specific pesticide label for information on proper timing, application rates, and use restrictions. Should the restoration contractor require a specific pest control recommendation for any control effort, the restoration contractor will consult a licensed Pest Control Adviser for written recommendations.

Follow-up control measures will likely be necessary for invasive plant species with extensive root systems that cannot be killed with one herbicide application. Follow-up herbicide treatment will be done at the biologically appropriate time when the recovering plants are still relatively small and before they have time to regain strength and vigor.

4.4 Erosion Control

Temporary soil disturbance is anticipated within the mitigation sites due to the removal and replacement of the existing storm drain piping and the installation of new facilities. BMPs will be used as necessitated by site conditions to minimize erosion and topsoil loss. BMPs will be maintained throughout the maintenance program or until new native vegetation is sufficiently established to provide adequate stabilization. All degraded or non-functioning BMPs

will be replaced, as needed. The habitat restoration specialist will monitor BMPs periodically during the mitigation program to help ensure compliance.

Erosion control measures in the form of BMPs will be installed, as necessary, at all mitigation sites. BMP installation is required for mitigation sites expecting temporary soil disturbance through grading, but will also be implemented if vegetation removal or other work activity destabilizes surface soils and could cause on-site erosion.

As practicable, BMPs (excluding silt fencing) will be constructed from biodegradable material and be 100% certified weed-seed free. If the use of non-biodegradable materials is unavoidable due to availability or necessity of function, all non-biodegradable materials will be completely removed from the site when they are no longer required to provide stabilization, or at the end of the post-installation monitoring period.

Erosion control materials, including fiber rolls and hydromulch, will be installed directly following the completion of construction activities to prevent erosion in compliance with the Stormwater Pollution Prevention Plan. Should erosion become an issue prior to the start of or during restoration activities, additional fiber rolls or silt fencing will be installed as necessary. Fiber rolls will be encased in biodegradable material. They will be free of nylon/plastic netting and mesh and will be certified to be free of noxious weeds.

4.5 Irrigation System Installation (Optional)

The primary goal of this HMMP is to establish native vegetation communities capable of maintaining and supporting themselves in perpetuity. However, native container plants and seed may require irrigation for initial plant establishment, especially during the summer months. If deemed feasible and necessary by the City, the habitat restoration specialist, and The Nature Collective, a temporary aboveground drip and/or spray irrigation system may be installed to support the container stock plantings and seed mixtures until they can survive on their own based on natural seasonal rainfall and overland flow conditions. If temporary irrigation is not feasible, then supplemental hand watering will be required during the first 2 years of container plant establishment, with hand watering conducted every 2 weeks during the first growing season.

Should a temporary irrigation system be deemed feasible, the irrigation design and layout will be as indicated on the final construction documents (i.e., irrigation plans). Consideration will be given to keeping the irrigation components out of the way of flood disturbance. All irrigation will be installed by the restoration contractor per the final construction documents (i.e., plans and specifications). The irrigation system will be constructed primarily with aboveground assemblies to facilitate removal once the system is decommissioned.

If a temporary irrigation system is installed, all irrigation operation will occur only during plant establishment because the goal of the mitigation is to create native, self-sustaining plant communities that can survive on their own over the long term. Irrigation use will be discontinued when plants are sufficiently established, or for a maximum of the first 3 years of the maintenance and monitoring period. The irrigation system will not be used during the final 2 years of the mitigation period except for special circumstances and only for localized use, including establishment of replacement container plants, and only as directed by the habitat restoration specialist.

Irrigation piping will likely consist of polyvinyl chloride (PVC) or high-density polyethylene (HDPE) pipe staked on grade, with coverage provided by spray heads and/or drip emitters where applicable.

Should portions of the irrigation system become damaged, they will be replaced or the layout will be modified based on the individual circumstances and per the habitat restoration specialist's recommendations.

4.6 Recommended Plant Palettes and Seed Mixes

All temporary impacts are proposed to be mitigated in-kind, in-place through restoration at the temporary impact locations. All permanent impacts will be mitigated on site within the northwest portion of the project site through enhancement of southern maritime chaparral (at a 3:1 ratio) and Diegan coastal sage scrub (at a 2:1 ratio) (Figure 5).

The plant palettes and seed mixes were developed based on suitable species occurring on site within The Nature Collective property. The recommended planet palettes and seed mixes are shown in Tables 5 through 9. If some species are not available at the time of planting and seeding, substitutions may be considered in consultation with the habitat restoration specialist, City, applicable agencies, and The Nature Collective.

Table 5. Southern Maritime Chaparral Plant Palette (1.04 Acres) for Container Plants

Scientific Name	Common Name	Container Plant Size	Average Spacing (feet on center)	Number of Individuals (Enhancement Areas)	Number of Individuals (Restoration Areas)
Adenostoma fasciculatum	Chamise	1 gallon	8	2	20
Artemisia californica	California sagebrush	1 gallon	5	4	28
Ceanothus verrucosus	Wart-stemmed ceanothus	1 gallon	8	2	30
Eriogonum fasciculatum	California buckwheat	1 gallon	4	3	22
Heteromeles arbutifolia	Toyon	1 gallon	8	2	13
Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	1 gallon	4	2	17
Isocoma menziesii	Coast goldenbush	1 gallon	4	3	15
Leptosyne maritima	Sea dahlia	1 gallon	3	3	31
Malosma laurina	Laurel sumac	1 gallon	8	1	9
Rhus integrifolia	Lemonade berry	1 gallon	6	2	15
Salvia apiana	White sage	1 gallon	4	3	26
Salvia mellifera	Black sage	1 gallon	4	4	26
Yucca schidigera	Mohave yucca	1 gallon	6	1	10
			Total Individuals	**32**	**262**

Table 6. Southern Maritime Chaparral Seed Mix (1.04 Acres)

Scientific Name	Common Name	Minimum Germination (percent)	Minimum Purity (percent)	Minimum PLS (percent)	Pounds Per Acre
Acmispon glaber	Deerweed	95	80	85	1.0
Adenostoma fasciculatum	Chamise	85	20	20	4.0
Corethrogyne filaginifolia var. *linifolia*	Del Mar sand aster	2	4	3	2.0
Ceanothus crassifolius	Hoary-leaved ceanothus	98	70	75	3.0
Diplacus aurantiacus	Sticky monkey flower	2	60	2	1.5
Eriogonum fasciculatum var. *foliolosum*	California buckwheat	65	10	8	8.0
Eriophyllum confertiflorum	Golden yarrow	30	50	25	0.5
Eschscholzia californica	California poppy	98	75	78	2.0
Heteromeles arbutifolia	Toyon	95	60	50	4.0
Heterotheca grandiflora	Telegraphweed	60	55	50	0.25
Lasthenia gracilis	California goldfields	90	80	50	0.5
Lupinus bicolor	Pygmy lupine	98	80	90	1.0
Phacelia parryi	Parry's phacelia	95	80	80	0.25
Plantago erecta	California plantain	92	80	85	1.0
Salvia apiana	White sage	70	30	26	2.0
Salvia mellifera	Black sage	70	50	43	3.0
Xylococcus bicolor	Mission manzanita	98	33	30	8.0
				Total Pounds per Acre	**40.0**

Note: PLS = pure live seed.

Table 7. Diegan Coastal Sage Scrub Plant Palette (5.03 Acres) for Container Plants

Scientific Name	Common Name	Container Plants	Average Spacing (feet on center)	Number of Individuals (Enhancement Areas)	Number of Individuals (Restoration Areas)
Acmispon glaber	Deerweed	1 gallon	5	141	368
Artemisia californica	California sagebrush	1 gallon	5	141	368

Table 7. Diegan Coastal Sage Scrub Plant Palette (5.03 Acres) for Container Plants

Scientific Name	Common Name	Container Plants	Average Spacing (feet on center)	Number of Individuals (Enhancement Areas)	Number of Individuals (Restoration Areas)
Baccharis pilularis	Coyote brush	1 gallon	6	37	128
Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	1 gallon	4	55	230
Eriogonum fasciculatum	California buckwheat	1 gallon	5	141	441
Euphorbia misera	Cliff spurge	1 gallon	5	15	15
Isocoma menziesii	Coast goldenbush	1 gallon	5	106	368
Malosma laurina	Laurel sumac	1 gallon	10	9	37
Opuntia littoralis	Prickly pear	1 gallon	3	147	511
Peritoma arborea	Bladderpod	1 gallon	8	14	57
Rhus integrifolia	Lemonade berry	1 gallon	10	18	46
Salvia apiana	White sage	1 gallon	5	53	184
Salvia mellifera	Black sage	1 gallon	5	53	184
Stipa pulchra	Purple needlgrass	1 gallon	4	82	287
			Total Individuals	**1,012**	**3,224**

Table 8. Diegan Coastal Sage Scrub Seed Mix (5.03 Acres)

Scientific Name	Common Name	Minimum Germination (percent)	Minimum Purity (percent)	Minimum PLS (percent)	Pounds Per Acre
Acmispon glaber	Deerweed	95	40	85	1.0
Artemisia californica	California sagebrush	15	55	10	2.0
Baccharis pilularis	Coyote brush	5	40	3	0.25
Bahiopsis laciniata	San Diego sunflower	40	50	20	1.0
Corethrogyne filaginifolia var. *linifolia*	Del Mar sand aster	2	4	3	2.0
Eriogonum fasciculatum var. *foliolosum*	California buckwheat	65	10	8	8.0
Eriophyllum confertiflorum	Golden yarrow	30	50	25	0.5
Eschscholzia californica	California poppy	98	75	85	2.0

Table 8. Diegan Coastal Sage Scrub Seed Mix (5.03 Acres)

Scientific Name	Common Name	Minimum Germination (percent)	Minimum Purity (percent)	Minimum PLS (percent)	Pounds Per Acre
Hazardia squarrosa	Sawtooth goldenbush	10	20	3	3.0
Lasthenia gracilis	California goldfields	90	80	50	0.5
Lupinus bicolor	Pygmy lupine	98	80	90	1.0
Malosma laurina	laurel sumac	98	70	70	1.5
Phacelia parryi	Parry's phacelia	95	80	80	0.5
Plantago erecta	California plantain	92	80	85	1.0
Pseudognaphalium californicum	California everlasting	10	25	2	0.5
Rhus integrifolia	Lemonade berry	90	60	75	4.0
Salvia apiana	White sage	70	30	26	2.0
Salvia mellifera	Black sage	70	50	43	3.0
Stipa pulchra	Purple needlegrass	90	60	N/A	2.0
				Total Pounds per Acre	**26.0**

Note: PLS = pure live seed.

Table 9. Erosion Control Seed Mix (0.05 Acres)

Scientific Name	Common Name	Minimum Germination (percent)	Minimum Purity (percent)	Minimum PLS (percent)	Pounds Per Acre
Acmispon glaber	Deerweed	85	80	76	2.0
Eriophyllum confertiflorum	Golden yarrow	36	62	22	1.0
Eschscholzia californica	California poppy	98	80	78	3.0
Isocoma menziesii	Coast goldenbush	40	30	15	3.0
Lasthenia gracilis	California goldfields	90	80	50	1.0
Lupinus bicolor	Pygmy lupine	98	80	90	1.0
Lupinus succulentus	Arroyo lupine	98	85	90	3.0
Phacelia parryi	Parry's phacelia	95	80	80	0.5

Table 9. Erosion Control Seed Mix (0.05 Acres)

Scientific Name	Common Name	Minimum Germination (percent)	Minimum Purity (percent)	Minimum PLS (percent)	Pounds Per Acre
Plantago erecta	California plantain	92	80	85	6.0
Pseudognaphalium californicum	California everlasting	10	25	2	0.5
				Total Pounds per Acre	**21.0**

Note: PLS = pure live seed.

The recommended hydroseed slurry mix is as follows:

- Seeds at pounds per acre as indicated in seed mix above
- 2,500 pounds per acre of virgin wood fiber mulch
- "Ecology Controls M-binder" seed binder/tackifier (or approved equal) at 80 pounds per acre (to be included in slurry mix for installations on any erosion control areas from November through March of any given year)
- Agricultural gypsum at 1,000 pounds per acre
- Fertilizer 11-55-0 at 200 pounds per acre

4.6.1 Container Plant Installation

Implementation of the mitigation program will be coordinated with the restoration contractor, the City, and the habitat restoration specialist. Plant material installation methods will include hand planting for all container stock. Planting will be conducted in fall prior to the onset of the rainy season, and all container plants will be checked for viability, general health, and Argentine ant (*Linepithema humile*) infestation by the project biologist upon arrival at the mitigation site. Plant materials not meeting acceptable standards will be rejected. Plant species and quantities will be confirmed after delivery by the habitat restoration specialist, and locations for installation will be pin flagged temporarily by the restoration contractor.

Standard planting procedures will be employed for installation of the container plants. Holes approximately twice the size of the rootball of the plant and the same depth will be dug using a posthole digger or power auger. Holes will be filled with water and allowed to drain immediately prior to planting. Container plants will be planted with native soil backfill and slow-release fertilizer packs, with the top of the rootball slightly above grade. Large shrub container plants may be planted in protective cages to prevent aboveground browsing and root predation by wildlife if recommended by the habitat restoration specialist.

4.6.2 Seed Application

All site work, non-native plant species control, and site preparation will be verified by the habitat restoration specialist prior to hydroseed application. Seed application is recommended prior to the onset of the rainy season.

The hydroseed slurry mixture will contain the specified seed mix at the prescribed rate per acre, along with mulch components that include 100% virgin wood fiber mulch at 2,500 pounds per acre, agricultural gypsum at 1,000

pounds per acre, and a commercial guar-gum-based binder at 80 pounds per acre (if deemed necessary November through March of any given year to provide additional erosion control protection), and fertilizer 11-55-0 at 200 pounds per acre. The hydroseed slurry mixture components may be modified depending on site conditions and soils, as recommended by the habitat restoration specialist. Additional soil amendments may be required based on results of the agricultural suitability analysis and the recommendation of the habitat restoration specialist.

All seed packaging will be clearly labeled showing type of seed, test date, name of the supplier, and percentage of the following: pure seed, crop seed, inert matter, weed seed, noxious weeds, and total germination content. All material will be delivered to the site in original, unopened containers bearing the manufacturer's guaranteed analysis. All seed mixes will be stored in a dark, cool place and not allowed to become damp.

During application, effort will be made to minimize covering existing vegetation with the hydroseed slurry mixture. Labels for all hydroseed slurry components will require inspection and approval from the habitat restoration specialist prior to mixing and application. Hand seeding may be an acceptable alternative to hydroseeding in difficult-to-access areas or areas too small or isolated for hydroseed accessibility, per the approval of the habitat restoration specialist. If this alternative is elected, then the pre-mixed seed mix, gypsum, and fertilizer will be applied by hand and lightly raked into the soil surface. The other hydroseed slurry mix components will not be required if hand seeding is elected.

5 Maintenance Plan

Following completion of initial implementation efforts, a 5-year maintenance and monitoring period will occur, which will include non-native plant species control, trash removal, general maintenance, and additional erosion control, if warranted. The sites will be subject to the requirements specified in this HMMP.

Because the goal of this HMMP is to restore natural, self-sustaining vegetation communities, the maintenance effort included in this HMMP is concentrated in the first few seasons of plant growth following the restoration efforts, when weeds can easily out-compete native plants. The intensity of required maintenance activity is expected to subside each year as the native plant materials become more established and localized competition from non-native plants for resources in the mitigation sites is minimized through control of non-native plants.

Also included in the maintenance and monitoring for this HMMP is the already revegetated 0.03-acre Diegan coastal sage scrub (restored/landscape) area along Lake Drive that was implemented by The Nature Collective in December 2023 (Figure 5).

5.1 Maintenance Schedule

Site maintenance will occur regularly throughout the maintenance and monitoring period and will be directed by the habitat restoration specialist. Regular monitoring will occur throughout the 5-year program, and the habitat restoration specialist may recommend that maintenance occur more often if determined necessary based on monitoring. The erosion control areas will be maintained for 2 years or until final success criteria are met. Should any erosion control area not meet final success criteria at the end of the 2-year period, remedial measures may be recommended by the habitat restoration specialist.

Maintenance activities will begin with site preparation actions and will continue throughout the long-term maintenance and monitoring period, concluding once success criteria have been met. Restoration contractor maintenance activities will be conducted every other month during Year 1, and quarterly during Years 2 through 5.

All maintenance performed will comply with applicable wildlife regulations, such as the Migratory Bird Treaty Act. If the habitat restoration specialist determines that certain maintenance activities cannot be performed in compliance with environmental regulations, work will be postponed until conditions allow, or until the restrictive period has ended for the season.

5.2 Non-Native Plant Species Control

An integrated and adaptive vegetation management approach will be implemented to control non-native plant species. The approach will use a combination of techniques, including hand-removal, mechanical methods, and chemical treatment, to effectively control target non-native species. For long-term management, an adaptive or flexible and iterative approach includes restoration contractor observations and recommendations by the habitat restoration specialist to promote success of the treatment over time and to drive management decisions.

Although perennial invasive species and naturalized ornamental trees (including eucalyptus) will be cut to grade during initial non-native plant control efforts, stump and root sprouting is likely until a complete kill is obtained from

these resilient species. Follow-up herbicide treatment will be conducted regularly with resprouting and before significant biomass is generated that allows treated species to regain strength and vigor.

All species listed by the California Invasive Plant Council (Cal-IPC) in the California Invasive Plant Inventory Database (Cal-IPC 2024) throughout the southwestern region of the California Floristic Province as a moderate to high threat of ecological impact to wetland/riparian and upland vegetation communities will be subject to control for the duration of each mitigation program activity. Additional species added to the project target list include species listed by Cal-IPC as a limited threat to wetland/riparian and upland vegetation communities but considered locally persistent and may be problematic within the site (Table 10). Some common perennial and annual invasive non-native species currently present on the mitigation sites, and expected to require focused control efforts, include perennial veldtgrass, hottentot fig, fountain grass, tree tobacco, red gum (*Eucalyptus camaldulensis*), tree of heaven (*Ailanthus altissima*), castor bean (*Ricinus communis*), and invasive annual forbs and grasses.

To adapt to changing conditions, the habitat restoration specialist may recommend additional non-native species for treatment, including species that are not listed by Cal-IPC as invasive but that locally occur and inhibit development of native vegetation (Table 10).

Table 10. Target Non-Native Invasive Species List

Scientific Name	Common Name	Cal-IPC Rating
Annual Non-Native Invasive Species		
Avena barbata	Slender oat	Moderate
Avena fatua	Wild oat	Moderate
Brassica nigra	Black mustard	Moderate
Brassica tournefortii	Asian mustard	High
Bromus diandrus	Ripgut brome	Moderate
Bromus madritensis ssp. *Rubens*	Red brome	High
Bromus tectorum	Cheatgrass	High
Carduus pycnocephalus	Italian plumeless thistle	Moderate
Centaurea melitensis	Maltese star-thistle	Moderate
Centaurea solstitialis	Yellow star-thistle	High
Cirsium vulgare	Bull thistle	Moderate
Glebionis coronaria	Crowndaisy	Moderate
Dittrichia graveolens	Stinkwort	Moderate
Hirschfeldia incana	Shortpod mustard	Moderate
Hordeum marinum	Seaside barley	Moderate
Festuca perennis	Italian ryegrass	Moderate
Salsola tragus	Prickly Russian thistle	Limited
Silybum marianum	Blessed milkthistle	Limited
Sisymbrium irio	London rocket	Moderate
Stipa miliacea	Smilograss	Limited
Perennial Non-Native Invasive Species		
Acacia sp.	Acacia	Limited
Ailanthus altissima	Tree of heaven	Moderate

Table 10. Target Non-Native Invasive Species List

Scientific Name	Common Name	Cal-IPC Rating
Arundo donax	Giant reed	High
Atriplex semibaccata	Australian saltbush	Moderate
Carpobrotus edulis	Hottentot fig/common iceplant	High
Conium maculatum	Poison hemlock	Moderate
Cortaderia selloana/jubata	Pampas grass	High
Cynara cardunculus	Artichoke thistle/cardoon	Moderate
Cynodon dactylon	Bermudagrass	Moderate
Eucalyptus sp.	Gum tree	Moderate/Limited
Foeniculum vulgare	Sweet fennel	High
Lepidium latifolium	Broadleaved pepperweed	High
Hedera helix, H. canariensis	English ivy/Algerian ivy	High
Myoporum laetum	Ngaio tree/myoporum	Moderate
Nicotiana glauca	Tree tobacco	Moderate
Pennisetum setaceum	Crimson fountaingrass	Moderate
Ricinus communis	Castor bean	Limited
Rubus armeniacus	Himalayan Blackberry	High
Schinus terebinthifolius	Brazilian peppertree	Limited
Schinus molle	Peruvian peppertree	Limited
Spartium junceum	Spanish Broom	High
Tamarix sp.	Salt cedar	High
Washingtonia sp.	Fan palm	Moderate

Sources: Cal-IPC 2024
Cal-IPC = California Invasive Plant Council

5.2.1 Non-Native Species Control Methods

Non-native species control methods will vary depending on several variables, including the species targeted for control, the overall area to be treated/removed, the time of year, and the proximity to sensitive resources. The proposed integrated and adaptive invasive vegetation management approach will promote successful treatment and long-term control by using a combination of techniques, including hand-removal, mechanical methods, and chemical treatment, to effectively control and remove target non-native invasive species. The restoration contractor, through consultation with the habitat restoration specialist, will provide properly timed treatment to reduce cover of well-established non-native invasive vegetation, eliminate reinfestation, and adequately deplete the existing non-native invasive seedbank.

Hand Removal

Hand-removal/physical extraction of target invasive vegetation will be used around dense groupings of native species or clusters to be protected in place, amid standing water, or where other control methods are impractical or would cause damage to the native species. Special care will be taken not to trample adjacent native vegetation while hand-removing non-native invasive vegetation. The restoration contractor is required to discern between

invasive and existing native vegetation to prevent unauthorized impacts to native habitat. The habitat restoration specialist will provide assistance on plant species identification.

