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Biological Technical Report

Nirvana Project, City of Chula Vista, San Diego County, California

DECEMBER 2022

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Printed on 30% post-consumer recycled material.

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
amsl	above mean sea level
APN	Assessor parcel numbers
BMP	Best Management Practice
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CVMC	Chula Vista Municipal Code
FESA	Federal Endangered Species Act
GDP	General Development Plan
HLIT	Habitat Loss and Incidental Take (Ordinance)
MBTA	Migratory Bird Treaty Act
MM	Mitigation measure
MSCP	Multiple Species Conservation Program
OHWM	ordinary high water mark
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

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1 Introduction

1.1 Purpose of the Report

The purpose of this biological resources report is to provide the following items:

1. Describe the existing conditions of biological resources within the Nirvana project site (project or proposed project) in terms of vegetation, jurisdictional aquatic resources, flora, wildlife, and wildlife habitats.
2. Discuss potential impacts to biological resources that would result from development of the property.
3. Describe those impacts in terms of biological significance in view of federal, state, and local laws and policies.
4. Recommend mitigation measures for potential impacts to sensitive biological resources, if necessary.
5. Provide documentation for permitting agencies (i.e., U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB))
6. Provide the finding for the City's Habitat Loss Incidental Take (HLIT) process.

Recommendations will follow federal, state, and local rules and regulations, including the California Environmental Quality Act (CEQA), and the Chula Vista Multiple Species Conservation Plan (MSCP) Subarea Plan (City of Chula Vista 2003).

1.2 Project Description

The Nirvana Business Park (proposed project) would develop three parcels that occur in a Development Area as described by the Chula Vista MSCP. The project is the development of three vacant parcels, Parcels 1 and 2 of Parcel Map 21587 (APNs 644-050-13 and 644-050-14, respectively) and a portion of Lot 2, Section 20, Township 18 South, Range 1 West, San Bernardino Meridian (APN 644-050-08). A proposed lot line adjustment (LLA21-0007) will adjust the common property line between Parcel 2 and a portion of Lot 2. Once the lot line adjustment is complete, the resultant parcels Parcel 1 of PM 21587 and Parcel A of Adjustment Plat LLA21-0007 will have a combined net area of 13.31 acres. The project's two parcels will then be subdivided into four (4) parcels under TPM21-0003 and the subsequent parcel map. The four parcels' public right-of-way is provided via a private access easement out to Nirvana Avenue.

Development of the site will include four buildings on the 13.31-acre portion of the site. Off-site grading of 0.37-acre north of the project is needed and will consist of the project driveway and additional area. Another 0.21-acre easterly of the project site is required to rebuild an existing slope for stabilization. As well, 0.22 acres of City right-of-way along the Main Street frontage (between the sidewalk and the property line) will be graded. Lastly, 0.18 acres west of the project site will be used for off-site grading to eliminate low points and high points along the proposed retaining wall adjacent to the existing property line. This off-site grading will enable positive drainage in a concrete brow ditch along the base of the wall to flow via gravity out toward Main Street instead of relying on storm drain inlets to collect water at the base of the proposed retaining wall. Therefore, a total of 14.44 acres will be graded for the project. Also of note is the need to upgrade the two rip-rap energy dissipators on the south side of Main Street.

If authorization is granted from the property owner, then during the grading operations of the project, approximately 25,000 cubic yards of project soil will be stocked piled at any given time on the property to the north of the subject site at 850 Energy Way (APN 644-182-10) via a temporary access between the two properties.

Off-site trenching activities will occur in Nirvana Avenue for sewer and water laterals and in Main Street for Fire laterals and storm drain connections.

The project includes the construction of four buildings as follows:

- Building 1 – a 585,946 square-foot warehouse, 36-feet high, single-story with mezzanine
- Building 2 – a 40,660 square-foot warehouse, 36-feet high, single-story with mezzanine
- Building 3 – a 140,802 square-foot, 40.5-feet high, 3-story self-storage building
- Building 4 – a 44,090 warehouse, 36-feet high, single-story with mezzanine

The project requires discretionary approval for the Design Review – DR21-0024 and Tentative Parcel Map – TPM21-0003. Hours of operation for the business park are planned to be Monday through Friday 6:00 a.m. to 6:00 p.m. and Saturday 6:00 a.m. to noon. The self-storage facilities will have 24/7 access.