Physical removal of whole plants, including the roots, is the best method for early germinators and species with a root ball that is underdeveloped and can be readily pulled out by the aboveground portions of the plant with a limited amount of soil disturbance. Consideration will be given to minimizing soil disturbance, which may stimulate germination of existing non-native and invasive seed lying dormant in the soil.

Annual non-native invasive vegetation will be targeted for hand-removal and will be physically removed before seed-set (spring–summer). Maintenance efforts will be timed with invasive vegetation life cycles to effectively control prior to seed-set. If hand removal is possible only after seed-set, then seed heads will be cut off, bagged, and removed from the site prior to biomass removal.

Mechanical Methods

Mechanical control includes removing low-lying herbaceous weeds vegetation with string-trimmers and cutting large shrubs and trees to grade with chainsaws or handheld loppers.

Use of string-trimming is effective for biomass removal in large areas devoid of, or significantly low in, native cover. Use of string trimming is not anticipated for this mitigation program, and will only occur if pre-approved by the habitat restoration specialist.

Cutting with chainsaws or loppers is intended for initial removal of large woody biomass and is usually used in conjunction with cut-stump herbicide application to prevent resprout. Cut biomass will require removal and disposal in an approved disposal facility.

Chemical Treatment

Chemical (or herbicide) treatment will be used for highly invasive vegetation with root systems that make physical removal impractical. Herbicide treatment is also beneficial because it does not turn up surface soils, exposing buried seed. The habitat restoration specialist will coordinate with the restoration contractor/pesticide applicator to identify specific locations where herbicides may be used. Herbicide treatment may follow hand- and mechanical removal activities that are conducted to increase the effectiveness of subsequent chemical treatment. Herbicide treatment for this mitigation program will be limited to spot treatment with close-radius spot-sprayers or wicking devices to prevent damage to adjacent native vegetation or overspray into open water. Broadcast-spray rigs will not be used.

Follow-up applications may be necessary for highly aggressive species that require multiple herbicide applications. Follow-up herbicide treatment will be conducted when the recovering non-native invasive vegetation is still relatively small, before it has time to regain strength and vigor.

Herbicide treatments will follow all federal and state laws and regulations, label directions, and safety precautions. Herbicide application will only be performed under the direction of a state-certified Qualified Pesticide Applicator and will comply with state and local regulations. The Qualified Pesticide Applicator will be licensed with a Pest Control Business License issued by the State of California Department of Pesticide Regulation and registered with the San Diego County Agricultural Commissioner.

5.3 Pest Management

Control of vertebrate pests is not anticipated during the 5-year maintenance and monitoring period, nor are insect pests anticipated to cause enough damage to warrant control. Non-native wildlife species are considered invasive when they threaten native biodiversity by disrupting or altering native ecological communities and have negative consequences for native species and habitats. Invasive non-native wildlife species may outcompete, prey upon, or disturb the habitat of native wildlife and may spread diseases.

If any plant diseases or pests become significant enough to warrant control, the restoration contractor will consult with a licensed pest control adviser for specific control measures, which will be conducted in coordination with the habitat restoration specialist and the City, and will follow all applicable laws, regulations, label directions, and safety precautions. Additionally, excessive loss of plant material as a result of herbivory will be brought to the attention of the habitat restoration specialist and the City to determine appropriate control measures.

5.4 Trash Removal

During each scheduled maintenance visit, the restoration contractor will remove any trash and debris that has accumulated in the mitigation sites. Removal will be required for the duration of the 5-year maintenance and monitoring period. Natural debris, such as leaf litter and woody material, will be left on site to decompose. Downed logs, organic biomass, and leaf litter provide valuable microhabitats for benthic and terrestrial invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of deadwood and leaf litter is essential for the replenishment of soil nutrients and minerals. Any thatch that has accumulated due to weed control efforts will be removed from the site the same day it is cut and disposed of in a legal manner.

5.5 General Site Maintenance

Pruning or clearing of native vegetation will generally not be allowed within the mitigation sites, except as directed by the habitat restoration specialist. Dead biomass and plant litter will not be removed and will be left in place.

Perimeter fencing, staking, and signage will be repaired as needed to remain functional in all installed locations. The contractor will confer with the habitat restoration specialist if it appears that changes in the specified location, materials, or methods of fencing need to be altered to meet their intent and to provide appropriate site delineation and protection. All temporary orange construction fencing will be removed after completion of the first growing season. All temporary rope and post fencing and perimeter markers will be completely removed from the site upon successful completion of the mitigation program. Signage mounted to posts will be remain in place.

BMPs will be maintained and replaced to remain functional until they are no longer needed due to sufficient establishment of native vegetation and there are no indications of site erosion. Upon successful completion of the mitigation program, all remaining non-biodegradable BMPs will be completely removed.

5.6 Adaptive Management

Should any mitigation area not meet interim performance standards or final success criteria at any point during the long-term maintenance and monitoring program, contingency measures may be implemented at the discretion of the habitat restoration specialist and in consultation with the City. Remedial measures may include container

planting, supplemental seeding, additional erosion control BMPs, increased weed control frequency, and supplemental watering, among other things.

If unforeseen changes in site conditions or other components of the program cause final success criteria to not be met, the habitat restoration specialist will prepare an analysis of the cause(s) of failure(s) and propose remedial actions to correct the problem(s) in coordination with the City. If the minimum mitigation acreage has not met the performance criteria, the City maintenance and monitoring obligations will continue until final program approval/confirmation is obtained.

6 Monitoring Plan

The following monitoring plan will be implemented as part of the long-term biological monitoring program, which is scheduled to commence immediately following successful installation. The habitat restoration specialist or their designee will make regular site visits during program implementation. The habitat restoration specialist will review activities for conformance to this HMMP and environmental permit conditions. The results of each site visit will be communicated to the City. Photo-documentation of site conditions will be conducted, as needed.

6.1 Monitoring Methods

Monitoring of the enhancement and restoration sites will consist of qualitative and quantitative field monitoring visits conducted by the habitat restoration specialist or their designee to assess the performance criteria as outlined in Section 6.2, Performance Standards. Monitoring will also include the 0.03-acre Diegan coastal sage scrub (restored/landscaped) area that was revegetated by The Nature Collective in December 2023. Monitoring will occur quarterly throughout the duration of the 5-year mitigation program. The habitat restoration specialist will provide a summary of the results of monitoring activities completed in the prior year in an annual monitoring report.

Following each site visit, the habitat restoration specialist will generate a brief site observation report detailing the condition of the sites and any maintenance and/or remedial actions required to meet annual performance goals. Copies of the site observation report will be provided to the City for distribution to the restoration contractor.

6.1.1 Qualitative Monitoring

Qualitative monitoring will be conducted monthly during the first 3 months of the mitigation program, then on a quarterly basis thereafter, throughout the 5-year mitigation program. Qualitative monitoring of the restoration sites will consist of general site assessments and evaluation of seedling recruitment, soil moisture content, presence/absence of plant pests or diseases, erosion issues, presence of non-native or invasive plant species, trash or debris accumulation, and wildlife use. All qualitative monitoring visits to the restoration sites will be documented with a site observation report that includes photos, which will be forwarded to the restoration contractor and the City. Any mitigation program deficiencies will be noted in the site observation report, with accompanying recommendations for maintenance or remedial actions. All significant observations will be included in the annual monitoring report.

6.1.2 Quantitative Monitoring

Quantitative monitoring will be used to assess vegetation establishment with the restoration sites. Quantitative monitoring will determine total native species cover and composition, and total non-native plant species cover and composition. Quantitative monitoring will be conducted using visual cover estimates to assess mitigation program status compared to the annual performance standards and to track progress toward program completion. Permanent photo points will be established within each restoration site so vegetation development and cover can be visually documented during the 5-year maintenance and monitoring period. The quantitative monitoring visit will be conducted annually beginning in Year 1 and extending through Year 5 of the long-term maintenance and monitoring period.

6.2 Performance Standards

Ecological performance standards will be used to help assess the annual progress of the mitigation sites. The standards are regarded as interim mitigation program objectives designed to achieve the final program success criteria and established mitigation goals. Fulfillment of these standards will indicate that the mitigation sites are progressing toward the vegetation communities that constitute the long-term goals of the program. If mitigation efforts fail to meet the performance standards listed in any one year, the habitat restoration specialist will recommend implementation of remedial actions (e.g., supplemental seeding, changes to maintenance practices) that will enhance the vegetation in the mitigation sites to a level in conformance with these standards.

At the end of the 120-day plant establishment period, seeding within the establishment and re-establishment mitigation sites will show signs of germination and healthy plant growth. For all mitigation sites, non-native species will make up less than 20% absolute cover (erosion control areas will contain less than 25% absolute cover of non-native species), and Cal-IPC–rated high or moderate invasive perennial species (see Table 10) will be fully controlled.

Performance standards for native cover for the enhancement and restoration areas were developed based on observations of existing vegetation within the sites. At the completion of the 5-year maintenance and monitoring period, native vegetative cover must meet or exceed the final success criteria shown in Table 11.

Two on-site reference sites will be established by the habitat restoration specialist within existing healthy southern maritime chaparral and Diegan coastal sage scrub vegetation communities. Visual cover estimates will be collected to be compared relative to the mitigation sites. The vegetative cover performance standards are as listed in Tables 11 and 12.

Table 11. Performance Standards for Mitigation (Restoration/Enhancement) Areas

Year	Percent Native Cover[1]	Non-Native Cover[2]	Other
1	No standard	≤20% annual species 0% invasive species[3]	100%[4] survival of container plants. Erosion control measures in place and functional.
2	30%	≤20% annual species 0% invasive species[3]	80%[4] survival of container plants. Erosion control measures in place and functional.
3	50%	≤15% annual species 0% invasive species[3]	Erosion control measures in place and functional.
4	60%	≤10% annual species 0% invasive species[3]	Erosion control measures in place and functional.
5	65%	≤10% annual species 0% invasive species[3]	Erosion control measures in place and functional.

Notes: ≤ = less than or equal to
1 As a relative percentage of the reference site.
2 Absolute value.
3 California Invasive Plant Council listed species rated high or moderate.
4 May be supplemented by natural recruitment of native seedlings within and surrounding planting basins.

Table 12. Performance Standards for Erosion Control Areas

Year	Native Cover[1]	Non-Native Cover[1]	Other
1	No quantitative goals	≤25% total cover 0% invasive species[2]	Erosion control measures in place and functional.

Table 12. Performance Standards for Erosion Control Areas

Year	Native Cover[1]	Non-Native Cover[1]	Other
2	30%	≤25% total cover 0% invasive species[2]	Erosion control measures in place and functional.

Notes:
≤ = less than or equal to
1 Absolute value.
2 California Invasive Plant Council listed species rated high or moderate.

If significant impacts are unavoidable for any of the special-status plant species, as determined by the habitat restoration specialist, then the mitigation efforts for either planting, seeding, or translocation will be held to the performance standards as described in Table 13. Del Mar Mesa sand aster, Torrey pine, and sea dahlia will be held to a 1:1 replacement ratio. Performance standards for Campbell's liverwort will be determined by the total surface area of liverwort patches that are impacted and translocated at a 1:1 ratio.

Table 13. Performance Standards for Special-Status Plant Species

Year	Species	Survivorship
1–5	Del Mar Mesa sand aster, Torrey Pine, Sea dahlia	1:1 individual survivorship
1–5	Campbell's liverwort	1:1 surface area survivorship

6.3 Reporting

Annual monitoring reports will be submitted to the permitting agencies and the City during the 5-year maintenance and monitoring period. Annual reports outlining the results of the vegetation community monitoring will be submitted annually within 1 month of the installation completion date, beginning at the end of Year 1 and continuing through successful completion of the mitigation program. The monitoring reports will describe the existing conditions within the mitigation sites derived from field observations. The reports will provide a comparison of annual performance standards with field conditions, identify successes and all shortcomings of the program, and recommend remedial measures necessary for the successful completion of the mitigation program. Each yearly report will provide a summary of the mitigation sites measured against the success criteria. Annual reports also will include the following:

- A list of the names, titles, and companies who prepared the annual report and participated in the monitoring activities
- Reference to resource agency permits, special conditions, and subsequent letters of modification
- Details of non-native plant species control, remedial seeding, and other measures required from the restoration contractor
- Photographs from established photo points depicting site progress
- Maps identifying monitoring sites, planting zones, and weed removal sites, as appropriate
- Qualitative assessments for all mitigation sites in Years 1 through 5
- A list of wildlife species observed within or adjacent to the mitigation sites during the monitoring surveys, including sensitive species and/or listed species

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7 Completion of Mitigation Program

Upon completion of the maintenance and monitoring period, if the target performance standards have been achieved, notification of completion will be included within the final annual report submitted to the City. The City will notify the applicable regulatory agencies upon submitting the final annual report. Following receipt of the notification of completion, the applicable regulatory agencies may visit the sites to confirm completion of the mitigation effort and to verify compliance requirements.

When the mitigation sites achieve the final success criteria and successfully complete the 5-year maintenance and monitoring requirements, they will be eligible for release from the permit conditions. If mitigation sites are installed on different timelines (i.e., phases), then they may be released independently. Upon successful completion of the mitigation program, as confirmed in the annual monitoring report, the City will notify the permitting agencies that the final success criteria have been met and request final acceptance and sign-off. Early release may be possible if the performance standards are met early and the permitting agencies agree with the level of establishment achieved. Removal of the temporary fencing and signage will occur prior to final sign-off.

Following receipt of the notification of completion of the mitigation sites, the permitting agencies may request a site visit to confirm completion of the mitigation program and to verify compliance with permit conditions. Monitoring and maintenance are anticipated for 5 years or until success criteria have been met and the resource agencies have provided written release via email or letter confirming that the mitigation sites may be transferred to the long-term manager and that all other permit special conditions are in compliance.

7.1 Long-Term Site Protection and Management

Following successful completion of the mitigation program described in this HMMP, release from mitigation requirements described in the regulatory permits, and completion of the mitigation requirements, the open space areas will continue to be managed in perpetuity by The Nature Collective, which will serve as the preserve manager. Perpetual management described herein serves as a continuation of a partnership between the City and The Nature Collective.

Long-term management of the preserved open space areas will be consistent with the permitting agency and City requirements. The open space areas that contain the mitigation sites will be preserved in perpetuity, intended to sustain and improve the habitat quality over time.

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SOURCE: USGS 7.5-Minute Series Encinitas Quadrangle
Township 13S / Range 4W / Section 26

DUDEK

0 500 1,000 Feet

FIGURE 1

Project Location

Uplands Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project

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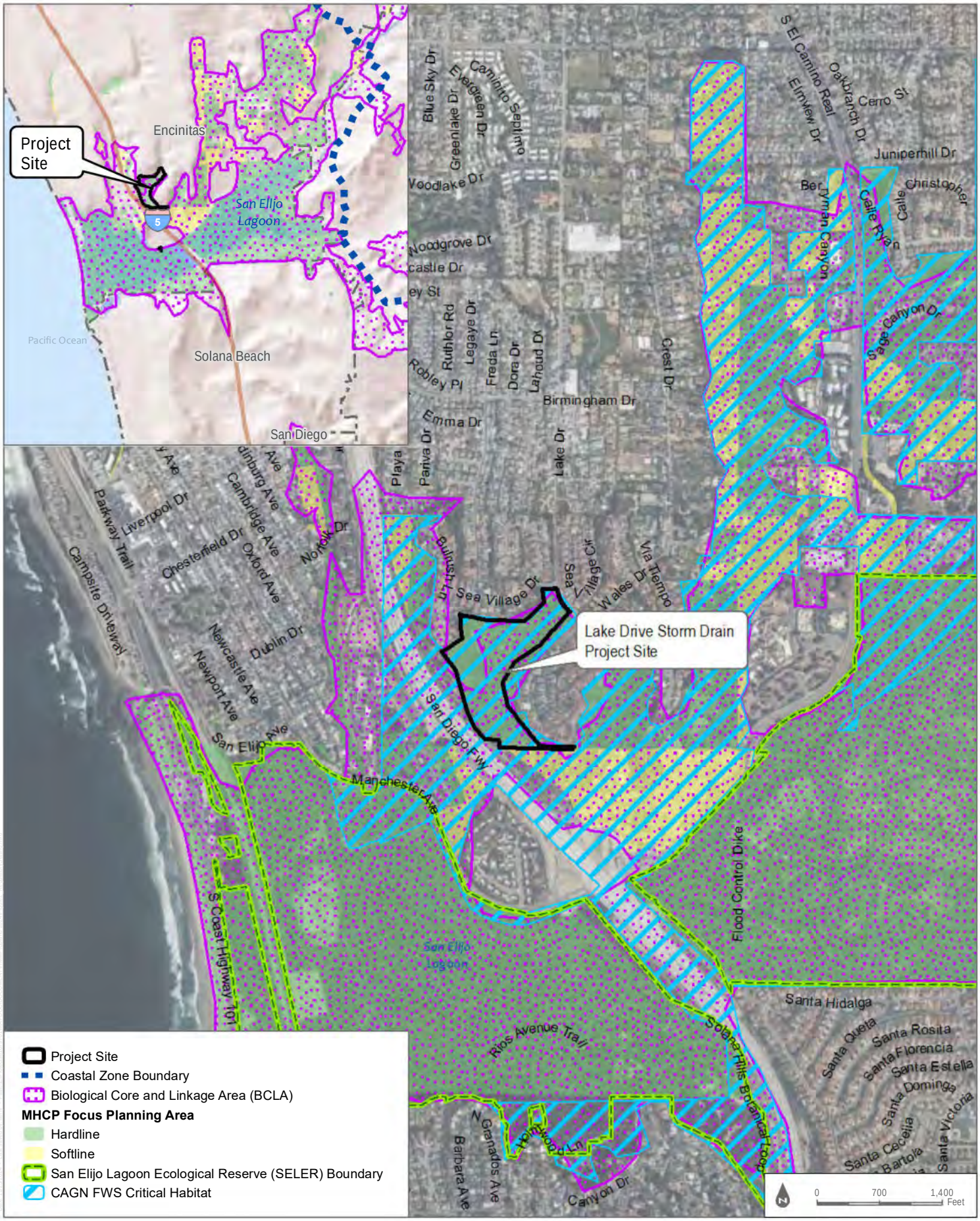

SOURCE: ESRI IMAGERY SERVICE 2023; USFWS 2022

FIGURE 2

Regulatory Setting

Uplands Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project

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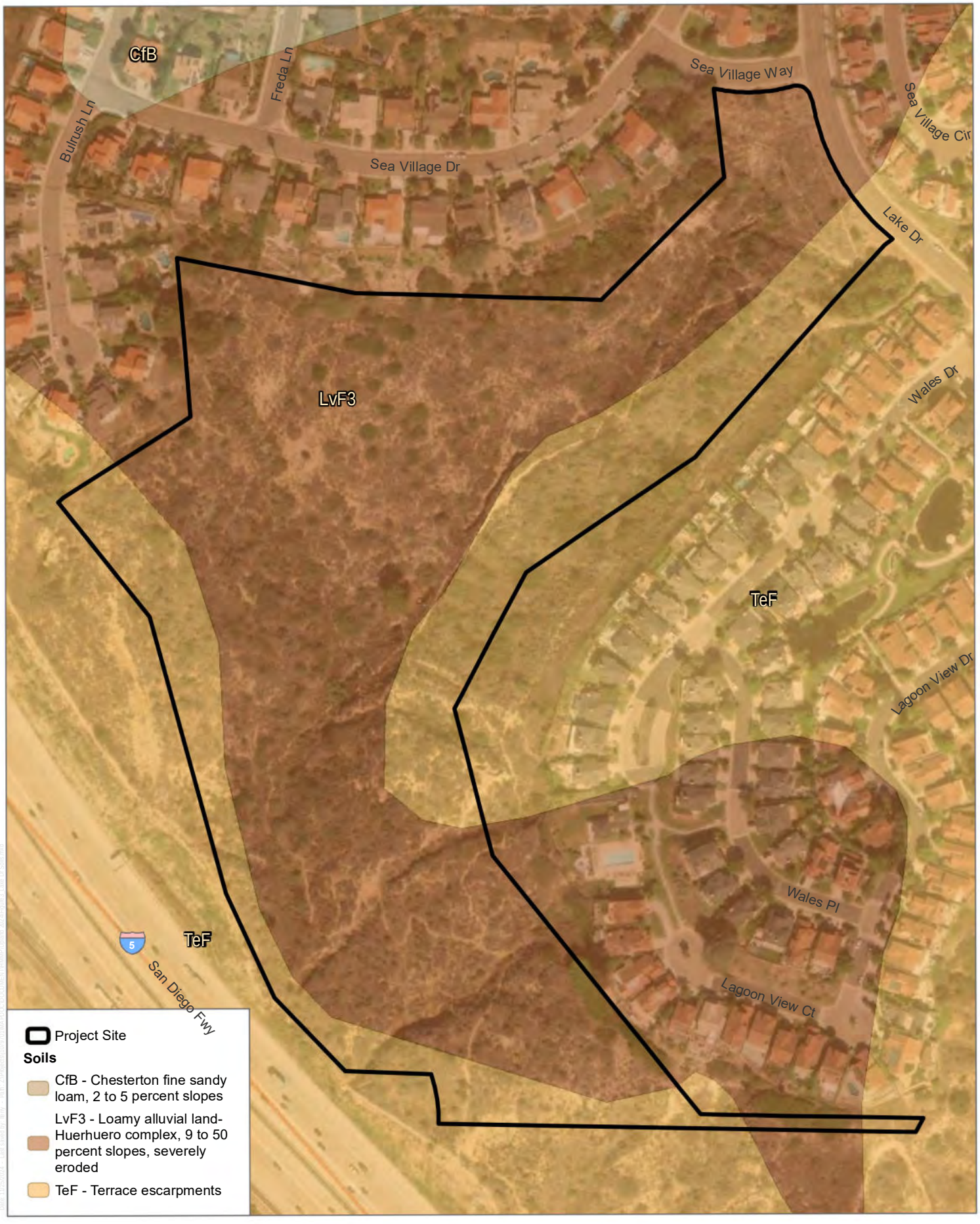

SOURCE: ESRI 2023; USDA 2023

DUDEK

0 105 210 Feet

FIGURE 3

Lake Drive Storm Drain Soils

Uplands Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project

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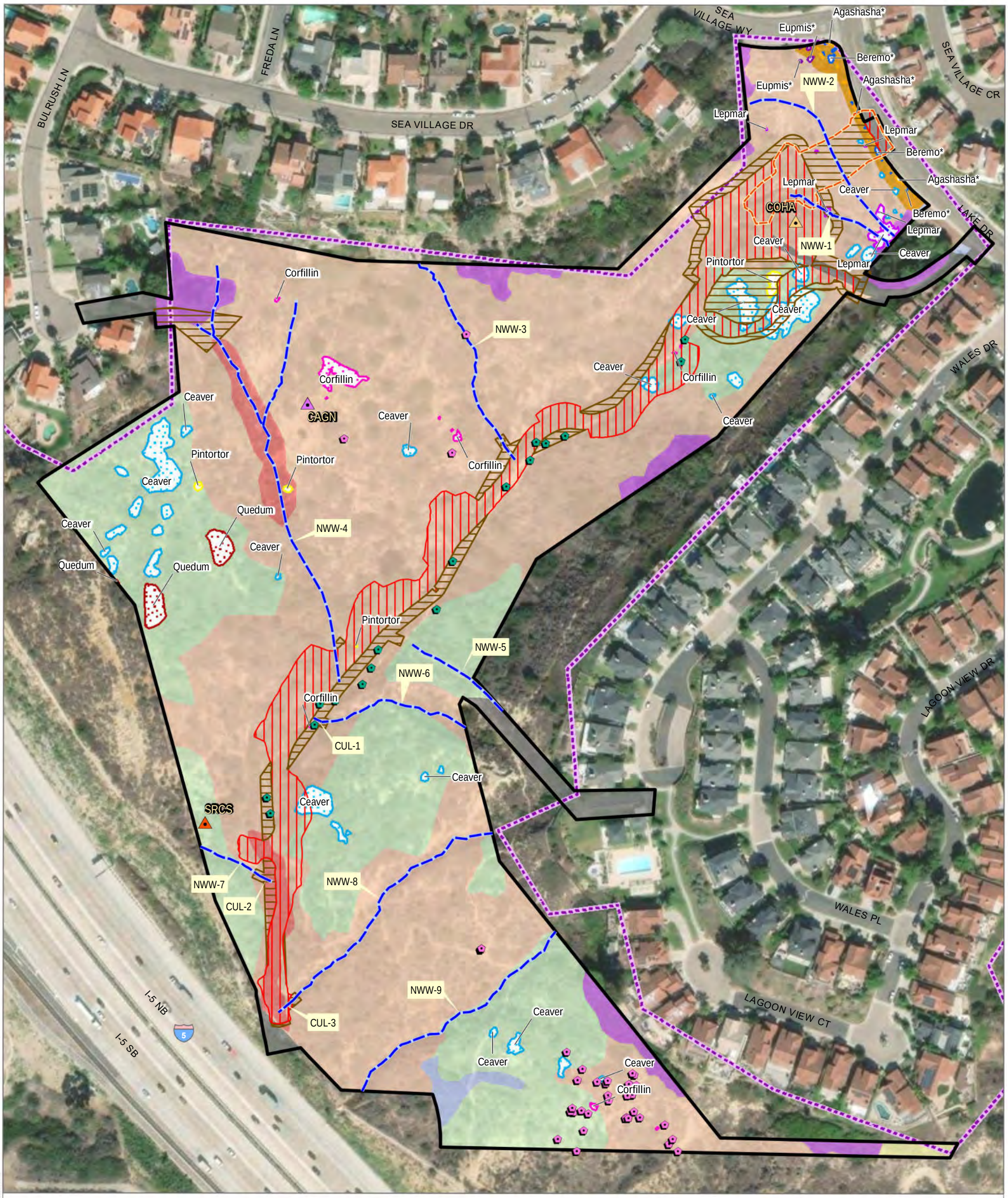

Project Site
2023 Emergency Work Area
CAGN USFWS Critical Habitat

Impact Type

Permanent
Temporary

Jurisdictional Waters

RWQCB/CDFW

Wildlife

CAGN, coastal California gnatcatcher (*Polioptila californica californica*)
COHA, Cooper's hawk (*Accipiter cooperii*)
SRCS, Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)

Plants

Agashasha (Agave shawii var. shawii - Shaw's
Beremo (Bergerocactus emoryi - golden-spined cereus)*
Ceaver (Ceanothus verrucosus - wart-stemmed ceanothus)
Corfillin (Corethrogyne filaginifolia var. linifolia - Del Mar sand aster)
Eupmis (Euphorbia misera - cliff spurge)*
Lepmar (Leptosyne maritima - sea dahlia)
Pintortor (Pinus torreyana ssp. torreyana - Torrey pine)
Quedum (Quercus dumosa - Nuttall's scrub oak)
Fervir (Ferocactus viridescens - San Diego barrel cactus)
Geotub (Geothallus tuberosus - Campbell's liverwort)

Vegetation Communities/Land Covers

CSS-r, Restored/landscaped Diegan Coastal Sage Scrub
CSSB, Diegan Coastal Sage Scrub: Baccharis-dominated
CSSC, Diegan Coastal Sage Scrub: Coastal form
DEV, Urban/Developed
DH, Disturbed Habitat
EUC, Eucalyptus Woodland
NNG, Non-Native Grassland
SMC, Southern Maritime Chaparral

Notes:

1. NWW = non-wetland water
2. CUL = culvert
3. * planted

SOURCE: ESRI 2023; NV5 2024

DUDEK

0 80 160 Feet

FIGURE 4

Lake Drive Storm Drain Impacts to Biological Resources

Uplands Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project

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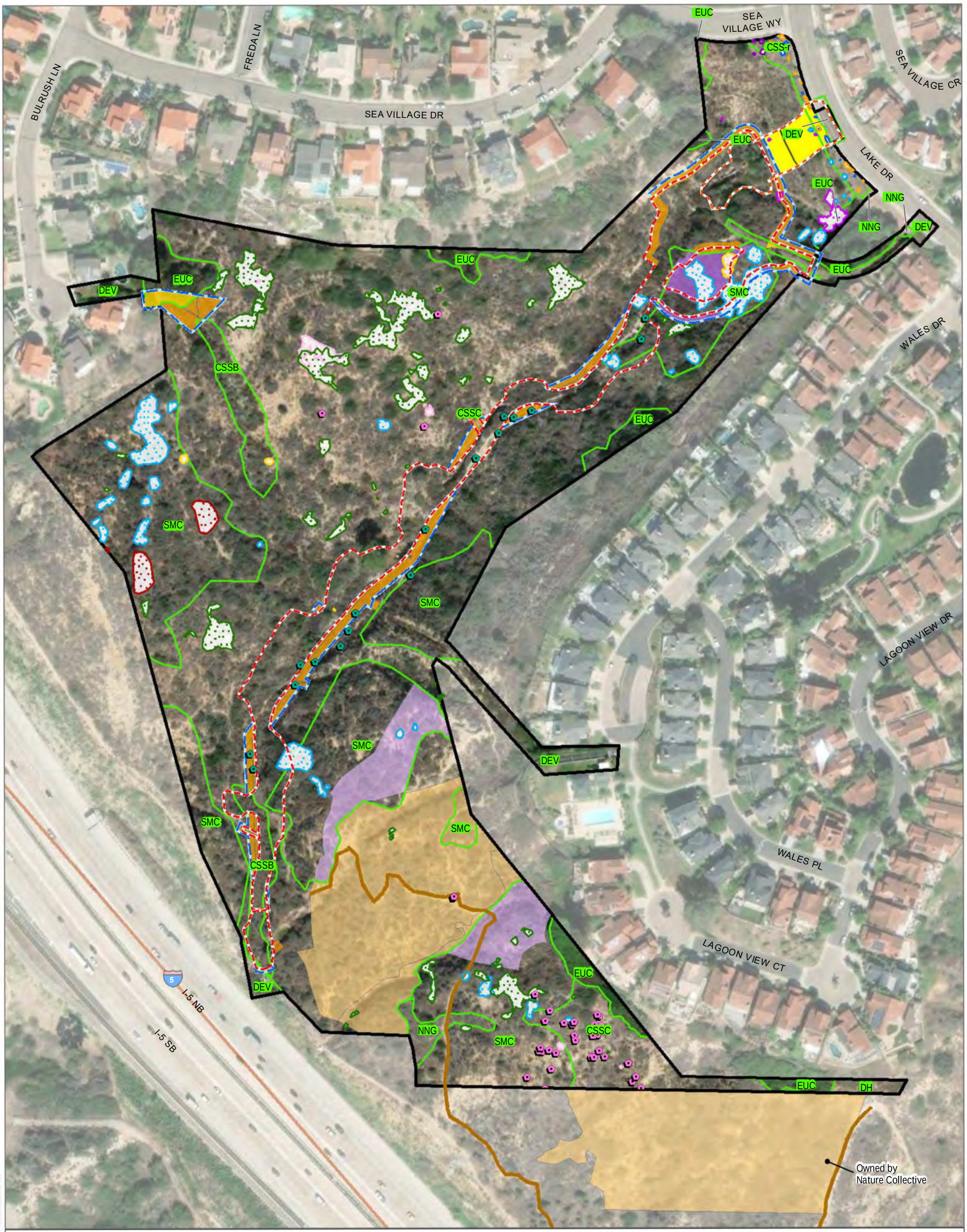

Project Site
Permanent Impact
Temporary Impact
Emergency Work Area (2023)
3-ft Trail (Nature Collective)

Plant
Agashasha (Agave shawii var. shawii - Shaw's agave)*
Beremo (Bergerocactus emoryi - golden-spined cereus)*
Ceaver (Ceanothus verrucosus - wart-stemmed ceanothus)
Corfillin (Corethrogyne filaginifolia var. linifolia - Del Mar sand aster)
Eupmis (Euphorbia misera - cliff spurge)*
Lepmar (Leptosyne maritima - sea dahlia)
Pintortor (Pinus torreyana ssp. torreyana - Torrey pine)
Quedum (Quercus dumosa - Nuttall's scrub oak)
Selcin (Selaginella cinerascens - ashy spike-moss)
Fervir (Ferocactus viridescens - San Diego barrel cactus)
Geotub (Geothallus tuberosus - Campbell's liverwort)

Vegetation Communities and Land Covers
CSS-r, Restored/landscaped Diegan Coastal Sage Scrub
CSSB, Diegan Coastal Sage Scrub: Baccharis-dominated
CSSC, Diegan Coastal Sage Scrub: Coastal form
DEV, Urban/Developed
DH, Disturbed Habitat
EUC, Eucalyptus Woodland
NNG, Non-Native Grassland
SMC, Southern Maritime Chaparral

Mitigation Types
DCSS Restoration (restore-in-place) (0.75 Ac.)
SMC Restoration (restore in place) (0.25 Ac.)
Erosion Control Seeding (0.05 Ac.)

Enhancement
DCSS Coastal Form Enhancement (4.27 Ac.)
SMC Enhancement (0.79 Ac.)

Monitoring Only
Restored/landscaped Diegan Coastal Sage Scrub (0.16 Ac.)

Note:
1. * planted

SOURCE: ESRI IMAGERY 2023

DUDEK

0 80 160 Feet

FIGURE 5

Uplands Mitigation Plan

Uplands Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project

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Appendix I

Non-Wetland Waters Habitat Mitigation and Monitoring Plan

DRAFT

Non-Wetland Waters Habitat Mitigation and Monitoring Plan

Lake Drive Storm Drain Project, City of Encinitas, California

DECEMBER 2024

Prepared for:

CITY OF ENCINITAS
505 South Vulcan Avenue
Encinitas, California 92024
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Prepared by:

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Printed on 30% post-consumer recycled material.

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BMP	best management practice
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
City	City of Encinitas
HMMP	Non-Wetland Waters Habitat Mitigation and Monitoring Plan
NWW	Non-Wetland Water
project	Lake Drive Storm Drain Project
RWQCB	Regional Water Quality Control Board

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Executive Summary

This Non-Wetland Waters Habitat Mitigation and Monitoring Plan (HMMP) outlines the mitigation strategy for implementation of the City of Encinitas Lake Drive Storm Drain Project (project), which would result in impacts to non-wetland waters under Regional Water Quality Control Board (RWQCB), and streambeds under California Department of Fish and Wildlife (CDFW) jurisdiction. The 25.34-acre project site is located in the City of Encinitas at the intersection of Lake Drive and Sea Village Way at a longitude and latitude of 117°16′7.209″W, 33°1′2.868″N (Figure 1, Project Location). The proposed project would consist of removal and replacement of an existing 48-inch-diameter corrugated metal pipe and installation of associated appurtenances. Work would occur from the curb inlet along Lake Drive, at the northeast end of the project site, southwest through the canyon to connect to the storm drain that flows under Interstate 5.

This HMMP addresses 0.003 acres of permanent impacts to RWQCB non-wetland waters and CDFW streambeds, and 0.005 acres of temporary impacts to RWQCB non-wetland waters and CDFW streambeds (and culverts). Mitigation is proposed at a 1:1 ratio for both temporary and permanent impacts to jurisdictional non-wetland waters/streambeds of the state. Proposed mitigation for permanent and temporary impacts to jurisdictional resources would occur in-kind, in-place within The Nature Collective–owned and managed property. Proposed mitigation would include establishment of non-wetland waters through non-native plant species removal, minor grading for non-wetland waters establishment, erosion control measures, seeding, and a 5-year maintenance and monitoring program. The on-site mitigation sites are within City of Encinitas conservation areas, managed by The Nature Collective.

Proposed mitigation for temporary impacts includes the following:

- 0.005 acres (222 linear feet) of re-establishment of temporarily impacted RWQCB and CDFW jurisdictional non-wetland waters to pre-project conditions.

Proposed mitigation for permanent impacts includes the following:

- 0.003 acres (144 linear feet) plus an additional 51 linear feet (for a total of 0.004 acres/195 linear feet) of establishment (creation) of RWQCB and CDFW jurisdictional non-wetland waters within the southwestern portion of the Nature Collective property.

Mitigation and restoration for impacts to jurisdictional aquatic resources is addressed in this HMMP. Impacts and mitigation to other upland resources impacted by the project and proposed upland mitigation will be addressed in a separate document. To ensure that the mitigation sites develop as intended and meet the success criteria required by the City of Encinitas and the permitting agencies, a 5-year maintenance and monitoring program is proposed. This HMMP defines goals, implementation methods, and monitoring and maintenance requirements designed to attain the intended results required by this mitigation program.

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1 Project Description and Objectives

1.1 Introduction

The 25.34-acre Lake Drive Storm Drain Project (project) site is located in the City of Encinitas at the intersection of Lake Drive and Sea Village Way (Figure 1, Project Location). Currently, the Lake Drive project site and adjacent open space areas located to the northwest and southeast occur within the MHCP hardline and softline Focused Planning Areas (FPAs) (City of Encinitas 2001), as shown in Figure 2, Regulatory Setting, and are owned by Nature Collective (formerly the San Elijo Lagoon Conservancy). In 1975, the Cardiff Sea Village Map 8067 was approved and finalized by the County of San Diego, and the project site was designated as open space to mitigate for the Cardiff Sea Village impacts (Stryker, pers. comm., 2024). In 1982, a storm drain pipeline was constructed by the County of San Diego within the project site along the bottom of the canyon to collect and drain water from the surrounding developed area. The canyon and any natural drainage that previously existed was filled during installation of the storm drain pipeline. This existing pipe has failed in several areas, causing large pockets of erosion along the canyon. In very large rain events, it appears water flows out of the vertical pipes and into the canyon, as is evidenced by erosion at some of the vertical pipes. The pipeline alignment exists within the open space easement without a designated drainage easement. The open space easement is owned by the City of Encinitas. Once the project design is complete, a drainage easement will be dedicated to the City of Encinitas over the permanent impacts (i.e., detention basin and maintenance access road) (Stryker, pers. comm., 2024).

The City has proposed the removal and replacement of approximately 2,000 linear feet of existing 48-inch-diameter corrugated metal pipe and associated appurtenances from the curb inlet along Lake Drive west through the canyon to Interstate 5. The existing alignment would be replaced with new pipes and appurtenances of similar size. The new storm drain would generally follow the same alignment to preserve existing hydraulic conditions and minimize site disturbances as much as possible. In January 2023, a large sinkhole, roughly 600 feet across and 30 feet deep, developed during the winter storms below Lake Drive, collapsing a portion of the roadway and causing a severe landslide below Lake Drive within the open space canyon. Emergency work was conducted by the City from February 27 to September 27, 2023, and included repair of the Lake Drive roadway (including curb, gutter, and sidewalk), removal and replacement 140 feet of corrugated metal pipe with reinforced concrete pipe, backfill of the slope with native soils/material and then hydroseeding of the slope, and installation of a new energy dissipator at the bottom of the slope, which will reduce storm flow velocities and flooding and prevent further threats to public health and safety. Additional emergency work was conducted within the Lake Drive project site between January and February 2024 in response to 2023/2024 winter rain events, which caused the existing corrugated metal pipe to convey sediment from the canyon and flood several homes downstream of the Lake Drive project site. In response to the flooding, the City implemented a minimally invasive temporary solution that included a hi-line bypass with approximately 1,200 linear feet of 48-inch high-density polyethylene pipe through the canyon, associated storm drain riser inlets, desilting basins, and erosion/sediment control best management practices to prevent further erosion within the canyon as well as sedimentation downstream in the drainage system. The proposed project will remove the temporary 48-inch high-density polyethylene pipe and associated structures and replace it with a new 40-inch reinforced concrete pipe. The remaining portion of the existing corrugated metal pipe is also proposed for replacement under the current project.

During installation of the new storm drain pipeline at Lake Drive, a temporary work area would be required along the length of the pipeline. The pipe would be installed in an excavated trench in accordance with the San Diego Regional Standard Drawings, Pipe Bedding and Trench Backfill for Storm Drains (i.e., drawing number D-60)

(San Diego County Regional Standard Drawings 2022). Shoring would be used to construct the needed trench to install the new storm drainpipe. Crushed rock (3/4 inch) would be placed below the new pipe, and backfill would be placed in the trench per the D-60 drawing (San Diego County Regional Standard Drawings 2022). Permanent impacts would occur from the detention basin at the northern end of the project site, which will reduce storm flow velocities and flooding, and from the maintenance access road along the pipeline alignment. Any areas impacted outside the limits of the maintenance access road will be stabilized with a native vegetation hydroseed mix. The project also includes an access road from Lake Drive down along the length of the pipeline for entry to the detention basin and future maintenance of the pipeline. As of November 2024, construction is expected to start January 2026 and end November 2026. Ongoing operation would include basin maintenance and checking pipes. The existing 20-foot-wide road easement off Lake Drive would provide access to the basin during future maintenance operations, and pipeline access would be provided by the 25-foot-wide access road drainage easement along the length of the pipeline.

1.2 Responsible Parties

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Email: bradley.nussbaum@naturecollective.org

1.3 Project Location and Ownership

The 25.34-acre project site is located in the City of Encinitas at the intersection of Lake Drive and Sea Village Way at a longitude and latitude of 117°16′7.209″W, 33°1′2.868″N (Figure 1). The project site occurs on Section 27, Township 13 South, Range 4 West in the northwest portion of the Encinitas U.S. Geological Survey 7.5-minute quadrangle. The project site occurs primarily on Assessor's Parcel Number 261-150-69, but also intersects the following Assessor's Parcel Numbers: 261-254-04, 261-254-48, 261-254-20, 261-254-03, 264-254-21, 261-232-40, 261-232-39, 261-255-30, 261-254-46, 261-254-05, and 261-254-22.

The project site and adjacent open space areas are owned and managed by The Nature Collective (formerly the San Elijo Lagoon Conservancy) within the Multi-Habitat Conservation Plan Hardline Preserve and is within the

Coastal Zone (Figure 2, Regulatory Setting). The site has been the subject of previous habitat restoration and enhancement activities, primarily consisting of non-native species or weed control and management, and revegetation treatments to parkway and slope landscape areas adjacent to Lake Drive.

1.4 Mitigation Goals and Objectives

This Non-Wetland Waters Habitat Mitigation and Monitoring Plan (HMMP) outlines the mitigation strategy for temporary and permanent impacts to non-wetland waters of the state anticipated from implementation of the City of Encinitas Lake Drive Storm Drain Project. Mitigation is proposed on site through re-establishment and establishment of non-wetland waters. This HMMP outlines a mitigation strategy to conduct on-site mitigation within the project site open space area as follows:

- 0.005 acres (222 linear feet) of re-establishment of temporarily impacted Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) jurisdictional non-wetland waters habitat to pre-project conditions (0.004 acres of grading and revegetation of non-wetland waters, and 0.001 acres of culvert/pipe replacement).
- 0.004 acres (195 linear feet) of establishment (creation) of RWQCB, and CDFW jurisdictional non-wetland waters within the northwestern portion of The Nature Collective property.

The proposed project would require state permitting from CDFW for a streambed alteration agreement, required by California Fish and Game Code Section 1600, et seq.; and from the RWQCB for a Section 401 water quality certification. This HMMP addresses the mitigation requirements to satisfy these agencies. Table 1 outlines project impacts (permanent and temporary), mitigation ratio requirements, and proposed mitigation.

Table 1. Proposed Mitigation for Jurisdictional Aquatic Resources

Jurisdictional Aquatic Resource	Total Impacts (acres)	Mitigation Ratio	Mitigation Acreage	
			Permanent	Temporary
RWQCB/CDFW				
RWQCB/CDFW Non-Wetland Waters	0.005	1:1	0.002	0.003
RWQCB/CDFW Culverts	0.001	1:1	0	0.001
RWQCB/CDFW Non-Wetland Waters (erosional)	0.001	1:1	0.001	0.001
Total[1]	**0.008**	**—**	**0.003**	**0.005**

Notes: RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife.
1 Acreage may not total due to rounding.