Riprap modifications are required on the south side of Main Street where the existing western and middle drainages outfall into the Otay River. The modifications at these two existing public storm drain outfall headwall locations will increase the existing riprap apron size to dissipate energy as a result of estimated increased runoff velocities. These two small areas (0.15 acres total) are located within the 100% Conservation Area of the Subarea Plan.

1.3 Site Description

The project site is characterized by flat sections of land that abruptly give way to steep slopes that lead down towards the southern side of the site, adjacent to Main Street which borders the bottom of the project. Multiple drainages are present at the site, flowing generally north to south in deep cuts that divide the surrounding flat-topped bluffs. Elevations on site range from 139 to 212 feet above mean sea level (amsl). Beyond Main Street to the south of the project lies undeveloped lands dominated by riparian habitat associated with the Otay River Valley. The off-site riprap energy dissipators are located immediately south of Main Street along the border of the Otay River. Lands to the north and west consist of heavy industry and large car storage lots. These lots directly abut the project's entire northern boundary. Open, undeveloped non-native grasslands sit to the east of the project.

The site is located in Section 20 of Township 18 south and Range 1 west in the 7.5-minute U.S Geological Survey Imperial Beach quadrangle.

2 Regional Resource Planning Context

2.1 Federal

The federal Endangered Species Act (FESA) of 1973 (16 U.S.C. 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(a)(1)(B) of FESA, it is unlawful to "take" any listed species. "Take" is defined in Section 3(19) of FESA as, "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

The Migratory Bird Treaty Act (MBTA) prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, "take" is defined as pursuing, hunting, shooting, capturing, collecting, or killing, or attempting to do so (16 U.S.C. 703 et seq.). Additionally, Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds," requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 FR 3853–3856). The Executive Order requires federal agencies to work with USFWS to develop a memorandum of understanding. USFWS reviews actions that might affect these species.

Pursuant to Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged and/or fill material into "waters of the United States." The term "wetlands" (a subset of waters) is defined in 33 CFR 328.3(c) as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." Wetlands must include all three parameters outlined by the USACE: hydrophytic vegetation, hydric soils, and hydrology indicators. In the absence of wetlands, the limits of USACE jurisdiction in non-tidal waters, such as ephemeral intermittent streams, extend to the "ordinary high water mark," which is defined in 33 CFR 328.3(c).

The bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are federally protected under the Bald and Golden Eagle Protection Act, passed in 1940 to protect the bald eagle and amended in 1962 to include the golden eagle (16 U.S.C. 668a–d). This act (16 U.S.C. 668–668d) prohibits the take, possession, sale, purchase, barter, offering to sell or purchase, export or import, or transport of bald eagles and golden eagles and their parts, eggs, or nests without a permit issued by USFWS. The definition of "take" includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. The act prohibits any form of possession or taking of both eagle species, and the statute imposes criminal and civil sanctions as well as an enhanced penalty provision for subsequent offenses. Further, the act provides for the forfeiture of anything used to acquire eagles in violation of the statute. The statute exempts from its prohibitions on possession the use of eagles or eagle parts for exhibition, scientific, and Indian religious uses.

However, there is allowance within the act that, after investigation, the Secretary of the Interior may determine that direct and purposeful taking is compatible with the preservation of the bald eagle or the golden eagle. If so, then the Secretary may permit the taking, possession, and transportation of specimens for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Indian tribes.

The Secretary may also determine that it is necessary to permit the taking of eagles for the protection of wildlife or of agricultural or other interests in any particular locality. This permitting may be for the seasonal protection of domesticated flocks and herds, and may also permit the taking, possession, and transportation of golden eagles for the purposes of falconry if the eagles may cause depredations on livestock or wildlife. Finally, the Secretary of the Interior may permit the taking of golden eagle nests that interfere with resource development or recovery operations, or in an emergency.

In November 2009, USFWS published the Final Eagle Permit Rule (74 FR 46836–46879), providing a mechanism to permit and allow for incidental (i.e., non-purposeful) take of bald and golden eagles pursuant to the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Disturb means "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." These regulations may apply to projects such as wind turbines and transmission lines and were followed by issuance of guidance documents for inventory and monitoring protocols and for avian protection plans (Pagel et al. 2010). In February 2011, the USFWS released Draft Eagle Conservation Plan Guidance aimed at clarifying expectations for acquiring take permits acquisition by wind power projects consistent with the 2009 rule.

2.2 State

The California Department of Fish and Wildlife (CDFW) administers the California Endangered Species Act (CESA) (California Fish and Game Code, Section 2050 et seq.), which prohibits the "take" of plant and animal species designated by the Fish and Game Commission as endangered or threatened in the State of California. Under CESA Section 86, take is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA Section 2053 stipulates that state agencies may not approve projects that will "jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy."

According to Sections 3511 and 4700 of the 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.

CESA Sections 2080 through 2085 address the taking of threatened, endangered, or candidate species by stating, "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided in this chapter, the Native Plant Protection Act (Fish and Game Code, Sections 1900–1913), or the California Desert Native Plants Act (Food and Agricultural Code, Section 80001)."

CDFW affords protection over the destruction of nests or eggs of native bird species (Fish and Game Code Section 3503), and it states that no birds in the orders of Falconiformes or Strigiformes (birds of prey) can be taken, possessed, or destroyed (Fish and Game Code Section 3503.5). CDFW cannot issue permits or licenses that authorize the take of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock (Fish and Game Code Section 3511). Separate from federal and state designations of species, CDFW designates certain vertebrate

species as Species of Special Concern (SSC) based on declining population levels, limited ranges, and/or continuing threats that have made them vulnerable to extinction.

Pursuant to Section 1602 of the Fish and Game Code, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. A Streambed Alteration Agreement is required for impacts to jurisdictional wetlands in accordance with Section 1602 of the California Fish and Game Code.

The intent of the Porter–Cologne Water Quality Control Act is to protect water quality and the beneficial uses of water, and it applies to both surface water and groundwater. Under this law, the State Water Resources Control Board develops statewide water quality plans, and the Regional Water Quality Control Board (RWQCB) develops basin plans that identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of both statewide and basin plans. Waters regulated under the Porter–Cologne Water Quality Control Act include isolated waters that are no longer regulated by the USACE. Developments with impact to jurisdictional waters must demonstrate compliance with the goals of the act by developing stormwater pollution prevention plans, standard urban storm water mitigation plans, and other measures to obtain a Clean Water Act Section 401 certification or Waste Discharge Requirement.

CEQA requires identification of a project's potentially significant impacts on 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" (14 CCR 15000 et seq.). A rare animal or plant is defined in 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.

2.3 Chula Vista Multiple Species Conservation Plan Subarea Plan

The MSCP Subregional Plan is implemented through individual Subarea Plans adopted by each jurisdiction receiving take authorization for covered species. The Chula Vista MSCP Subarea Plan was approved by the City in May 2003 and received take authorization in January 2005. The Subarea Plan provides for conservation of upland habitats and species through Preserve design, regulation of impacts and uses, and management of the Preserve. Within the City's Subarea Plan, the project site is designated as a "Development Area Outside of Covered Projects" (i.e., not designated a preserve or conservation area) (Figure 2, MHPA). As defined by the Subarea Plan, projects within the Development Area outside of Covered Projects planning area shall adhere to the City's Habitat Loss and Incidental Take (HLIT) Ordinance. The City's Subarea Plan also specifies conditions for Narrow Endemic Species. Consistency with regional resource planning is discussed further in the following text.

The two small riprap modification areas are located within the "100% Conservation Area". The Subarea Plan defines these areas as lands within the City of Chula Vista for which hardline Preserve boundaries have been established and where the conserved portion will be managed for its biological resources.