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2 Baseline Information

Previous restoration efforts by The Nature Collective have been focused on the areas within the site occupied by eucalyptus woodland, disturbed habitat, and non-native grassland. Surveys within the project site were conducted by The Nature Collective in 2018 and included rare plant surveys, vegetation mapping, and non-native species mapping (Rothberg, pers. comm. 2021). The surveys and mapping conducted by The Nature Collective were not used in the Biological Resources Technical Report analysis for the project site because more recent comprehensive biological resources surveys were conducted by Dudek in 2022. The current surveys captured all species previously observed by The Nature Collective within the project site, including special-status plant species planted in the restored/landscape areas. The biological resources information is included in the Biological Technical Report for the Lake Drive Storm Drain and Manchester Avenue Culvert Outfall Project (Dudek 2024b).

Conditions at the Lake Drive storm drain mitigation site were assessed by Dudek biologists during surveys conducted in 2022. Surveys conducted included vegetation mapping, jurisdictional delineation, rare plant surveys, and protocol-level surveys for coastal California gnatcatcher (*Polioptila californica californica*) and Pacific pocket mouse (*Perognathus longimembris pacificus*). Vegetation community classifications used in this HMMP follow the Draft Vegetation Communities of San Diego County (Oberbauer et al. 2008). The jurisdictional delineation for aquatic resources was conducted in 2021 (Dudek 2024a).

2.1 Topography and Land Use

Topography within the project site occurs within a steep escarpment with elevations ranging from approximately 100 feet above mean sea level in the southwestern portion of the site to 250 feet above mean sea level in the northeastern portion of the site. Adjacent land uses include existing residential development to the north and east, undeveloped land to the south and west, and Interstate 5 to the west (Figure 4, Topography and Land Use).

2.2 Soils

Two soil types were mapped on the project site: loamy alluvial land-Huerhuero complex, 9% to 50% slopes, severely eroded, and terrace escarpments (Figure 5, Soils) (USDA 2021). Loamy alluvial land-Huerhuero complex is described as a combination of alluvial deposits from mixed sources with residuum weathered calcareous sandstone and shale ridges. Terrace escarpments are described as a landform of escarpments with a riser landform position and a variable soil profile. The loamy alluvial land-Huerhuero complex soils are present in the temporarily and permanently impacted areas. Terrace escarpment soils were also found in some of the temporarily impacted areas, but are primarily at higher elevations within the site.

2.3 Hydrology and Watershed Profile

The project site occurs within the Carlsbad Hydrologic Unit, Escondido Creek Hydrologic Area, San Elijo Lagoon HSA (904.61) (Figure 6). The Carlsbad Hydrologic Unit (HU) covers approximately 210 square miles, forming a triangular shape from Lake Wohlford in the east to the Pacific Ocean in the west, and from Vista in the north to Cardiff-by-the-Sea in the south. It includes Oceanside, Carlsbad, Leucadia, Encinitas, Cardiff-by-the-Sea, Vista, and Escondido. The region is drained by Buena Vista, Agua Hedionda, San Marcos, and Escondido creeks. Within the Carlsbad HU, there are four major coastal lagoons: Buena Vista, Agua Hedionda, Batiquitos, and San Elijo. The

Carlsbad HU comprises six Hydrologic Areas (HAs): Loma Alta, Buena Vista Creek, Agua Hedionda, Encinas, San Marcos, and Escondido Creek (San Diego RWQCB 2021). The on-site unnamed tributaries eventually flows into the San Elijo Lagoon.

Intermittent and ephemeral state waters provide important functions and services that contribute to the hydrological, biogeochemical, and ecological health of a watershed, including retention and transport of sediment and nutrients throughout native habitats, dissipation of stream energy and erosion control, and movement corridors for wildlife during dry periods. The state waters within the project parcel include ephemeral non-wetland waters that would be impacted by the construction of the proposed project, as well as those that would be preserved and restored through the proposed on-site mitigation. Only a small portion (3%) of these ephemeral non-wetland waters would be permanently impacted by the proposed project and the on-site mitigation would ensure the drainage patterns would be maintained to the maximum extent practicable through the proposed stormwater infrastructure design. This would ultimately prevent any adverse downstream effects to the San Elijo Lagoon. Additionally, the proposed project would install a detention basin which would result in a higher functioning storm drain system (e.g., flood storage, slow flows, capture sediment) providing a net benefit (i.e., water quality protection) to downstream aquatic resources associated with the San Elijo Lagoon. In summary, the proposed project and associated compensatory mitigation would not result in a net loss of the overall abundance, diversity, and condition of aquatic resources within the San Elijo Lagoon HSA.

2.4 Vegetation Communities

The 25.34-acre project site primarily consists of Diegan coastal sage scrub (Figure 7, Impacts to Biological Resources). The vegetation communities and land covers were mapped according to Oberbauer et al. (2008) and are grouped according to the Habitat Groups in the draft Encinitas Subarea Plan (City of Encinitas 2001). The project site contains six vegetation communities and two land cover types (Table 2). The vegetation communities and land cover types occurring at the temporary and permanent non-wetland waters impact areas are described in detail below. The permanently impacted jurisdictional waters under RWQCB and CDFW jurisdiction are composed of coastal sage scrub (coastal form) vegetation. The temporarily impacted RWQCB, and CDFW jurisdictional waters are composed of two types of coastal sage scrub: coastal form and Baccharis-dominated.

Sensitive habitats are those that are considered rare within the region or support special-status plant and/or wildlife species. Sensitive upland habitat within the project site consists of coastal sage scrub (including Baccharis-dominated and restored/landscaped), southern maritime chaparral, and non-native grassland.

Table 2. Vegetation Types and Land Covers in the Project Site

Vegetation Community/Land Cover Type	Habitat Code	Acreage
Group B. Rare Upland		
Southern Maritime Chaparral	37C30	6.56
Group C. Coastal Sage Scrub		
Diegan Coastal Sage Scrub: Coastal Form	32510	16.49
Diegan Coastal Sage Scrub: Baccharis-Dominated	32530	0.54
Diegan Coastal Sage Scrub (Restored/Landscaped)	32510	0.17
	Group C Subtotal	*17.20*

Table 2. Vegetation Types and Land Covers in the Project Site

Vegetation Community/Land Cover Type	Habitat Code	Acreage
Group E. Annual Grassland		
Non-Native Grassland	42200	0.14
Group F. Other		
Disturbed Habitat	11300	0.07
Eucalyptus Woodland	79100	0.73
Urban/Developed	12000	0.64
	Group F Subtotal	*1.44*
	Total	**25.34**

Sources: Oberbauer et al. 2008 (Habitat Codes); City of Encinitas 2001 (Groupings)
Note: Some numbers may not sum due to rounding.

A complete description of all plant communities and sensitive species is included in the Biological Technical Report (Dudek 2024b). Only the Diegan coastal sage scrub plant community is described herein because that plant community is primarily where the jurisdictional waters impacts occur.

Diegan Coastal Sage Scrub (Including Baccharis-Dominated and Restored/Landscaped)

Diegan coastal sage scrub is a native vegetation community. According to Oberbauer et al. (2008), coastal sage scrub is composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species—such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.)—with scattered evergreen shrubs, including lemonade berry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*).

Diegan coastal sage scrub covers 16.49 acres of the project site. The Diegan coastal sage scrub on site is dominated by California buckwheat, California brittle bush (*Encelia californica*), lemonade berry, black sage (*Salvia mellifera*), and/or California sagebrush. Other associated species include common deerweed (*Acmispon glaber* var. *glaber*), laurel sumac, red bush monkeyflower (*Diplacus puniceus*), and rod wirelettuce (*Stephanomeria virgata* ssp. *Virgata*). Low cover of species generally associated with chaparral, such as chamise (*Adenostoma fasciculatum*), chaparral yucca (*Hesperoyucca whipplei*), and Mojave yucca (*Yucca schidigera*), were present in some areas mapped as Diegan coastal sage scrub. Some portions of the Diegan coastal sage scrub were disturbed by high cover of perennial veldtgrass (*Ehrharta calycina*).

In addition, 0.17 acres of the project site contains Diegan coastal sage scrub that has been restored by The Nature Collective. This area is mapped as restored/landscaped Diegan coastal sage scrub. This area includes several species that, when occurring naturally, have special status designations, including Shaw's agave (*Agave shawii* var. *shawii*), golden-spined cereus (*Bergerocactus emoryi*), cliff spurge (*Euphorbia misera*), and red-flowered buckwheat (*Eriogonum grande* var. *rubescens*). None of these species were observed in the natural areas of the project site.

Diegan coastal sage scrub–Baccharis-dominated is similar to Diegan coastal sage scrub but is dominated by *Baccharis* species (desert broom [*B. sarothroides*] and/or coyote brush [*Baccharis pilularis*]) (Oberbauer et al. 2008). This community typically occurs on disturbed sites or those with nutrient-poor soils and is often found

within other forms of Diegan coastal sage scrub and on upper terraces of river valleys. This community is distributed along coastal and foothills areas in San Diego County.

On site the Diegan coastal sage scrub–Baccharis-dominated is dominated by coyote brush with relatively low cover of California buckwheat, California sagebrush, Menzies' goldenbush (*Isocoma menziesii* var. *vernonioides*), and western ragweed (*Ambrosia psilostachya*), along with non-native perennial veldtgrass and hottentot fig (*Carpobrotus edulis*). There is 0.54 acres of Diegan coastal sage scrub–Baccharis-dominated within the project site.

2.5 Jurisdictional Aquatic Resources

Because the project site did not support any wetland vegetation, the delineation focused on mapping of non-wetland waters. Jurisdictional boundaries were mapped in the field using ESRI Collector on a mobile device (Figure 7). Remote sensing was not used for the delineation. The Aquatic Resources Delineation Report (Dudek 2024a) and Biological Technical Report (Dudek 2024b) contain detailed information on the jurisdictional delineation methods and results. A summary of the jurisdictional resources evaluated under each resource agency is provided below.

The project site supports 0.087 acres of non-wetland waters and culverts (RWQCB and CDFW jurisdictional). Of those 0.087 acres, 0.086 acres were delineated as non-wetland waters and 0.001 acres were delineated as culverts (Table 3).

Table 3. Jurisdictional Aquatic Resources within the Lake Drive Project Site

RWQCB/CDFW Jurisdictional Aquatic Resource	Acreage	Linear Feet
Culvert		
Cul-1	<0.001	13
Cul-2	<0.001	20
Cul-3	0.001	27
Culvert Subtotal	*0.001*	*60*
Non-wetland Waters/Streambeds		
NWW-1 (erosional)	0.004	190
NWW-2 (concrete-lined brow ditch)	0.008	348
NWW-3	0.009	374
NWW-4	0.022	972
NWW-5 (erosional)	0.004	182
NWW-6	0.006	254
NWW-7	0.002	107
NWW-8	0.021	449
NWW-9	0.010	424
Non-wetland Waters Subtotal	*0.086*	*3,300*
Total	**0.087**	**3,360**

Notes: RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; CUL = culvert; NWW = non-wetland water.
Acreages may not sum due to rounding.

2.5.1 Jurisdictional Resource Impacts

The proposed project would permanently impact 0.003 acres of non-wetland waters under the jurisdiction of RWQCB and CDFW. This impact would result from construction of the new detention basin proposed within the top of the canyon at the storm drain outfall location below Lake Drive and the access road. Additionally, the proposed project would temporarily impact 0.005 acres of culverts and non-wetland waters under the jurisdiction of RWQCB and CDFW. These impacts would result from the proposed temporary trenching work area along the pipeline alignment that traverses the canyon and culvert replacement.

The location of impacts to jurisdictional resources are shown in Figure 7. Table 4 provides the impact acreages by jurisdictional resource, jurisdiction, and type of impact.

Table 4. Impacts to Jurisdictional Aquatic Resources on the Lake Drive Project Site

RWQCB/CDFW Jurisdictional Aquatic Resource	Impacts (Acres/Linear Feet)	
	Permanent	Temporary
Culverts		
CUL-1 (downstream end of NWW-5)	0	<0.001/13
CUL-2 (downstream end of NWW-7)	0	<0.001/20
CUL-3 (downstream end of NWW-8)	0	0.001/27
Subtotal	*0*	*0.001/60*
Non-wetland Waters/Streambeds		
NWW-1	0.001/62	0.001/35
NWW-2	0	0
NWW-3	0.001/35	<0.001/10
NWW-4	0.001/50	0.002/85
NWW-6	0	<0.001/12
NWW-7	0	<0.001/10
NWW-8	0	<0.001/10
NWW-9	0	0
Subtotal	*0.003/147*	*0.004/162*
Total	**0.003/147**	**0.005/222**

Notes: RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife. Acreages may not sum due to rounding.

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3 Proposed Mitigation

See Table 1 in Section 1.4, Mitigation Goals and Objectives, for a summary of project impacts, mitigation ratio requirements, and proposed mitigation. Proposed mitigation for temporary impacts includes 0.005 acres (222 linear feet) of re-establishment of temporarily impacted RWQCB/CDFW jurisdictional features which include 0.004 acres (162 linear feet) of RWQCB/CDFW non-wetland waters re-establishment and 0.001 acres (60 linear feet) of RWQCB/CDFW non-wetland waters culvert/pipe replacement.

The proposed mitigation for permanent impacts includes the establishment (creation) of 0.004 acres (195 linear feet) of RWQCB and CDFW jurisdictional non-wetland waters, which exceeds the proposed 1:1 mitigation ratio. The additional 51 linear feet are a surplus beyond regulatory requirements, providing additional ecological benefits.

3.1 Mitigation Site Selection Criteria

Following analysis of existing baseline conditions and evaluation of on-site mitigation opportunities, implementation of permittee-responsible mitigation on site was determined to be adequate to meet the mitigation requirements, goals, and objectives of the project. Temporary impact mitigation sites are being proposed for in-place mitigation, including re-establishment of temporarily impacted non-wetland waters resources. The 0.004-acre permanent impact mitigation site was selected because it is within The Nature Collective property, in proximity to the impact site, connects with a temporary impact mitigation site, and extends an existing non-wetland water feature to a drainage therefore providing no-net loss of hydrologic input to that flow regime.

The permanent impact mitigation includes 0.004 acres of proposed RWQCB/CDFW non-wetland waters establishment through the grading, contouring, and seeding within the southwestern portion of The Nature Collective property, which will extend NWW-5 parallel along the main pipeline and connect to the same culvert that NWW-6 drains into.

The proposed mitigation sites provide equal or improved functions as the pre-project condition of impacted resources. The selected mitigation locations provide a net benefit as they are located in the same watershed and within the project impact area, support or have the potential to support “like” habitats and water body types similar to the project impact area, and will continue to be conserved and managed in perpetuity by The Nature Collective as City open space following the completion of the mitigation program.

To preserve and enhance the open space, the City, with the assistance of The Nature Collective, will have the responsibility for monitoring and managing the mitigation sites in perpetuity. The City will provide a management fund (endowment agreement) to The Nature Collective to ensure their commitments to the long-term funding of the mitigation sites and the associated management tasks.

3.2 Determination of Credits

As described in the project objectives, the selected mitigation proposes to provide equal or improved functions and services of the local watershed through establishment and re-establishment of non-wetland waters within the project site.

Mitigation for temporary impacts is proposed at a 1:1 ratio to be mitigated in-kind to re-establish RWQCB/CDFW jurisdictional non-wetland waters to similar or higher functions than the baseline condition. Mitigation for permanent impacts to 0.003 acres of RWQCB/CDFW non-wetland waters is also proposed at a 1:1 ratio due to the small size of this erosional feature. Permanent impacts are proposed to be mitigated through establishment of RWQCB/CDFW non-wetland waters feature by extending an existing feature, providing functions and values consistent with the impact area. Compensatory mitigation provided at a 1:1 ratio is proposed to ensure no net loss of jurisdictional area. All mitigation is proposed within The Nature Collective–managed open space preserve lands within the temporary impact areas.

3.3 Proposed Mitigation for Permanent Impacts

3.3.1 Non-Wetland Waters Establishment

To compensate for permanent impacts to RWQCB/CDFW-jurisdictional non-wetland waters, 0.003 acres (144 linear feet) of establishment is proposed to offset impacts at a 1.1 ratio with an additional 51 linear feet to connect the extended non-wetland waters feature to an existing drainage. This equates to 195 linear feet of established RWQCB/CDFW non-wetland waters at 1-foot channel width (similar to the impact footprint). Establishment activities would include extension of an existing non-wetland waters feature (NWW-5) southwest, parallel along the pipe alignment, and connect to a culvert (CUL-1) (Figure 7a, Mitigation Site Locations).

The established non-wetland waters mitigation site would be graded to capture surface drainage and would be directed to a proposed culvert (CUL-1). The establishment area to be revegetated would include the 1-foot-wide non-wetland waters drainage. The area would be seeded with a native seed mix to encourage native vegetative regrowth and to provide erosion control protection (Section 4.9).

3.4 Proposed Mitigation for Temporary Impacts

3.4.1 Non-Wetland Waters Re-Establishment

Re-establishment of existing disturbed aquatic resources is proposed at all temporary non-wetland waters impact locations along the main pipeline alignment, as shown in Figure 7a. At all temporary impact locations, re-establishment of non-wetland waters would be achieved through minor re-grading of the disturbance areas to match the pre-project grade configurations of the drainages and subsequent revegetation. These areas would be seeded with a native seed mix to encourage native vegetative regrowth and to provide erosion control protection. Re-establishment would include 0.005 acres (222 linear feet) of RWQCB/CDFW non-wetland waters re-establishment. This would provide a 1:1 mitigation ratio for impacts to non-wetland waters for temporary impacts.

The non-wetland waters re-establishment work would equate to approximately 222 linear feet of non-wetland waters re-establishment at an assumed approximate 1-foot width. These areas would be seeded with a native coastal sage scrub seed mix to encourage native vegetative regrowth and provide erosion control protection. See Section 4.9, Installation of Recommended Seed Mix, for the recommended native coastal sage scrub seed mix. Existing culverts and pipes conducting jurisdictional flow would be replaced for no-net-loss of functions, and temporarily disturbed aboveground surfaces would be revegetated with the native coastal sage scrub seed mix.

3.5 Jurisdictional Vegetation Communities to be Established, Rehabilitated, and Reestablished

On-site mitigation is proposed through establishment and re-establishment of non-wetland waters that occur within the following vegetation communities: Diegan coastal sage scrub coastal form and Diegan coastal sage scrub Baccharis-dominated. Mitigation would occur in the temporarily impacted non-wetland waters, within existing waters, and within new waters. The proposed on-site mitigation sites are depicted in Figure 7a and Figure 7b, Mitigation Site Locations Detail View.

The character and species composition of the vegetation communities in the proposed mitigation sites are intended to be consistent with the character and species composition of existing vegetation communities present within the project site. The species composition for the revegetation effort is outlined in Section 4.9.

3.6 Functions and Services of Vegetation Communities to be Established, Reestablished, and Rehabilitated

Increase in aquatic resource functions and services is an important objective for this on-site mitigation program. On-site mitigation would provide fulfilment of functional lift for hydrology, water quality, and habitat for the mitigation sites and preserved jurisdictional resources within the local watershed.

All mitigation sites are expected to increase in functions and services from pre-project conditions. Removal and control of annual and perennial invasive plant species is a major component of the mitigation strategy. Establishment and re-establishment areas would receive a further increase in functional lift of native biotic structure with native revegetation through seeding. An increase in biotic structure would also result in improved breeding, foraging, and nesting habitat for avian, aquatic, and terrestrial wildlife species.

The proposed establishment and re-establishment areas would improve non-wetland waters functions, which would promote improved nutrient cycling, nutrient and compound uptake, organic carbon export, and groundwater recharge, and would be hydraulically compatible with the surrounding non-wetland waters drainages.

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4 Mitigation Work Plan

The mitigation project would include establishment and re-establishment work conducted on-site within several mitigation sites. Implementation would include the following:

- Clearing woody and herbaceous weeds and exotic non-native vegetation within all mitigation sites
- Applying native seed mix within all mitigation sites
- Implementing a 120-day plant establishment period within all mitigation sites
- Conducting a 5-year maintenance and monitoring period within all mitigation sites

4.1 Mitigation Implementation Personnel

4.1.1 Applicant

The City is financially responsible for the costs associated with implementing, monitoring, maintenance, and protection of the mitigation sites as defined in this HMMP. Mitigation oversight would be provided by the City and its designated representative. The City is also responsible for all costs associated with completion of the mitigation requirements stated herein. Further, the City will provide access to the mitigation sites for environmental specialists, contractors, and permitting agency officials.

4.1.2 Habitat Restoration Specialist

Consistent with this HMMP, a qualified Habitat Restoration Specialist will be hired by the City to implement monitoring of the mitigation installation, 120-day plant establishment period, and post-installation (5-year) maintenance and monitoring period. The Habitat Restoration Specialist will be either a private consultant and/or other qualified entity. The City will be responsible for the costs associated with this effort. The Habitat Restoration Specialist, in coordination with the City, will review all aspects of the pertinent contract documents, including site protection information, submittals, scheduling of formal site observations, lines of communication, and persons with stop work authority prior to project implementation. The Habitat Restoration Specialist will oversee and coordinate implementation of this HMMP, including final construction drawings; interpret said plans; conduct or oversee field work for installation and monitoring during the 120-day initial maintenance period; and conduct biological monitoring throughout the 5-year maintenance and monitoring period. The Habitat Restoration Specialist will possess specific knowledge and project-level experience with coastal sage scrub and riparian restoration projects, and at least 3 years of channel/floodplain restoration experience in Southern California.

The Habitat Restoration Specialist will be required to advise all personnel of the on-site construction restrictions resulting from implementation of this HMMP, and the presence or potential presence of sensitive species and vegetation communities within or adjacent to the Lake Drive Storm Drain Project site, as well as known biological-related dangers on site (e.g., rattlesnakes, beehives, poison oak). Information about federal, state, and local laws relating to these biological resources will be discussed as part of mandatory environmental education for construction personnel. Access and staging areas will be established outside environmentally sensitive areas. Monitoring will occur throughout the mitigation site construction period. Monitoring time may increase or decrease as required by field conditions and construction activities.