2.3.1 Habitat Loss Incidental Take Ordinance

For projects within Development Areas Outside of Covered Projects that contain sensitive biological resources and for which the project site is greater than 1 acre, the HLIT Ordinance requires a biological evaluation of the resources on site. In compliance with the MSCP Subregional Plan and the Subarea Plan, the City established development standards in the HLIT Ordinance, as a condition of issuance of take authorization by the USFWS and CDFW. The HLIT is consistent with the conservation and mitigation goals of the 1998 MSCP Subregional Plan and the City's Subarea Plan. Furthermore, the HLIT provides standards for development, identifies specific impact thresholds, and defines the mitigation requirements for impacts to native and some non-native communities (e.g., non-native grassland). Impacts to Tier I, II, and III habitats will be mitigated pursuant to HLIT mitigation standards provided in Table 5-3 of the Subarea Plan. Based on the current site conditions, there are 13.53 acres of maritime succulent scrub, 0.09 acres of unvegetated stream, and 0.37 acres of tamarisk scrub that could be impacted by the project. This would require 14.00 acres of mitigation.

The Chula Vista MSCP lists Narrow Endemic Species for the Chula Vista Subarea. The HLIT provides protection of Narrow Endemic Species and wetland impact avoidance/minimization. One narrow endemic species, San Diego ambrosia (*Ambrosia pumila*), was recorded at the project site and two stream features were also observed.

2.3.2 Narrow Endemic Species Protection

For Development Areas Outside of Covered Projects, the Subarea Plan states that impacts to covered Narrow Endemic Species will be avoided to the maximum extent practicable. Where impacts are demonstrated to be unavoidable, impacts within these Development Areas will be limited to 20% of the total Narrow Endemic Species population within the Project Area. If, after comprehensive consideration of avoidance and minimization measures, impacts exceed 20% of the covered Narrow Endemic Species population within the Project Area, the City must make a determination of biologically superior preservation consistent with Section 5.2.3.7 of this Subarea Plan. In 100% Conservation Areas, Planned and Future Facilities must avoid impacts to covered Narrow Endemic Species to the maximum extent practicable. Where impacts are demonstrated to be unavoidable, impacts within the 100% Conservation Areas will be limited to 5% of the total Narrow Endemic Species population within the Project Area. If impacts exceed 5% of the covered Narrow Endemic Species population within the Project Area after comprehensive consideration of avoidance and minimization measures the City must make a determination of biologically superior preservation consistent with Section 5.2.3.7 of this Subarea Plan. The City will forward its written determination of biologically superior preservation to the Wildlife Agencies for review. Within 30 days of receipt of mailed notice of findings from the City the Wildlife Agencies may submit to the City a written finding of non-concurrence on the facts of the City's findings. If such finding of non-concurrence is made within 30 days, the City will confer with the Wildlife Agencies to resolve Narrow Endemic Species issues associated with the proposed development. If the Wildlife Agencies do not respond within 30 days after receipt of mailed notice, the City shall deem the written findings accepted.

Section 5.4.2 includes the Equivalency Analysis for Narrow Endemic Species.

2.4 City of Chula Vista

In compliance with the MSCP Subregional Plan and the Subarea Plan, the City established development standards, the HLIT Ordinance, as a condition of issuance of take authorization by the Wildlife Agencies. The HLIT is consistent with the conservation and mitigation goals of the MSCP Subregional Plan and the City of Chula Vista Subarea Plan, which require impacts to sensitive vegetation communities to be avoided and minimized to the maximum extent practicable. Furthermore, the HLIT identifies specific impact and mitigation requirements for impacts to native and some non-native communities (e.g., non-native grassland). Project compliance with the HLIT is described in Section 5.4.2, Habitat Loss Incidental Take Ordinance, of this report.

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3 Methods and Survey Limitations

Data regarding biological resources present were obtained through a review of pertinent literature and field reconnaissance, both of which are described in detail in this chapter. The study area is composed of all areas that fall within the parcel boundaries. A 500-foot buffer around the project impact footprint was assessed via aerial imagery (Google Earth 2021) for adjacency and indirect impacts analysis, but focused surveys were limited to the 14.74-acre study area.