4.1.3 Restoration Contractor

The City will hire a project installation contractor and/or maintenance contractor (Restoration Contractor). The Restoration Contractor will be a qualified, licensed company, preferably with experience in riverine restoration establishment and maintenance. During the implementation phase, the Restoration Contractor will be responsible for performing installation, including initial site clearing, plant salvage, irrigation system installation (if necessary), seeding, planting, mulch installation, perimeter control, and erosion control. During the post-installation monitoring and maintenance phase, the Restoration Contractor will be responsible for weed control, erosion control, trash removal, replanting, and, if necessary supplemental watering and/or maintenance of temporary irrigation systems. In addition to the tasks listed above and described in this HMMP, the Restoration Contractor will be responsible for implementation of all tasks required to promote mitigation success, as directed by the Habitat Restoration Specialist and the City.

4.2 Construction Documents

Construction documents will not be required for the Lake Drive Storm Drain Mitigation Project sites. Establishment and re-establishment of the mitigation sites will be implemented directly from the guidelines outlined in this HMMP, under the field direction of the Habitat Restoration Specialist.

4.3 Schedule

Work is anticipated to occur within 1 year following initial impacts from the proposed project. Work for the Lake Drive storm drain on-site mitigation sites should be coordinated with the Lake Drive Storm Drain Project construction, based on timing of work and the restoration of areas following the storm drain repair work. It is recommended that all work be conducted in consideration for wildlife breeding seasons and seasonal weather conditions. All initial vegetation removal will ideally be conducted in the late spring and summer following verification of no nesting activities through pre-construction surveys. A preliminary implementation schedule is shown in Table 5.

Table 5. Preliminary Mitigation Implementation Schedule

Restoration Activity	Mitigation Site	Timing/Restrictions	Month/Season
Setting up seed acquisition and collection if necessary	All mitigation sites	The winter/spring prior to installation	Prior Winter–Spring
Initial weed control/invasive plant removal	All mitigation sites	Outside of nesting bird season	Summer–Fall
Grading and contouring of temporary impact areas for re-establishment and the establishment mitigation sites	All mitigation sites	Outside of nesting bird season; during construction activities by general contractor	Summer–Fall
Seed application	All mitigation sites	Following completion of above activities	October–November
Start of 5-year monitoring period	All mitigation sites	Following completion of installation	November

4.4 Existing Resource Impact Avoidance

For the duration of the mitigation program, impacts to sensitive biological resources and jurisdictional waters will be avoided or minimized, as practicable. Impacts from installation and post-installation maintenance are anticipated to be minimal and temporary. In addition to the measures listed below, the Restoration Contractor will be required to conform to the conditions set forth in the regulatory agency permit conditions. Specific measures for restoration work include the following:

- All measures taken to avoid impacts to sensitive biological resources will be included in annual reports by the Habitat Restoration Specialist.
- Prior to commencement of construction activities, the Habitat Restoration Specialist or a qualified biologist will meet with the applicant or designee and construction crew and conduct an educational session for all mitigation sites. The educational session will discuss avoiding impacts outside of approved mitigation sites and to protect sensitive flora and fauna (e.g., explaining the avian buffers, detailing the flag system for removal of invasive species or retention of sensitive plants, and clarifying acceptable access routes/methods and staging areas).
- Ground-disturbing activities (removal of vegetation) will be avoided, to the greatest extent possible, during the nesting season (February 15 through September 15) of potentially occurring native and migratory bird species. If ground-disturbing activities are required during the nesting/breeding season (February 15 through September 15), a pre-activity field survey will be conducted by a qualified biologist 72 hours prior to disturbance to determine if active nests of species protected by the Migratory Bird Treaty Act or the California Fish and Game Code are present in the construction zone. If active nests are not detected within the site and appropriate buffer, construction may be conducted during the nesting/breeding season. However, if active nests are detected during the pre-activity field survey, the area will be flagged and mapped on the construction plans with a minimum 50-foot buffer and up to a 300-foot buffer for raptors, with a final buffer distance to be determined by the qualified biologist. No heavy equipment activity will take place within the established buffer. The buffer area will be avoided until the nesting cycle is complete or it is determined that the nest has failed. In addition, the biologist will be present on site to monitor the vegetation removal to ensure that any nests that were not detected during the initial survey are not disturbed.

4.5 Fencing and Existing Trails

No public access will be allowed within the mitigation sites for the duration of the mitigation program. Public access will be restricted to designated trails located within the open space areas. Any required trail modifications to avoid the mitigation sites will be delineated during implementation and coordinated with the City and The Nature Collective.

Temporary orange construction fencing and erosion control silt-fencing in low-lying areas will be installed to designate the limits of the mitigation sites. Any trail edges that border the mitigation sites will receive perimeter controls and will be staked with T-posts and yellow rope fencing to delineate the boundary of the mitigation site. All fencing adjacent to trails will be posted with signage indicating the following: “Habitat Restoration in Progress, Public Access is Prohibited”.

The temporary orange construction fencing, silt fencing, and T-post and rope fencing will remain in place and be maintained by the Restoration Contractor through the end of the 120-day plant establishment period. The T-post and rope fencing will be maintained by the Restoration Contractor for the duration of the 5-year maintenance and monitoring period. All temporary fencing will be removed from the site at the completion of the 5-year maintenance and monitoring period.

4.6 Erosion Control

Temporary soil disturbance is anticipated within the mitigation sites due to the removal and replacement of the existing storm drain piping and the installation of new facilities. Best management practices (BMPs) will be used as necessitated by site conditions to minimize erosion and topsoil loss. BMPs will be maintained through the duration of the maintenance program, or until new native vegetation is sufficiently established to provide adequate stabilization. All degraded or non-functioning BMPs will be replaced, as needed. The Habitat Restoration Specialist will monitor BMPs periodically during the mitigation program to help ensure compliance.

Applicable erosion control measures in the form of BMPs will be installed, as necessary, at all mitigation sites. BMP installation is required for mitigation sites expecting temporary soil disturbance through grading, but will also be implemented if vegetation removal or other work activity destabilizes surface soils and threatens on-site erosion.

As practicable, BMPs (excluding silt fencing) will be constructed from biodegradable material and be 100% certified weed-seed free. If the use of non-biodegradable materials is unavoidable due to availability or necessity of function, all non-biodegradable materials will be completely removed from the site when they are no longer required to provide stabilization, or at the end of the post-installation monitoring period.

BMPs will include the following:

- Installation (as necessary) of silt fencing, fiber rolls, and gravel bags at key locations along the mitigation perimeter where the potential for erosion and off-site soil transport exists
- Installation (as necessary) of fiber rolls and gravel bags perpendicular to constructed drainage pathways to provide temporarily stabilization
- Installation (as necessary) of erosion control features, such as a combination of fiber rolls and soil tackifiers (via hydromulch application), in areas of greater than 4:1 slopes or as specified by the Habitat Restoration Specialist
- Hydromulch/hydroseeding (including an appropriate binding agent) of appropriate native nurse crops in areas requiring surface soil stabilization
- Installation of native materials (locally collected rock, live plant cuttings, and live plant wattles) along channel bank contours and within the channel bed

4.7 Grading

Post-removal and replacement of the corrugated piping and installation of associated pipeline improvements, grading and earthwork of the temporary disturbance areas will be implemented by the general contractor to restore pre-impact topography throughout the project site, including the temporarily impacted jurisdictional non-

wetland waters. The Restoration Contractor will accept these areas and perform any minor grading to prepare the areas for revegetation. For the non-wetland waters establishment area, the Restoration Contractor will coordinate with the general contractor to arrange for the grading of the new waters and to tie the feature into the existing waters drainage and the storm drain improvements. The Restoration Contractor can implement the grading themselves, if the work is coordinated with the general contractor.

4.8 Initial Non-Native Invasive Plant Removal

Non-native invasive plant removal is a critical component to the mitigation program for all mitigation sites. For the Lake Drive storm drain mitigation site, all invasive non-native and ornamental vegetation will be treated, or treated and removed in temporary impact zones.

The initial invasive plant species removal phase will consist of hand-removal, chemical treatment, mechanical removal, or a combination of these techniques. Removals during project implementation are considered an initial step in overall invasive plant control, with follow-up control conducted for the post-installation maintenance phase (discussed below). All non-native vegetation, independent of invasive status, will require treatment and/or treatment and removal. All removed vegetation will be disposed of off site at an approved landfill or green waste facility.

Mature invasive and ornamental trees and shrubs identified for removal within the mitigation sites and required to receive stump-cut treatment include eucalyptus, acacia, and Pampas grass. The Habitat Restoration Specialist will survey the mitigation sites prior to work and flag all trees and shrubs for removal. Additional species may be added based on survey results at the time of work.

Following removal from the site, all larger-diameter branches from woody plant material will be chipped (if feasible) unless approved by the Habitat Restoration Specialist (exceptions may include treated tree trunks). Chipped material will not be used as mulch for on-site applications due to the large number of non-native plant propagules anticipated to be present within the plant material.

Herbaceous non-native annuals and all dead standing biomass will be removed by hand or by a combination of hand removal and string trimming (weed whipping). All accumulated non-native biomass will be collected and completely removed from the mitigation sites.

4.9 Installation of Recommended Seed Mix

Permanent and temporary impacts will be mitigated at a 1:1 ratio. All temporary impacts are proposed to be mitigated in-kind, in-place through re-establishment at the temporary impact locations. All permanent impacts will be mitigated on site within the southwest portion of the project site through establishment of RWQCB/CDFW non-wetland waters to connect NWW-5 to CUL-1 (Figure 7b). Permanent impacts will only occur within 0.003 acres of unvegetated erosional RWQCB/CDFW non-wetland waters feature surrounded by coastal sage scrub. Temporary impacts will occur within RWQCB/CDFW jurisdictional features that support coastal sage scrub habitat or are unvegetated erosional/brow ditch features. Therefore, all mitigation sites are proposed to be revegetated (or restored) with a coastal sage scrub seed mix (total of 0.008 acres of revegetation for all re-establishment and establishment areas), including aboveground surfaces following culvert/pipe replacement areas. The seed mix was developed based on suitable species occurring within temporary impact footprints and elsewhere within the Nature Collective property. The intended low shrub cover within

the non-wetland waters areas will rely on cover development from seeded species and from natural recruitment. The recommended seed mix is shown in Table 6.

Table 6. Non-Wetland Waters Mitigation Coastal Sage Scrub Seed Mix (0.008 acres/369 linear feet)

Seed Mix			
Botanical Name	**Common Name**	**Minimum Pure Live Seed[b]**	**Pounds per Acre**
Acmispon glaber var. *glaber*	Common deerweed	76	2.0
Ambrosia psilostachya	Western ragweed	20	1.0
Amsinckia menziesii[a]	Menzies' fiddleneck	29	1.0
Artemisia californica	California sagebrush	18	2.0
Artemisia dracunculus	Wild tarragon	5	1.0
Calystegia macrostegia	Island false bindweed	25	1.0
Diplacus puniceus	Red bush monkeyflower	1	1.0
Elymus condensatus	Giant wild rye	72	3.0
Encelia californica	Bush sunflower	14	3.0
Epilobium canum	Hummingbird trumpet	27	1.0
Eriogonum fasciculatum var. *foliosum*	California buckwheat	10	7.0
Isocoma menziesii var. *veronoidies*	Menzies' goldenbush	7	2.0
Lasthenia gracilis[a]	Common goldfields	76	2.0
Lupinus bicolor[a]	Miniature lupine	83	2.0
Phacelia cicutaria	Caterpillar phacelia	88	2.0
Plantago erecta[a]	Dot-seed plantain	85	3.0
Salvia mellifera	Black sage	43	1.0
Sisyrinchium bellum	Blue-eyed grass	78	1.0
Stipa pulchra, deawned	Purple needlegrass	68	2.0
		Total Pounds per Acre	**38.0**

[a] Quick-germinating nurse crop species for early cover and erosion control.
[b] Pure live seed is a measurement of live viable seed, which is calculated using the purity (percent of pure seed) and percent germination rate. If the minimum percent pure live seed is not available, then the seed supplier will increase the poundage of seed to meet the difference.

The hydroseed slurry mix is as follows:

- Seeds at pounds per acre as indicated in seed mix above
- 2,500 pounds per acre virgin wood fiber mulch
- "Ecology Controls M-binder" seed binder/tackifier (or approved equal) at 80 pounds per acre (to be included in slurry mix for installations on any erosion control areas from November through March of any given year)
- Agricultural gypsum at 1,000 pounds per acre
- Fertilizer 11-55-0 at 200 pounds per acre

If some species are not available at the time of seeding, then substitutions may be considered in consultation with the Habitat Restoration Specialist, City, applicable agencies, and The Nature Collective.

4.9.1 Seed Application

All site work, non-native vegetation control, and site preparation will be verified by the Habitat Restoration Specialist prior to hydroseed application. Seed application is recommended prior to the onset of the rainy season (October through February). The revegetation effort will be accomplished under a non-irrigated condition, so seasonal timing of the seed installation is critical to germination success.

The hydroseed slurry mixture will contain the specified seed mix at the prescribed rate per acre, along with mulch components that include 100% virgin wood fiber mulch at 2,500 pounds per acre, agricultural gypsum at 1,000 pounds per acre, and a commercial guar-gum-based binder at 80 pounds per acre (if deemed necessary November through March of any given year, to provide additional erosion control protection), and Fertilizer 11-55-0 at 200 pounds per acre. The hydroseed slurry mixture components may be modified depending on site conditions and soils, as recommended by the Habitat Restoration Specialist. Additional soil amendments may be required based on results of the agricultural suitability analysis and the recommendation of the Habitat Restoration Specialist.

All seed packaging will be clearly labeled showing type of seed, test date, name of the supplier, and percentage of the following: pure seed, crop seed, inert matter, weed seed, noxious weeds, and total germination content. All material will be delivered to the site in original, unopened containers bearing the manufacturer's guaranteed analysis. All seed mixes will be stored in a dark, cool place and not allowed to become damp.

During application, effort will be made to minimize covering existing vegetation with the hydroseed slurry mixture. Labels for all hydroseed slurry components will require inspection and approval from the Habitat Restoration Specialist prior to mixing and application. Hand seeding may be an acceptable alternative to hydroseeding in difficult-to-access areas or areas too small or isolated for hydroseed accessibility, per the approval of the Habitat Restoration Specialist. If this alternative is elected, then the pre-mixed seed mix, gypsum, and fertilizer will be applied by hand and lightly raked into the soil surface. The other hydroseed slurry mix components will not be required if hand seeding is elected.

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5 Site Protection Instruments

5.1 Short-Term Site Protection

During the minimum 5-year maintenance and monitoring period, mitigation sites will be restricted from public access and will be delineated with temporary fencing and signage at all public and utility access points. Signage will state the nature of the mitigation project and access restrictions, as appropriate.

5.2 Long-Term Site Protection

The mitigation sites are within an existing open space conservation easement. Easement information will be provided to the resource agencies demonstrating that the City will protect and maintain the mitigation sites in perpetuity. The conservation easements will be managed through a partnership with the City and The Nature Collective. An endowment agreement will be established, as determined by a property analysis record conducted by the City in coordination with The Nature Collective, to establish long-term management funding adequate to ensure success in perpetuity. Long-term management of the site is discussed in Chapter 8, Completion of Mitigation Program.

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6 Maintenance Plan

Following completion of initial implementation efforts, a 5-year maintenance and monitoring period will occur, which will include non-native plant species control, trash removal, general maintenance, and additional erosion control, if warranted. The sites will be subject to the requirements specified in this HMMP.

Because the goal of this HMMP is to reestablish natural, self-sustaining vegetation communities, the maintenance effort included in this HMMP is concentrated in the first few seasons of plant growth following the restoration efforts, when weeds can easily out-compete native plants. The intensity of required maintenance activity is expected to subside each year as the native plant materials become more established and localized competition from non-native plants for resources in the mitigation sites is minimized through control of non-native plants.

6.1 Maintenance Schedule

Site maintenance will occur regularly throughout the maintenance and monitoring period, and will be directed by the Habitat Restoration Specialist. A minimum maintenance schedule is shown in Table 7; however, regular monitoring will occur throughout the 5 years, and the Habitat Restoration Specialist may recommend that maintenance occur more often if determined necessary. The erosion control areas will be maintained for 2 years or until final success criteria are met. Should any erosion control area not meet final success criteria at the end of the 2-year period, remedial measures may be recommended by the Habitat Restoration Specialist.

Table 7. Minimum Maintenance Schedule

Maintenance Task	Year 1	Year 2	Year 3	Year 4	Year 5
Target invasive non-native species/weed abatement	Bimonthly[1]	Quarterly	Quarterly	Quarterly	Quarterly
Erosion control	As-needed	As-needed	As-needed	As-needed	As-needed
General site maintenance	Bimonthly[1]	Quarterly	Quarterly	Quarterly	Quarterly

1 Bimonthly = every 2 months.

Maintenance activities will begin with site preparation actions and will continue throughout the long-term maintenance and monitoring period, concluding once success criteria have been met. Contractor maintenance activities will be conducted every other month during Year 1, and quarterly during Years 2 through 5.

All maintenance performed throughout the year will comply with applicable wildlife regulations, such as the Migratory Bird Treaty Act. If the Habitat Restoration Specialist determines that certain maintenance activities cannot be performed in compliance with environmental regulations, work will be postponed until conditions allow, or until the restrictive period has ended for the season.

6.2 Non-Native Plant Species Control

An integrated and adaptive vegetation management approach will be implemented to effectively control non-native plant species throughout mitigation sites. The approach will use a combination of techniques, including hand-removal, mechanical methods, and chemical treatment, to effectively control target weed species. For long-

term management, an adaptive, or flexible and iterative, approach includes Restoration Contractor observation and recommendations by the Habitat Restoration Specialist to promote success of the treatment over time and drive management decisions.

Although perennial invasive species and naturalized ornamental trees (including eucalyptus) will be cut to grade during initial non-native species control efforts, stump and root sprouting is likely until a complete kill is obtained from these resilient species. Follow-up herbicide treatment will be conducted regularly with resprouting and before significant biomass is generated that allows treated species to regain strength and vigor.

All species listed by the California Invasive Plant Council (Cal-IPC) in the California Invasive Plant Inventory (Cal-IPC 2006, 2007) throughout the southwestern region of the California Floristic Province as a moderate to high threat of ecological impact to wetland/riparian and upland vegetation communities will be subject to control for the duration of each mitigation program activity. Additional species added to the target list include species listed by Cal-IPC as a limited threat to wetland/riparian vegetation communities but considered locally persistent and may be problematic within the site (Table 8). Some common perennial and annual invasive non-native species currently present on the mitigation sites, and expected to require focused control efforts, include tree tobacco (*Nicotiana glauca*), red gum (*Eucalyptus camaldulensis*), tree of heaven (*Ailanthus altissima*), Himalayan blackberry (*Rubus armeniacus*), castor bean (*Ricinus communis*), and invasive annual forbs and grasses.

To adapt to changing conditions, the Habitat Restoration Specialist may recommend additional non-native species for treatment, including species that are not listed by Cal-IPC as invasive but that locally reoccur and inhibit development of native vegetation (Table 8).

Table 8. Target Non-Native Invasive Plant Species List

Scientific Name	Common Name	Cal-IPC Rating
Annual Non-Native Invasive Species		
Avena barbata	Slender oat	Moderate
Avena fatua	Wild oat	Moderate
Brassica nigra	Black mustard	Moderate
Brassica tournefortii	Asian mustard	High
Bromus diandrus	Ripgut brome	Moderate
Bromus madritensis ssp. *rubens*	Red brome	High
Bromus tectorum	Cheatgrass	High
Carduus pycnocephalus	Italian plumeless thistle	Moderate
Centaurea melitensis	Maltese star-thistle	Moderate
Centaurea solstitialis	Yellow star-thistle	High
Cirsium vulgare	Bull thistle	Moderate
Glebionis coronaria	Crowndaisy	Moderate
Dittrichia graveolens	Stinkwort	Moderate
Hirschfeldia incana	Shortpod mustard	Moderate
Hordeum marinum	Seaside barley	Moderate
Festuca perennis	Italian ryegrass	Moderate
Salsola tragus	Prickly Russian thistle	Limited
Silybum marianum	Blessed milkthistle	Limited

Table 8. Target Non-Native Invasive Plant Species List

Scientific Name	Common Name	Cal-IPC Rating
Sisymbrium irio	London rocket	Moderate
Stipa miliacea	Smilograss	Limited
Perennial Non-Native Invasive Species		
Acacia sp.	Acacia	Limited
Ailanthus altissima	Tree of heaven	Moderate
Arundo donax	Giant reed	High
Atriplex semibaccata	Australian saltbush	Moderate
Carpobrotus edulis	Hottentot fig/common iceplant	High
Conium maculatum	Poison hemlock	Moderate
Cortaderia selloana/jubata	Pampas grass	High
Cynara cardunculus	Artichoke thistle/cardoon	Moderate
Cynodon dactylon	Bermudagrass	Moderate
Eucalyptus sp.	Gum tree	Moderate/Limited
Foeniculum vulgare	Sweet fennel	High
Lepidium latifolium	Broadleaved pepperweed	High
Hedera helix, H. canariensis	English ivy/Algerian ivy	High
Myoporum laetum	Ngaio tree/myoporum	Moderate
Nicotiana glauca	Tree tobacco	Moderate
Pennisetum setaceum	Crimson fountaingrass	Moderate
Ricinus communis	Castor bean	Limited
Rubus armeniacus	Himalayan Blackberry	High
Schinus terebinthifolius	Brazilian peppertree	Limited
Schinus molle	Peruvian peppertree	Limited
Spartium junceum	Spanish Broom	High
Tamarix sp.	Salt cedar	High
Washingtonia sp.	Fan palm	Moderate

Sources: Cal-IPC 2006, 2007
Cal-IPC = California Invasive Plant Council

6.2.1 Non-Native Plant Species Control Methods

The control method(s) used will vary depending on several variables, including the species targeted for control, the overall area to be treated/removed, the time of year, and the proximity to sensitive resources. The proposed integrated and adaptive invasive plant management approach will promote successful treatment and long-term control by using a combination of techniques, including hand-removal, mechanical methods, and chemical treatment, to effectively control and remove target non-native invasive species. The Restoration Contractor, through consultation with the Habitat Restoration Specialist, will provide properly timed treatment to reduce cover of well-established non-native invasive plants, eliminate reinfestation, and adequately deplete the existing non-native invasive seedbank.

Hand Removal

Hand-removal/physical extraction of target invasive plants will be used around dense groupings of native species or clusters to be protected in place, amid standing water, or where other control methods are impractical or would cause damage to the native species. Special care will be taken not to trample adjacent native vegetation while hand-removing non-native invasive plant species. The Restoration Contractor is required to discern between invasive and existing native vegetation to prevent unauthorized impacts to native habitat. The Habitat Restoration Specialist will provide assistance on plant species identification.

Physical removal of whole plants, including the roots, is the best method for early germinators and species with a root ball that is underdeveloped and can be readily pulled out by the aboveground portions of the plant with a limited amount of soil disturbance. Consideration will be given to minimizing soil disturbance, which may stimulate germination of existing non-native and invasive seed lying dormant in the soil.

Annual non-native invasive plants would be targeted for hand-removal and will be physically removed before seed-set (spring–summer). Maintenance efforts will be timed with invasive plant life cycles to effectively control prior to seed-set. If hand removal is possible only after seed-set, then seed heads will be cut off, bagged, and removed from the site prior to biomass removal.

Mechanical Methods

Mechanical control includes removing low-lying herbaceous non-native vegetation with string-trimmers and cutting large shrubs and trees to grade with chainsaws or handheld loppers.

Use of string-trimming is effective for biomass removal in large areas devoid of, or significantly low in, native cover. Use of string trimming is not anticipated for this mitigation program, and will only occur if pre-approved by the Habitat Restoration Specialist.

Cutting with chainsaws or loppers is intended for initial removal of large woody biomass and is usually used in conjunction with cut-stump herbicide application to prevent resprout. Cut biomass will require removal and disposal in an approved disposal facility.

Chemical Treatment

Chemical (or herbicide) treatment will be used for highly invasive plant species with root systems that make physical removal impractical. Herbicide treatment is also beneficial because it does not turn up surface soils, exposing buried seed. The Habitat Restoration Specialist will coordinate with the Restoration Contractor/pesticide applicator to identify specific locations where herbicides may be used. Herbicide treatment may follow hand- and mechanical removal activities that are conducted to increase the effectiveness of subsequent chemical treatment. Herbicide treatment for this mitigation program will be limited to spot treatment with close-radius spot-sprayers or wicking devices to prevent damage to adjacent native vegetation or overspray into open water. Broadcast-spray rigs will not be used.

Follow-up applications may be necessary for highly aggressive species that require multiple herbicide applications. Follow-up herbicide treatment will be conducted when the recovering non-native invasive plants are still relatively small, before it has time to regain strength and vigor.

Herbicide treatments will follow all federal and state laws and regulations, label directions, and safety precautions. Herbicide application will only be performed under the direction of a state-certified Qualified Pesticide Applicator and will comply with state and local regulations. The Qualified Pesticide Applicator will be licensed with a Pest Control Business License issued by the State of California Department of Pesticide Regulation and registered with the San Diego County Agricultural Commissioner.

6.3 Pest Management

Control of vertebrate pests is not anticipated during the 5-year maintenance and monitoring period, nor are insect pests anticipated to cause enough damage to warrant control. Non-native wildlife species are considered invasive when they threaten native biodiversity by disrupting or altering native ecological communities and have negative consequences for native species and habitats. Invasive non-native wildlife species may outcompete, prey upon, or disturb the habitat of native wildlife and may spread diseases.

If any plant diseases or pests become significant enough to warrant control, the Restoration Contractor will consult with a licensed pest control adviser for specific control measures, which will be conducted in coordination with the Habitat Restoration Specialist and the City, and will follow all applicable laws, regulations, label directions, and safety precautions. Additionally, excessive loss of plant material as a result of herbivory will be brought to the attention of the Habitat Restoration Specialist and the City to determine appropriate control measures.

6.4 Trash Removal

During each scheduled maintenance visit, the Restoration Contractor will remove any trash and debris that has accumulated in the mitigation sites. Removal will be required for the duration of the 5-year maintenance and monitoring period. Natural debris, such as leaf litter and woody material, will be left on site to decompose. Downed logs and leaf litter provide valuable microhabitats for invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of deadwood and leaf litter is essential for the replenishment of soil nutrients and minerals. Any thatch that has accumulated due to weed control efforts will be removed from the site the same day it is cut and disposed of in a legal manner.

6.5 General Site Maintenance

Pruning or clearing of native vegetation will generally not be allowed within the mitigation sites, except as directed by the Habitat Restoration Specialist. Dead biomass and plant litter will not be removed and will be left in place. Organic biomass and leaf litter provide valuable microhabitats for benthic and terrestrial invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of plant material is essential for the replenishment of soil nutrients and minerals.

Perimeter fencing, staking, and signage will be repaired as needed to remain functional in all installed locations. The contractor will confer with the Habitat Restoration Specialist if it appears that changes in the specified location, materials, or methods of fencing need to be altered to meet their intent and to provide appropriate site delineation and protection. All temporary orange construction fencing will be removed after completion of the first growing season. All temporary rope and post fencing and perimeter markers will be completely removed from the site upon successful completion of the mitigation program. Signage mounted to posts will be remain in place.

BMPs will be maintained and replaced to remain functional until they are no longer needed due to sufficient establishment of native vegetation and no indications of site erosion. Upon successful completion of the mitigation program, all remaining non-biodegradable BMPs will be completely removed.

6.6 Adaptive Management

Should any revegetation area not meet interim performance standards or final success criteria at any point during the long-term maintenance and monitoring program, contingency measures may be implemented at the discretion of the Habitat Restoration Specialist and in consultation with the City. Remedial measures may include container planting, supplemental seeding, additional erosion control BMPs, increased weed control frequency, and supplemental watering, among other things.

If unforeseen changes in site conditions or other components of the program cause final success criteria to not be met, the Habitat Restoration Specialist will prepare an analysis of the cause(s) of failure(s) and propose remedial actions to correct the problem(s) in coordination with the City. If the minimum mitigation acreage has not met the performance criteria, the City maintenance and monitoring obligations will continue until final program approval/confirmation is obtained.

7 Monitoring Plan

The following monitoring plan will be implemented as part of the long-term biological monitoring program, which is scheduled to commence immediately following successful installation. The Habitat Restoration Specialist or their designee will make regular site visits during program implementation. The Habitat Restoration Specialist will review activities for conformance to this HMMP and environmental permit conditions. The results of each site visit will be communicated to the City. Photo-documentation of site conditions will be conducted, as needed.

7.1 Monitoring Methods

Monitoring of the restoration sites will consist of qualitative and quantitative field monitoring visits conducted by the Habitat Restoration Specialist or their designee to assess the performance criteria as outlined in Section 7.2. Monitoring will occur quarterly throughout the duration of the 5-year program. The Habitat Restoration Specialist will provide a complete summary of the results of monitoring activities completed in the prior year in an annual monitoring report.

Following each site visit, the Habitat Restoration Specialist will generate a brief site observation report, detailing the condition of the sites and any maintenance and/or remedial actions required to meet annual performance goals. Copies of the site observation report will be provided to the City for distribution to the Restoration Contractor.

7.1.1 Qualitative Monitoring

Qualitative monitoring will be conducted monthly during the first 3 months of the program, then on a quarterly basis thereafter, throughout the 5-year program. Qualitative monitoring of the restoration sites will consist of general site assessments, and evaluation of seedling recruitment, soil moisture content, presence/absence of plant pests or diseases, erosion issues, presence of non-native or invasive plant species, trash or debris accumulation, and wildlife use. All qualitative monitoring visits to the restoration sites will be documented with a site observation report that includes photos, which will be forwarded to the Restoration Contractor and the City. Any mitigation program deficiencies will be noted in the site observation report, with accompanying recommendations for maintenance or remedial actions. All significant observations will be included in the annual monitoring report.

7.1.2 Quantitative Monitoring

Quantitative monitoring will be used to assess vegetation establishment with the restoration sites. Quantitative monitoring will determine total native species cover and composition, and total non-native species cover and composition. Quantitative monitoring will be conducted using visual cover estimates to assess mitigation program status compared to the annual performance standards and to track progress toward program completion. Permanent photo points will be established within each restoration site so vegetation development and cover can be visually documented during the 5-year maintenance and monitoring period. The quantitative monitoring visit will be conducted annually beginning in Year 1 and extending through Year 5 of the long-term maintenance and monitoring period.

7.2 Performance Standards

Ecological performance standards will be used to help assess the annual progress of the mitigation sites. The standards are regarded as interim mitigation program objectives designed to achieve the final program success criteria and established mitigation goals. Fulfillment of these standards will indicate that the mitigation sites are progressing toward the vegetation communities that constitute the long-term goals of the program. If mitigation efforts fail to meet the performance standards listed in any one year, the Habitat Restoration Specialist will recommend implementation of remedial actions (e.g., supplemental seeding, changes to maintenance practices) that will enhance the vegetation in the mitigation sites to a level in conformance with these standards.

At the end of the 120-day plant establishment period, seeding within the establishment and re-establishment mitigation sites will show signs of germination and healthy plant growth. For all mitigation sites, non-native species will make up less than 10% of the entire cover, and California Invasive Plant Council rated high or moderate invasive perennial species (see Table 8) will be fully controlled.

Performance standards for native cover for the establishment and re-establishment areas were developed based on observations of existing vegetation within the sites. At the completion of the 5-year maintenance and monitoring period, native vegetative cover must meet or exceed the final success criteria shown in Table 9. An on-site reference site will be established by the Habitat Restoration Specialist within an existing non-wetland waters location containing mature coastal sage scrub vegetation. Visual observations within the reference site will be used to determine the existing percent native cover and species diversity within the existing non-wetland waters area. This information will be used as the base data reference for comparison to the results achieved within the mitigation sites. The goal of the mitigation program is to reach 70% native cover by the end of the 5-year maintenance and monitoring period.

The intended vegetative cover performance standards are as shown in Table 9.

Table 9. Vegetative Cover Performance Standards

Standard	Year 1	Year 2	Year 3	Year 4	Year 5
Native species absolute cover	20%	30%	40%	45%	50%
Non-native species cover	<20%	<15%	<15%	<10%	<10%
Cal-IPC rated high or moderate perennial species	10%	5%	5%	0%	0%

Notes: Cal-IPC = California Invasive Plant Council
Performance standards apply to both permanent and temporary impact mitigation sites and will be based on visual cover estimates.

Additional Vegetative Success Criteria Required

- Evidence of natural recruitment of multiple coastal sage scrub species present by the end of Year 5.
- Healthy growth of the native species and evidence of natural recruitment of native species.

Functional Success Criteria Required

- Evidence of topographic complexity and drainage flow from natural fluvial processes.

7.3 Reporting

Annual monitoring reports will be submitted to the permitting agencies and the City during the 5-year maintenance and monitoring period. Annual reports outlining the results of the vegetation community monitoring will be submitted annually within 1 month of the installation completion date, beginning at the end of Year 1 and continuing through successful completion of the mitigation program. The monitoring reports will describe the existing conditions within the mitigation sites derived from field observations. The reports will provide a comparison of annual performance standards with field conditions, identify successes and all shortcomings of the program, and recommend remedial measures necessary for the successful completion of the mitigation program. Each yearly report will provide a summary of the mitigation sites measured against the success criteria. Annual reports also will include the following:

- A list of the names, titles, and companies who prepared the annual report and participated in the monitoring activities
- Reference to resource agency permits, special conditions, and subsequent letters of modification
- Details of invasive plant control, remedial seeding, and other measures required from the maintenance contractor
- Photographs from established photo points depicting site progress
- Maps identifying monitoring sites, planting zones, and weed removal sites, as appropriate
- Qualitative assessments for all mitigation sites in Years 1 through 5
- A list of wildlife species observed within or adjacent to the mitigation sites during the monitoring surveys, including sensitive species and/or listed species observed

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8 Completion of Mitigation Program

Upon completion of the maintenance and monitoring period, if the target performance standards have been achieved, notification of completion will be included within the final annual report submitted to the City. The City will notify the applicable regulatory agencies upon submitting the final annual report. Following receipt of the notification of completion, the applicable regulatory agencies may visit the sites to confirm completion of the mitigation effort and to verify compliance requirements.

8.1 Agency Notification at End of Monitoring Period

When the mitigation sites achieve the final success criteria and successfully complete the 5-year maintenance and monitoring requirements, they will be eligible for release from the permit conditions. If mitigation sites are installed on different timelines (i.e., phases), then they may be released independently. Upon successful completion of the mitigation program, as confirmed in the annual monitoring report, the City will notify the permitting agencies that the final success criteria have been met and request final acceptance and sign-off. Early release may be possible if the performance standards are met early and the permitting agencies agree with the level of establishment achieved. Removal of the temporary fencing and signage will occur prior to final sign-off.

8.2 Regulatory Agency Confirmation

Following receipt of the notification of completion of the mitigation sites, the permitting agencies may request a site visit to confirm completion of the mitigation program and to verify compliance with permit conditions. Monitoring and maintenance are anticipated for 5 years or until success criteria have been met and the resource agencies have provided written release via e-mail or letter confirming that the mitigation sites may be transferred to the long-term manager and that all other permit special conditions are in compliance.

8.3 Long-Term Management

Following successful completion of the mitigation program described in this HMMP, release from mitigation requirements described in the regulatory permits, and completion of the mitigation requirements, the open space areas will continue to be managed in perpetuity by The Nature Collective, which will serve as the Preserve Manager. Perpetual management described herein serves as a continuation of a partnership between the City and The Nature Collective.

Long-term management of the preserved open space areas will be consistent with the permitting agency and City requirements. The open space areas that contain the mitigation sites will be preserved in perpetuity, intended to sustain and improve the habitat quality over time.

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9 References

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SOURCE: USGS 7.5-Minute Series Encinitas Quadrangle
Township 13S / Range 4W / Section 26

DUDEK

0 500 1,000 Feet

FIGURE 1

Project Location

Non-Wetland Water Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project

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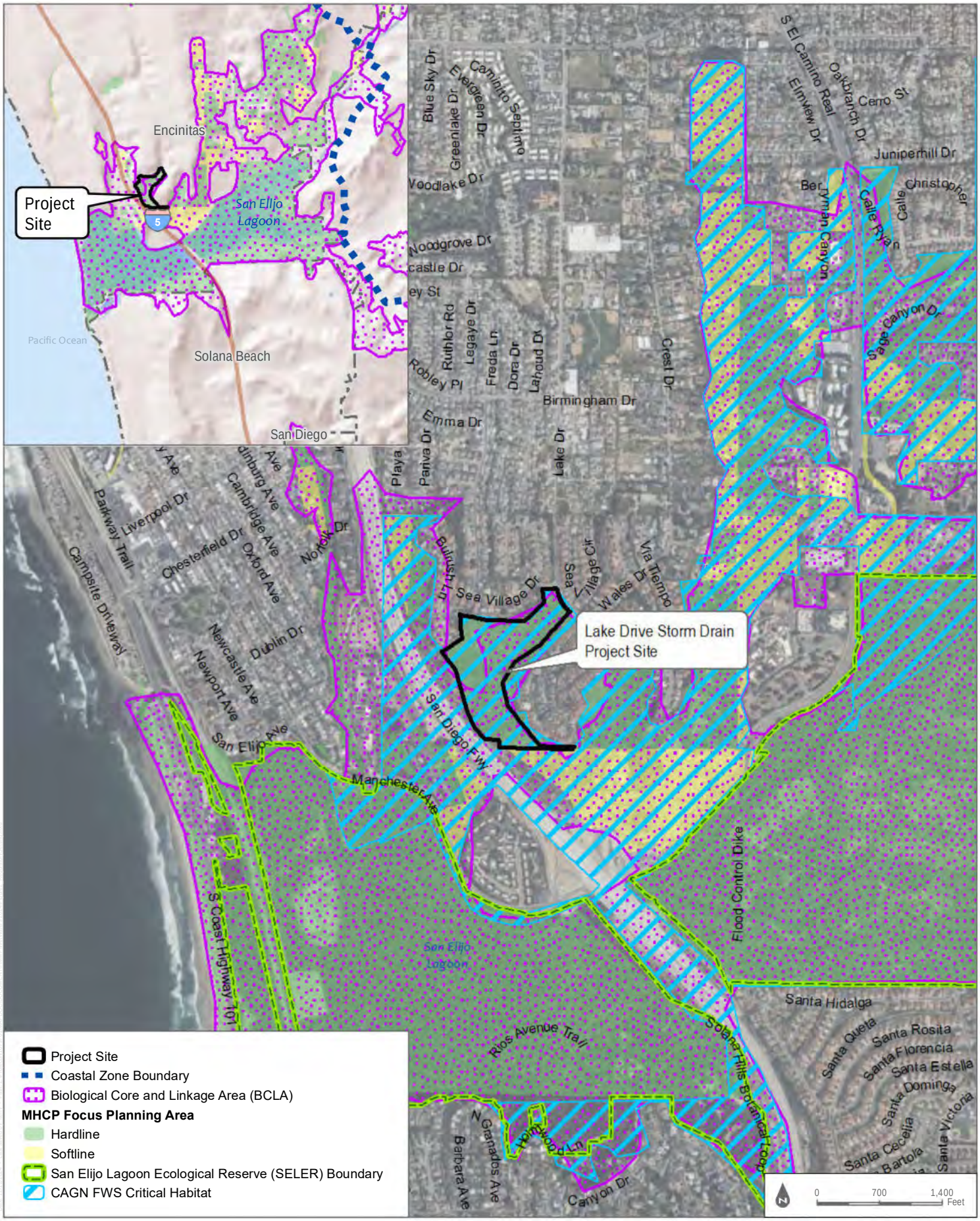

SOURCE: ESRI IMAGERY SERVICE 2023; USFWS 2022

FIGURE 2

Regulatory Setting

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SOURCE: ESRI 2023; NV5 2024

DUDEK

0 80 160 Feet

FIGURE 3

Topography and Land Use

Non-Wetland Water Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project

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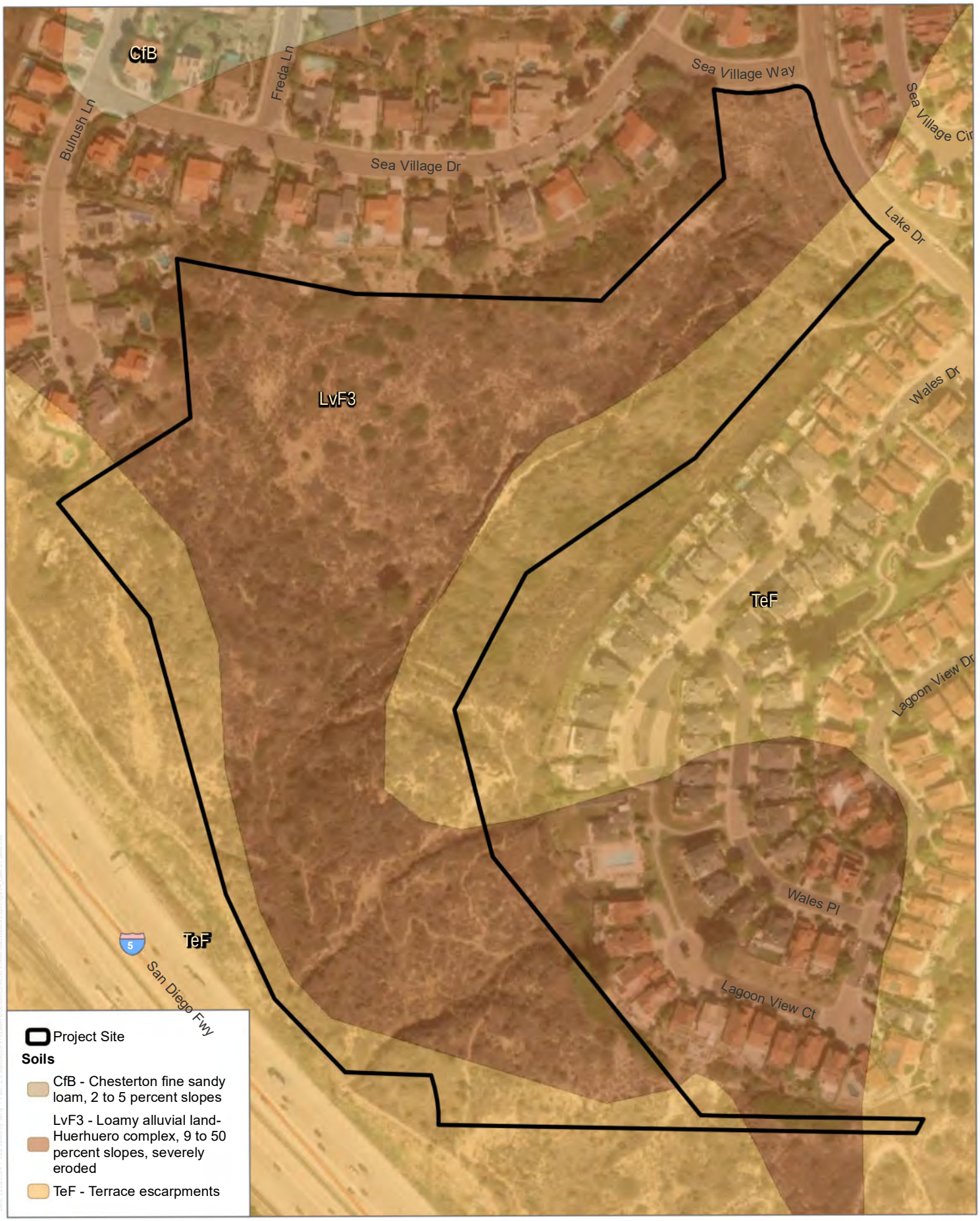

SOURCE: ESRI 2023; USDA 2023

DUDEK

0 105 210 Feet

FIGURE 4

Lake Drive Storm Drain Soils

Non-Wetland Water Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project

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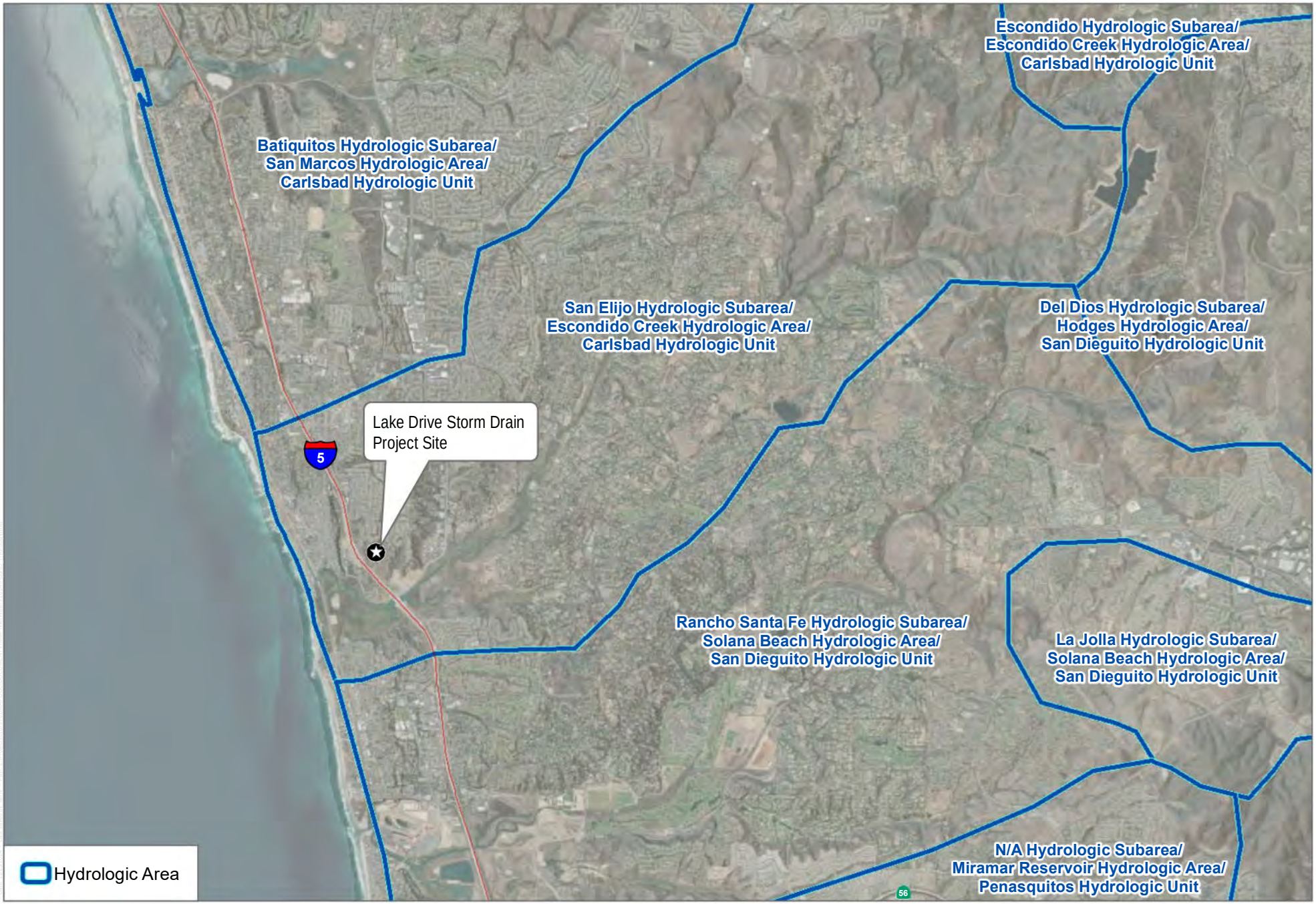

SOURCE: Esri World Imagery 2023; DWR 2024

DUDEK

0 3,550 7,100 Feet

FIGURE 5

Hydrologic Setting

Non-Wetland Water Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project

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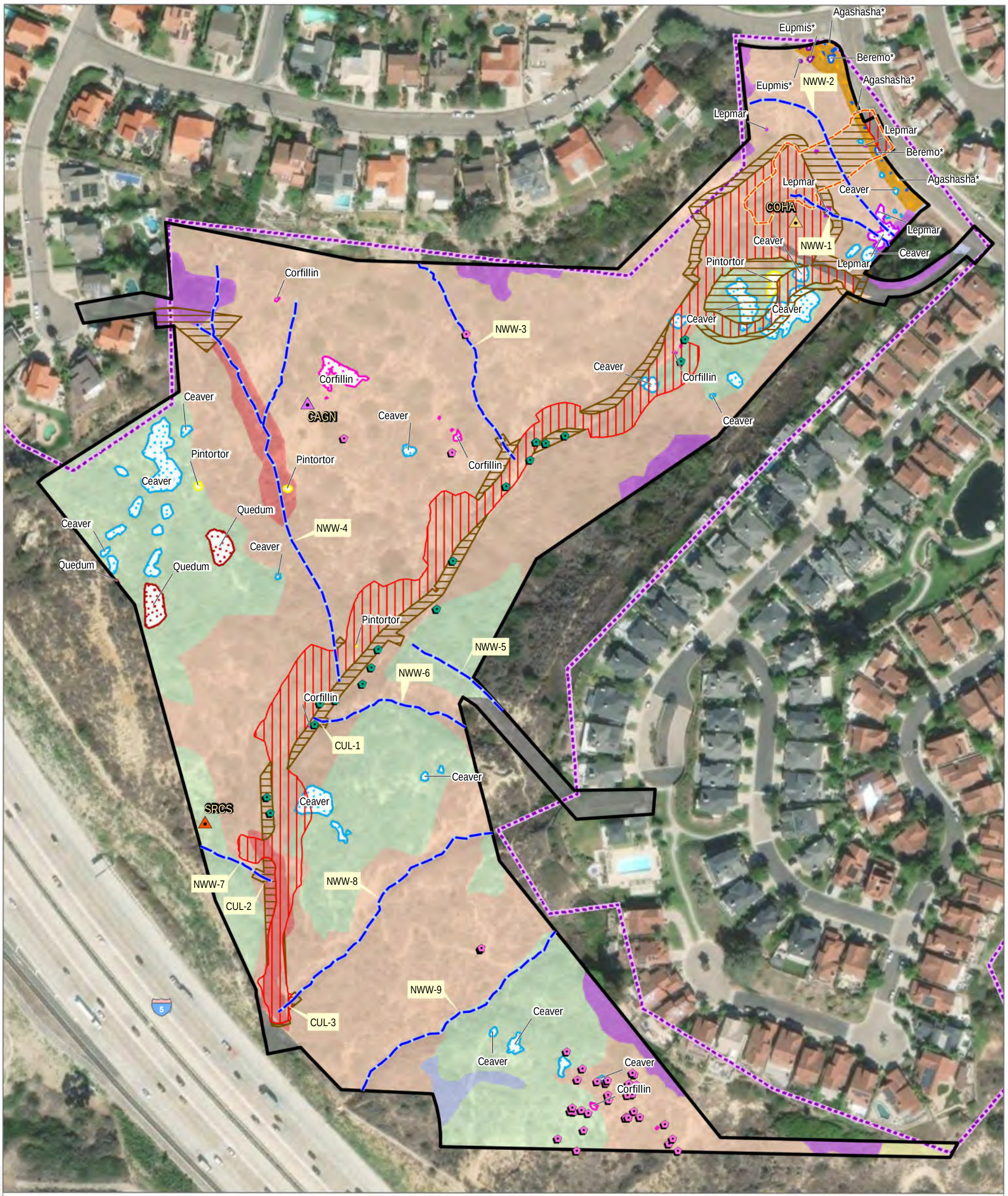

- Project Site
- 2023 Emergency Work Area
- CAGN USFWS Critical Habitat

Impact Type

- Permanent
- Temporary

Vegetation Communities/Land Covers

- CSS-r, Restored/landscaped Diegan Coastal Sage Scrub
- CSSB, Diegan Coastal Sage Scrub: Baccharis-dominated
- CSSC, Diegan Coastal Sage Scrub: Coastal form
- DEV, Urban/Developed
- DH, Disturbed Habitat
- EUC, Eucalyptus Woodland
- NNG, Non-Native Grassland
- SMC, Southern Maritime Chaparral

Jurisdictional Waters

- RWQCB/CDFW

Plants

- Agashasha (Agave shawii var. shawii - Shaw's agave)*
- Beremo (Bergerocactus emoryi - golden-spined cereus)*
- Ceaver (Ceanothus verrucosus - wart-stemmed ceanothus)
- Corfillin (Corethrogyne filaginifolia var. linifolia - Del Mar sand aster)
- Eupmis (Euphorbia misera - cliff spurge)*
- Lepmar (Leptosyne maritima - sea dahlia)
- Pintortor (Pinus torreyana ssp. torreyana - Torrey pine)
- Quedum (Quercus dumosa - Nuttall's scrub oak)
- Fervir (Ferocactus viridescens - San Diego barrel cactus)
- Geotub (Geothallus tuberosus - Campbell's liverwort)

Wildlife

- CAGN, coastal California gnatcatcher (*Polioptila californica californica*)
- COHA, Cooper's hawk (*Accipiter cooperii*)
- SRCS, Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)

Notes:

1. NWW = non-wetland water
2. CUL = culvert
3. * planted

SOURCE: ESRI 2023; NV5 2024

DUDEK

0 80 160 Feet

FIGURE 6

Lake Drive Storm Drain Impacts to Biological Resources

Non-Wetland Water Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project

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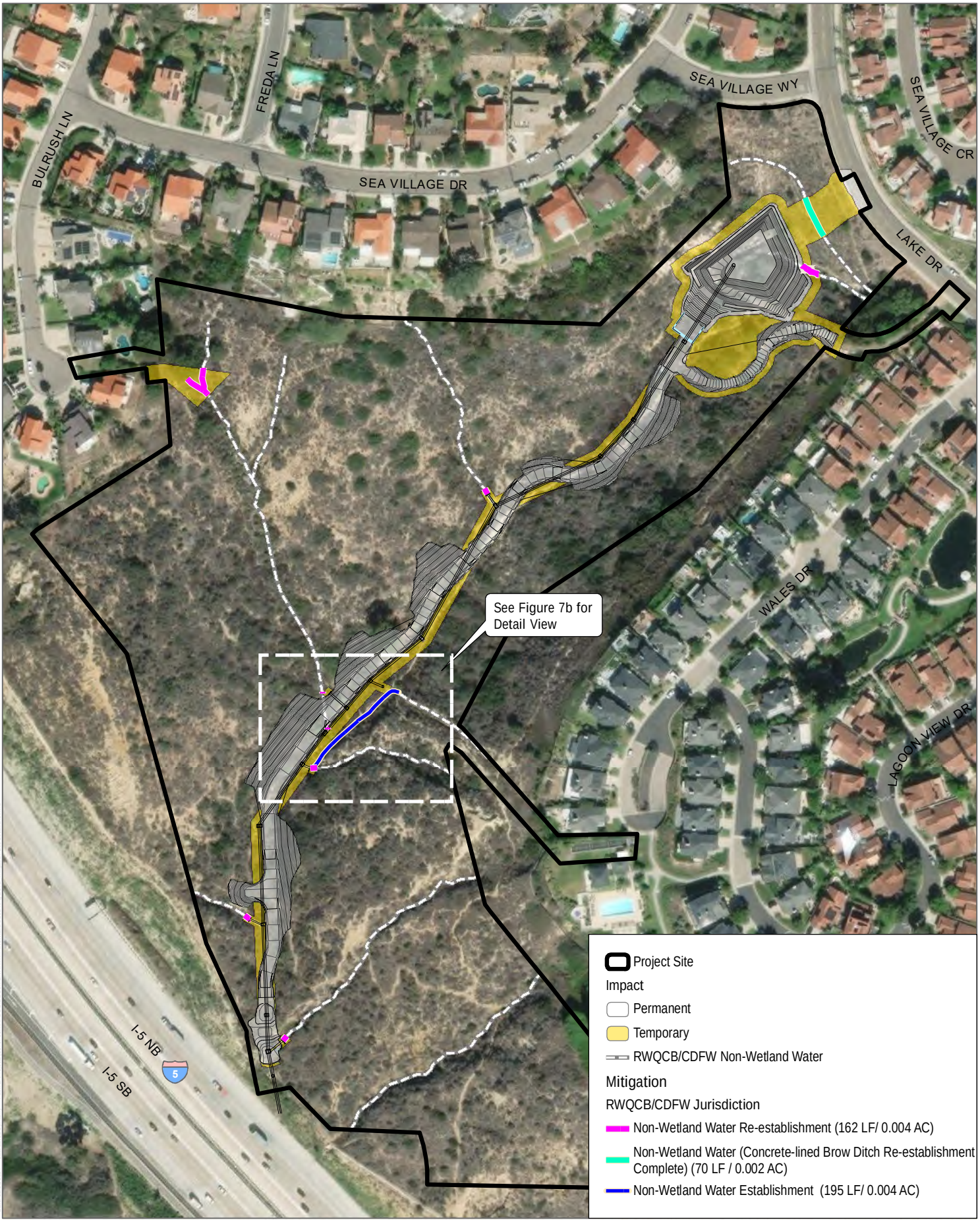

SOURCE: SanGIS 2023

DUDEK

0 105 210 Feet

FIGURE 7a

Mitigation Site Location

Non-Wetland Waters Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project

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SOURCE: ESRI IMAGERY 2023; DEVELOPMENT-NV5 2024

DUDEK

0 15 30 Feet

FIGURE 7b

Mitigation Site Location Detail View

Non-Wetland Water Habitat Mitigation and Monitoring Plan for the Lake Drive Storm Drain Project

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Appendix J

Manchester Avenue Emergency Sediment Removal
Post-Construction Report

February 16, 2021

Max Roseman
Project Manager
Department of the Army
Los Angeles District, U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008

Subject: RGP 63 City of Encinitas San Elijo Lagoon Sediment Removal Project (SPL-2020-00709-MER)

This memorandum addresses conditions set forth in the Regional General Permit 63 Verification letter, issued by the U.S. Army Corps of Engineers on December 21, 2020. Enclosed you will find a project description, project impact analysis, biological assessment and proposed mitigation program associated with the General Condition 26 and Special Conditions set forth for the Emergency San Elijo Lagoon Sediment Removal Project.

If you have any questions regarding this letter report, please contact me, Jayme Timberlake at 760-650-5565 or jtimberlake@encinitasca.gov.

Sincerely,

Jayme Timberlake *(Applicant)*

City of Encinitas

Introduction

This post-project implementation memorandum report describes observations made during the implementation of emergency sediment removal work, assesses impacts to aquatic resources associated with the emergency work, and describes proposed restoration and mitigation associated with impacts. Additionally, a Biological Assessment is included in this memorandum. The details described herein intend to meet the conditions of the emergency permits sought and acquired to implement the project.

Purpose and Project Overview

On December 16th, the City of Encinitas (City) issued an Emergency Declaration for areas downstream of the Manchester Ave. culvert (Figure 1 and Figure 2), where accumulated sediment at the culvert outfall posed an imminent threat to public health and safety. To remove the sediment and facilitate flows, it was determined that the City would need to excavate downstream areas within San Elijo Lagoon, beyond the City maintenance right of way. Emergency permits were sought from the applicable regulatory and resource agencies within overlapping jurisdictions in this area and are listed below in Table 1. The emergency work occurred downstream of the culvert along Manchester, south of 2959 Manchester Ave. in Encinitas, California.

Background Information

On November 7, 2020, the City of Encinitas responded to a flooding and sedimentation emergency that occurred on Manchester Ave. and in upstream areas in the adjacent development known as Ocean Cove. Upon investigation, it was determined that the overflow of sediment was caused by an accumulation of sediment downstream of the double box culvert that crosses beneath Manchester Ave. The build-up of sediment hindered the stormwater system to function as designed, and back-up of sediment and surface waters spilled throughout areas of the Cardiff Cove development and on Manchester Ave.

Efforts were immediately made to remove the sediment from Cardiff Cove and Manchester Ave. and from within the permitted maintenance right of way within San Elijo Lagoon, downstream of the culvert. However, the volume of accumulated sediment significantly diminished the ability of the culvert to safely continue to convey stormwater in the event of any rain event (minor or major), which in turn would cause overflow of the upstream storm drain manholes which are located within the Cardiff Cove development, just north of Manchester Ave. Extensive and further damage to adjacent infrastructure and properties was likely to occur without removal of the sediment.

Regulatory Context

Conditions of the emergency permits require documentation of project activities, an impact assessment, a biological assessment, and a mitigation plan. The details described herein substantially meet Special Condition 4, 5 and 8 of the U.S. Army Corps of Engineers RGP 63 Permit (SPL-2020-00709-MER) and the mitigation requirements described in the Regional Water Quality Control Board (R9-2020-0270:870991:amon) RGP 63 Permit, the Emergency Streambed Alteration Agreement (SAA), and the Emergency Waiver issued by the California Coastal Commission. The emergency permits acquired prior to implementing the emergency sediment removal activities are listed in Table 1.

Table 1. Emergency Permits

Permitting Agency	Number and Type of Permit	Expiration	Conditions
U.S. Army Corps of Engineers	SPL-2020-00709-MER RGP 63	1/04/2021	- Biological Assessment - Mitigate project activities through onsite monitoring
U.S. Fish and Wildlife Service	Informal discussion*	N/A	- N/A
Regional Water Quality Control Board, Region 9	R9-2020-0270:870991:amon RGP 63	1/04/2022	- Mitigation 2:1 - 1:1 being establishment, re-establishment, and/or rehabilitation
California Coastal Commission	Emergency CDP Waiver	1/04/2022	- Monitoring for one-year - Restoration onsite if riparian species do not grow back in.
California Department of Fish and Wildlife	Lake and Streambed Alteration Agreement, Emergency	2/04/2021	- N/A

Pre-Project/Existing Conditions

Following the flooding and sediment overflow observed in the immediate project area, it was evident that accumulated sediment at the Manchester Ave. outfall had diminished the ability of the culvert to safely convey stormwater to San Elijo Lagoon. The accumulated sediment downstream of the culvert extended approximately 100 feet south from the culvert, covering or partially burying the native and non-native vegetation that were present in the existing, degraded drainage channel. The following Sections describe the land cover types, vegetation communities, and general conditions that were present prior to the observed sediment accumulation in San Elijo Lagoon.

Biological Conditions

Table 2 specifies the vegetation communities surveyed in the study area surrounding and including the sediment deposition area. Vegetation types within the sediment deposition area include 0.11 acres (4,928 square feet) of primarily disturbed coastal freshwater marsh and disturbed southern riparian woodland, with some non-native tree and shrub species including Brazilian pepper tree (*Schinus terebinthifolius*) and myoporum (*Myoporum laetum*).

Table 2. Vegetation Community and Land Cover Types in Study Area

Vegetation or Land Cover Type	Acreage	Percent Disturbed/Non-native (%)
Diegan Coastal Sage Scrub (Disturbed)	0.13	20.0
Southern Coastal Salt Marsh (Disturbed)	0.56	30.0
Coastal and Valley Freshwater Marsh (Disturbed)	0.80	40.6
Southern Riparian Woodland (Disturbed)	1.72	25.0
Totals	**3.21**	---

Project Construction

Project Dates

City of Encinitas ratified an Emergency Declaration for this work on December 16, 2020 and work commenced shortly thereafter. Project site preparation and sediment removal began on December 21, 2020 and was completed on December 23, 2020. The City of Encinitas monitored the site following sediment removal activities, intending to remove more sediment within the time limit of the emergency permit (i.e., 14 days from issuance). However, sediment removal efforts proved beneficial and stormwater flows appeared normal after rain events in early January 2021. Therefore, the City did not return to the project site to remove additional sediment after December 23, 2020.

Project Activities

On December 21, 2020, site preparations began in the project area where accumulated sediment caused limited stormwater conveyance into San Elijo Lagoon. Site preparations included flushing the excavation work limits of any wildlife species, flagging non-native and native plant species that needed to be trimmed/removed to facilitate the sediment removal, and the installation of silt fencing to serve as a barrier between the excavation work limits and the vegetation communities downstream from the project area. See Figure 2 and Figure 4 for details. A fulltime biologist was onsite throughout the site preparation and the project's activities to flush wildlife species from the project area daily and to ensure no impacts occurred outside of the designated work limits. The biologists onsite included Jayme Timberlake, City of Encinitas, and Bradley Nussbaum, Nature Collective. The biologists onsite included Jayme Timberlake, City of Encinitas, and Bradley Nussbaum, Nature Collective.

A City-owned access and staging area on the south side of Manchester Ave., located on a developed/bare ground patch outside the San Elijo Lagoon boundaries (Figure 2 and Figure 4), was utilized to access the work area and to stockpile the removed sediment. Workers removed any vegetation or trash from the piled beach-compatible sediment and then exported the suitable beach sand into two rotating dump trucks (Table 3, Site Photos). Workers exported suitable beach sand to Moonlight State Beach to fill-in recently eroded areas on the back beach. A second and separate pile of removed sediment, containing removed brush and/or clay soil (and therefore not suitable for the beach) was stockpiled and exported to an approved dump site. Equipment for this work included a Caterpillar D-2 (Mini Dozer), Caterpillar E303.5 (Mini Excavator), Caterpillar 246C (Skid-Steer), Caterpillar 310 (Mini Excavator), two Super Ten Dump Trucks. This emergency work removed an estimated 350 cubic yards of material, comprised of approximately 210 cubic yards of compatible beach sand and 140 cubic yards of mixed sediment.

Table 3. Site Photos

	
A. 12/21/20 Pre-project sedimentation conditions, looking south at San Elijo Lagoon.	B. 12/23/20 Post-project conveyance channel reinstalled, looking south at San Elijo Lagoon
	
C. 12/21/20 Pre-project sedimentation conditions, looking north at Manchester Ave	D. 12/23/20 Post-project conveyance channel reinstalled, looking north at Manchester Ave

Following the completion of the sediment removal project, all disturbed areas within the authorized work area in the San Elijo Lagoon were restored to pre-project alignments and elevation contours that facilitated positive drainage from the outlet to the Lagoon. As-built project elevations were shot and, though subtle, indicate a fall toward the center of San Elijo Lagoon. The Signed Certification of Compliance in Appendix A certifies that the project was at all times in compliance with the RGP 63 permit conditions and that the City will be partaking in the permittee responsible mitigation, as discussed in the Mitigation Program Section below.

A biologist remained onsite throughout all project activities and flushed the site daily prior to any encroachment. The biologist(s) verified that no take of threated or endangered species, in particular the Ridgway's rail or the California gnatcatcher, occurred because of the project activities. The project site was delineated with silt fence prior to any sediment removal activities. All activities remained entirely inside the delineated footprint of the excavation work limits. Impacts occurred only to Coastal and Valley Freshwater Marsh and Southern Riparian Woodland vegetation types (Table 2 and Table 3); no critical habitat was modified by the project activities. For further discussion of Critical Habitat and USFWS listed species, please see the Biological Assessment Section below.

Additionally, no cultural resources (either human remains, archaeological deposits, or any other historic property) were encountered during the project activities.

In addition to removing sediment to facilitate drainage to San Elijo Lagoon, the City increased the maintenance frequency of all upstream City-maintained sediment catch basins connected to the Manchester Ave. culvert. Since the initial sediment removal activities in December, the City has assumed weekly site checks and as-needed basin and storm drain maintenance to prevent additional sediment deposition in San Elijo Lagoon.

Post Construction Analysis

Temporary Impacts Assessment

The temporary impacts to jurisdictional resources caused by the sediment deposition and removal project are identified in Table 4.

Table 4. Impact Area

Vegetation or Land Cover Type	Acreage (ac.)
Coastal and Valley Freshwater Marsh (Disturbed)	0.09
Southern Riparian Woodland (Disturbed)	0.02
Totals	**0.11**

Biological Assessment

Summary of Findings and Conclusions

The purpose of this biological assessment is to review the project in sufficient detail to determine whether the actions undertaken may affect any of the threatened, endangered, proposed, or sensitive species of interest to regulatory agencies. Specifically, our focus is on the impact of this project on two species of special interest: California gnatcatcher and the Ridgway's Rail.

The results of our survey indicate no direct or indirect impacts to critical habitat for the California gnatcatcher and the Ridgway's Rail associated with this project. This determination was made based upon the lack of evidence for functional habitat available within the project site or within the surrounding vegetation communities.

California Gnatcatcher

The California gnatcatcher (*Polioptila californica californica*) is a small insectivorous bird that ranges from Southern California to the north of coastal Baja. The species was listed under the Endangered Species Act in March of 1993 (USWFS, 1993), due to the small amount of remaining habitat threatened by rapid urban development. The habitat the California gnatcatcher requires is unique and is only found along the southern California coast. Additionally, these birds are threatened by nest parasitism by the Brown-headed Cowbird. A female Cowbird will locate a nest, sometimes kicking out some or all the eggs already present in the nest, lay her own eggs in the nest, and fly off, leaving the gnatcatcher to hatch raise and feed the Cowbird young. The habitat requirements for California gnatcatchers are sagebrush dominated with mixed shrubs such as buckwheat and salvias. This habitat type is often referred to as Coastal Sage Scrub (CSS). CSS habitat is deemed as critical habitat for the California gnatcatcher, meaning it is essential in the conservation of a listed species (Atwood et al. 1998, USWFS, 2000). Vegetation within the range of

3-6 feet in height makes ideal nesting locations for gnatcatchers. Nesting season is from late February to mid-July and nests are often found in dense low shrubs less than 4 feet off the ground. Both the male and female build the nest from grasses, leaves and spiderwebs and then line the nest with fine grasses, feathers, and animal hair they find. The birds mostly feed on insects such as wasps, ants, moths, and flies, sometimes Gnatcatchers can be seen eating small berries.

Ridgway's Rail

The Ridgway's rail (*Rallus obsoletus*), formerly the California clapper rail, is one of the largest rail species. This species ranges from the San Francisco Bay down to southern Baja in coastal wetlands. This species was listed as Endangered under the ESA in 1970, primarily due to habitat loss and degradation from urban development and/or invasive species. The Ridgway's Rail's habitat is brackish marsh, dominated by pickleweed (*Salicornia virginica*). Nesting activity usually begins in March. Rail's produce anywhere from 5-14 eggs, and both male and female rails share in incubation of the clutch. This species forages mostly for crabs, mussels and clams in the early mornings and late evenings.

Survey Method

The project team applied two approaches to evaluate the presence of critical habitat for the California Gnatcatcher and the Ridgway's Rail: field surveys of vegetation communities and a literature review of geospatial datasets for each of these species. Field surveys were used to evaluate the presence and absence of vegetation communities known to support each species. The quality and integrity of the vegetation communities were reviewed to determine if functional habitat was available to support the species. Separately, the project team obtained geospatial data from California Department of Fish and Wildlife's BIOS online viewer. BIOS allows a user to search the California Natural Diversity Database (CNDDB) for spatial records of species activity (CDFW, Biogeographic Data Branch, CNDDB 2020). Additionally, a similar approach was used to obtain geospatial data from U.S. Fish and Wildlife's Environmental Conservation Online System (ECOS). The project team accessed critical habitat datasets for each of these species. The results from the two approaches were combined in ESRI's ArcGIS Pro 2.7 software to determine the extent of the impact of this project on the species of concern (ESRI 2021).

Results

Direct Impacts

The results of our survey indicate no direct impacts to critical habitat for the California gnatcatcher and the Ridgway's Rail associated with this project. As detailed in Table 2 and as illustrated in Table 3 (photos A and C), the vegetation communities in and surrounding the project site are in a degraded state and any vegetation present that could contribute as habitat to either of these species is in a mature to late successional phase. The average canopy height of vegetation is in the range of 10-15 feet. This far exceeds the tolerance of the California gnatcatcher. Additionally, Table 2 details that the vegetation communities are inhibited by the presence of 20-40% non-native species. For more details, see the composition list of species identified in each vegetation community in Table 5.

A review of the Federal and State geospatial datasets indicate no critical habitat present for the California gnatcatcher nor the Ridgway's Rail. Figure 3 illustrates a swath of available habitat for the California gnatcatcher which requires further explanation. Upon initial investigation it appeared that there was critical habitat present. The dataset was last reviewed and updated in January 2021. The last update for the polygon represented with hashed blue lines occurred in December 2007. At that time, the highest quality available vegetation survey information was the Holland 1986 dataset (Holland, Preliminary

Descriptions of the Terrestrial Natural Communities of California, 1986). A revision to this dataset was released in 2012 (Holland-Oberbauer, AECOM, 2012). This updated survey greatly reduced the distribution of Diegan Coastal Sage Scrub habitat present around San Elijo Lagoon. Reinforced by our field survey, our team concluded that no critical habitat is present in or near the project site.

Indirect Impacts

The results of our survey indicate no indirect impacts associated with this project to critical habitat for the California gnatcatcher and the Ridgway's rail. The results of our field survey of vegetation communities highlight that the surrounding vegetation could provide habitat to the California gnatcatcher if mitigation actions are undertaken to restore the habitat to a functional state (see Mitigation Section below).

Table 5. Vegetation Community Composition List

Vegetation or Land Cover Type	Species Identified
Diegan Coastal Sage Scrub (Disturbed)	Common rush Juncus Coyote Brush (*Bacharis pilularis*) California Sagebrush (*Artemesia californica*) Goldenbush (*Isocoma menziesii*) Mustard (*Brassica nigra*)
Southern Coastal Salt Marsh (Disturbed)	Frankenia (*Frankenia laevis*) Pickleweed (*Salicornia pacifica*) Bulrush Scirpus Salt grass (*Distichlis spicata*) Salty Susan (*Salicornia pacifica*) Witches hair (*Salicornia pacifica*) Mulefat (*Baccharis salicifolia*) Common rush Juncus Mustard (*Brassica nigra*) Radish Raphanus Telegraph weed (*Heterotheca grandiflora*) (Other Observed Species) Northern Pintail (*Anas acuta*) American Wigeon (*Mareca americana*) Gadwall (*Mareca strepera*) Mallard (*Anas platyrhynchos*) Fiddler Crab (*Uca rapax*) Western Gull (*Larus occidentalis*) White-tailed Kite (*Elanus leucurus*)
Coastal and Valley Freshwater Marsh (Disturbed)	Pickle weed (*Salicornia pacifica*) Frankenia (*Frankenia laevis*) Common Rush Juncus Mulefat (*Baccharis salicifolia*) Salty Susan (*Salicornia pacifica*) Goldenbush (*Isocoma menziesii*) Witches Hair (*Salicornia pacifica*) Thistle (*Cynara spp.*) Mustard (*Brassica nigra*) Telegraph weed (*Heterotheca grandiflora*) Tree tobacco (*Nicotiana glauca*)

	Ice plant (*Carpobrotus spp.*) Myoporum (*Myoporum spp.*) (Other Observed Species) Song sparrow (*Melospiza melodia*) Anna's Hummingbird (*Calypte anna*)
Southern Riparian Woodland (Disturbed)	Common rush Juncus Arroyo Willow (*Salix lasiolepis*) Torrey Pine (*Pinus torreyana*) Goldenbush (*Isocoma menziesii*) Lemonade Berry (*Rhus integrifolia*) Fat hen (*Altriplex prostrata*) Wild Asparagus Vine Ragweed (*Ambrosia psilostachys*) Radish Raphanus Mustard (*Brassica nigra*) Sycamore (*Platanus occidentalis*) Coast Live Oak (*Quercus agrifolia*) Brazilian Pepper Tree (*Schinus terebinthifolia*) Bush sunflower (*Encelia californica*) Datura (*Datura wrightii*) Canary Island Date Palm (*Phoenix cariensis*) Prickly Pear (*Opuntia ficus-indica*) Acacia (*Acacia longifolia*) Castor Bean (*Ricinus communis*) Nasturtium Celery (*Apium graveolens*) (Other Observed Species) Anna's Hummingbird (*Calypte Anna*) Song Sparrow (*Melospiza melodia*) Brush Rabbit (*Sylvilagus bachmani*) Mallard (*Anas platyrhynchos*) Wrentit (*Chamaea fasciata*) Deer (scat and tracks) Huttons Vireo (*Vireo huttoni*) California Towhee (*Melozone crissalis*) Allen's Hummingbird (*Selasphorus sasin*)

Mitigation Program

Mitigation Strategy

The City of Encinitas proposes to mitigate the approximate 0.11-acre impact to jurisdictional resources by performing onsite re-establishment at a 1:1 ratio (0.11 acre) and offsite rehabilitation at a 2:1 ratio (0.22 acres). This 0.33 total mitigation acreage will be conducted within the area of impact and the adjacent disturbed areas in the San Elijo Lagoon (Table 6; Figure 5). The proposed mitigation also includes two years of maintenance and three years of monitoring to ensure the performed mitigation is meeting the objective of functioning as a self-sustaining native jurisdictional resource.

Table 6. Proposed Mitigation

Mitigation Type	Acreage (ac.)
Onsite Re-establishment	
Coastal and Valley Freshwater Marsh	0.09
Southern Riparian Woodland	0.02
Subtotal	**0.11**
Offsite Rehabilitation	
Southern Coastal Salt Marsh	0.03
Coastal and Valley Freshwater Marsh	0.12
Southern Riparian Woodland	0.07
Subtotal	**0.22**
Totals	**0.33**

Onsite Restoration

Post-project implementation, the City will monitor the site for one-year to ensure that the coastal and valley freshwater marsh and riparian woodland species present prior to project construction has grown back to better than pre-project conditions. If after one-year of monitoring the impacted vegetation communities have not grown back, the City shall revegetate the channel with appropriate native species.

Offsite (in San Elijo Lagoon) Rehabilitation

Rehabilitation is defined as the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function but does not result in a gain in aquatic resource area. The area that is immediately adjacent to the onsite project area is highly disturbed by non-native/invasive species. This area, totaling approximately 0.9 acre, supports Canary Island palm trees, Brazilian pepper trees, Acacia species, tobacco trees, Myoporum, mustard species, ice-plant, and other weeds. Rehabilitation efforts proposed as mitigation to the project aim to significantly improve the functional value of this wetland area by removing these species and replacing them with appropriate native wetland plants. The methods of invasive plant management are detailed below.

Invasive plant control will be conducted prior to planting efforts by Nature Collective and its subcontractor, ACS Habitat Management (ACS), and will include both hand removal and appropriate herbicide application. In the areas where erosion and further sedimentation are not an issue, invasive plants will be removed by hand and disposed of offsite. The large Canary Island palm, Myoporum, tobacco and Acacia trees will be treated, cut, and removed from the site. The ice plant and other herbaceous weeds will be treated with an appropriate herbicide and left onsite.

Restoration Activities

Site Preparation

Site preparation for the Southern Willow Scrub habitat zones (Southern Riparian Woodland, Coastal Freshwater Marsh, and Southern Coastal Salt Marsh) will include initial non-native herbicide treatment and biomass removal. Initial removal of non-native vegetation along with continually re-treating will be necessary for the life of the mitigation project. This will help reduce the vitality of the annual, invasive, non-native seed bank. Existing non-native vegetation will be flagged during initial herbicide treatments.

Container Plant Installation

The mitigation project site will be planted using native California grown plants propagated from seeds and cuttings by Nature Collective Nursery and/or Moosa Creek Nursery. Nature Collective's Habitat Management Program and subcontractors will complete planting of native vegetation throughout the proposed mitigation area as shown in Figure 5. Restoration will involve planting 1-gallon containers, from the plant palette shown in Table 7. Restoration of the project site will be considered successful when the following success criteria are achieved:

- Native cover >60%,
- Non-native species cover <15%,
- Survivorship of tagged individuals >80%
- No invasive species cover

Restoration planting in the areas shown in Figure 5 will enhance the existing riparian habitat by: 1) reducing invasive species in the dense mid-outer canopy, and 2) restoring the degraded areas on the upper riparian edges.

Approximately 180 container plants will be installed in areas where non-native plants have been treated and removed. Plant palettes were created for each habitat using adjacent native habitats and Holland-Oberbauer classifications as reference (Holland-Oberbauer, AECOM, 2012). To increase native plant cover, containers installation will be supplemented by the collection and planting of cuttings from the immediate vicinity. Approximately 100 cuttings are planned to be collected and installed within the Project Area.

Table 7. Project Plant Palette

Southern Riparian Woodland / Coastal Freshwater Marsh		
Scientific Name	Common Name	# of 1g Plants
Baccharis salicifolia	Mulefat	25
Juncus acutus	Spiny rush	25
Salix lasiolepis	Arroyo willow	25
Platanus racemosa	Western sycamore	10
	Total Plants:	180

Temporary Irrigation

Irrigation is crucial for plant establishment and water connections will be provided by the City of Encinitas or by Nature Collective using a water trailer. Nature Collective will connect to the water sources to irrigate native plants during planting and at future site visits during the plant establishment period. Ongoing irrigation and plant replacement will occur for a plant establishment period of approximately 120 days from end of planting operations to ensure the successful establishment of native vegetation. Irrigation will be provided thereafter, as needed, lasting through the end of the maintenance period of two years. Any temporary installed irrigation system will be removed following this period.

Maintenance & Monitoring

Nature Collective staff will perform monthly site inspections during the plant establishment period to assess maintenance needs including additional treatment and removal efforts of invasive and other non-native plant species. Maintenance activities will be determined by the monitoring recommendations but will likely include monthly activities during the active growing season from March to June. Additional treatment and control efforts will be performed as needed.

Maintenance will occur over the life of the 2-year project timeframe and will include invasive species control, infill planting, erosion control, herbivore control, repairs to irrigation, and prevention of Public trespassing. Invasive species control and watering will occur as deemed necessary. The need for infill planting and/or seeding will be determined by the City of Encinitas and/or Nature Collective Restoration Ecologist. Through required monitoring, each revegetation area will be monitored for success following the installation of native plants throughout the life of the mitigation project. The need for infill will be determined off performance standards and documentation to ensure these areas adequately achieve the success criteria.

Invasive Plant Management

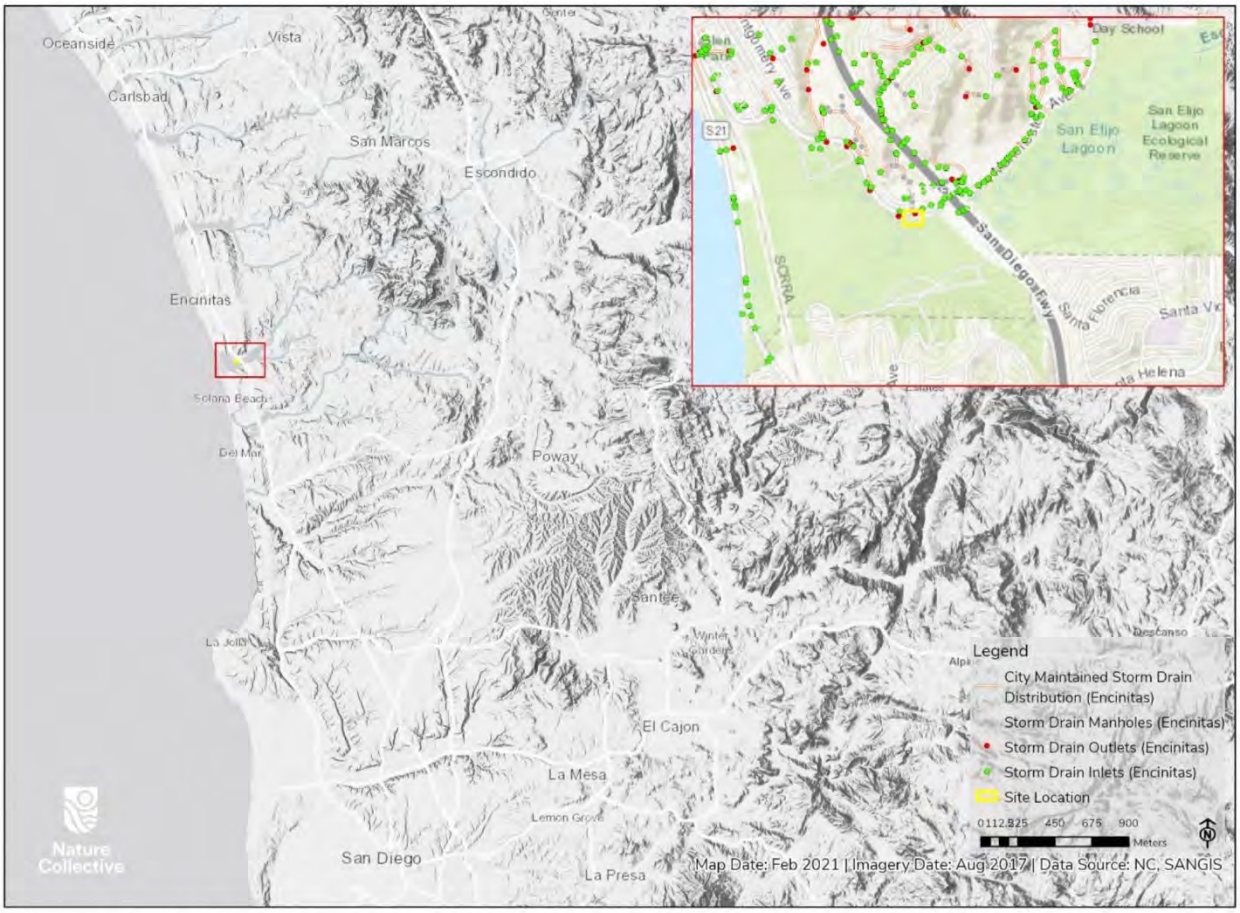
To establish native habitat, invasive plants will continue to be treated and removed from the mitigation project site to reduce competition for resources, including water, sunlight, and nutrients. The amount of weeding will be determined by the amount of non-native seed bank currently existing in the soil and weather conditions. Nature Collective Restoration Ecologist will monitor each site and coordinate with subcontractors, as needed to treat, and remove invasive plants throughout the life of the project.

Performance Monitoring

To ensure the mitigation project follows the regulatory agencies' requirements, the Mitigation Plan includes site monitoring until the performance standards, or success criteria, have been met. To accomplish this, the following is required:

- **Annual quantitative and biannual qualitative vegetation surveys** to track progress in achieving the proposed native plant establishment period. Vegetation surveys will commence following the 120-day native plant establishment period.
- **Biannual photo monitoring** conducted staff within the project boundary until the end of the project. Photo and vegetation monitoring visits are scheduled for Spring and Summer each year.

Vegetation monitoring transects will be established before initial invasive species treatments are conducted to capture quantitative vegetation data. Vegetation transects are established to monitor vegetation in a standardized manner on an annual basis. Line Intercept Method will be conducted to capture canopy cover, the vertical projection of the vegetative part of the plant over the ground. Canopy cover will be measured at each line intercept, every 1 meter over a 25 meter transect, to ultimately calculate percent cover of native and non-native vegetation. This will be done across three transect lines for the entire project site. Due to the natural overlap of plants at different heights along each transect point, it is possible that total species cover using line intercept can be greater than 100%. Line Intercept Method is a proven method commonly used to accurately quantify vegetation data, especially when measuring the effectiveness of invasive species (weed) control and native plant vegetation response.



Manchester Outfall - Vicinity Map - 2021feb

Figure 1. Project Vicinity Map



Figure 2. Land Cover and Vegetation Communities Map



Manchester Outfall - Critical Habitat Map - 2021feb

Figure 3. Critical Habitat Map



Figure 4. Before and After Site Impact Comparison Map with Photo Point Locations



Figure 5. Proposed Mitigation Site Map



Photopoint 1: Before emergency removal work facing west. December 21, 2020



Photopoint 1: After emergency removal work facing west. January 29, 2021

Figure 6. Photo Point 1 Before and After



Photopoint 2: Before emergency removal work facing south. December 21, 2020



Photopoint 1: After emergency removal work facing south. January 29, 2021

Figure 7. Photo Point 2 Before and After