3.1 Literature Review

The following data sources were reviewed to assist with the biological resources analysis:

- U.S. Department of Agriculture Web Soil Survey (USDA-NRCS 2021b)
- CDFW California Natural Diversity Database – RareFind, Version 5 (CDFW 2021a)
- CDFW California Natural Diversity Database – Listed, Endangered, Threatened Plants (CDFW 2021b)
- CDFW California Natural Diversity Database – Special Plants List (CDFW 2021c)
- California Native Plant Society Inventory of Rare and Endangered Plants (CNPS 2021)
- USFWS Critical Habitat and Occurrence Data (USFWS 2021a)
- Birds of Conservation Concern 2021 Migratory Bird Program (USFWS 2021b)
- MSCP Subarea Plan (City of Chula Vista 2003)
- Aerial imagery (Google Earth 2021)
- Biological Impact Analysis Report for the Chula Vista Street West Parcel Project (Appendix G)

3.2 Field Reconnaissance

Biological field surveys for the project were conducted in 2021 and 2022 by Dudek biologists. Surveys conducted included a jurisdictional delineation, vegetation mapping, focused rare plant surveys, and protocol-level focused surveys for coastal California gnatcatcher (*Polioptila californica* californica). The site was also assessed for habitat for burrowing owl (*Athene cunicularia*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), fairy shrimp species, and quino checkerspot butterfly (*Euphydryas editha quino*). Surveys for these species were not warranted due to lack of suitable habitat and due to the requirements of the Chula Vista MSCP. Refer to Section 4.5.2 for a complete analysis of these species. In addition, Merkel & Associates, Inc. conducted previous surveys on the site in 2007. Table 1 lists the survey dates, times, surveying biologists, and weather conditions during the 2021 survey efforts.

Table 1. Schedule of Surveys

Date	Time	Personnel	Survey Type	Conditions
Previous Surveys				
Varies[1]	Varies[1]	Varies[1]	Quino Checkerspot Butterfly Habitat Assessment, Quino Checkerspot Butterfly Protocol Survey	Varies[1]
Varies[1]	Varies[1]	Varies[1]	Rare Plant Focused Survey	Varies[1]
Varies[1]	Varies[1]	Varies[1]	Jurisdictional Delineation	Varies[1]
Varies[1]	Varies[1]	Varies[1]	Coastal California Gnatcatcher Survey	Varies[1]
Varies[1]	Varies[1]	Varies[1]	Ground Truthing Survey	Varies[1]
General Surveys				
07/01/2021	8:00 a.m. – 4:02 p.m.	Callie Amoaku	Jurisdictional Delineation, Vegetation Mapping	66°F–80°F, 0%–10% cc, 1–4 mph winds
09/08/2021	9:50 AM–11:53 AM	Erin Bergman	Jurisdictional Delineation, Vegetation Mapping for off-site easement area	77°F; 10–20% cloud cover; 0–3 mph wind
03/28/2022	9:50 AM–10:50 AM	Dylan Ayers	Jurisdictional Delineation, Vegetation Mapping for off-site modification areas	61-78°F; 0% cloud cover; 1-3 mph wind
Focused Coastal California Gnatcatcher Surveys				
07/01/2021	7:20 AM–11:47 AM	Erin Bergman	Coastal California Gnatcatcher Survey (onsite)	61–84°F; 0% cloud cover; 1–4 mph wind
07/23/2021	5:59 a.m.–11:46 a.m.	Erin Bergman	Coastal California Gnatcatcher Survey (onsite)	62–78°F; 30–90% cloud cover; 0–3 mph wind
8/13/2021	6:02 AM–11:45 AM	Erin Bergman	Coastal California Gnatcatcher Survey (onsite)	66–84°F; 0–10% cloud cover; 0–3 mph wind
10/11/2021	8:48 AM–11:27 AM	Erin Bergman	Coastal California Gnatcatcher Survey (offsite easement)	59–68°F; 0-50% cloud cover; 1–3 mph wind
10/18/2021	7:46 AM–10:32 AM	Erin Bergman	Coastal California Gnatcatcher Survey (offsite easement)	61–68°F; 0–90% cloud cover; 0–3 mph wind

Table 1. Schedule of Surveys

Date	Time	Personnel	Survey Type	Conditions
10/25/2021	9:46 AM–12:04 AM	Erin Bergman	Coastal California Gnatcatcher Survey (offsite easement)	61–66°F; 50-100% cloud cover; 0–3 mph wind
Focused Rare Plant Surveys				
04/29/2022	7:55 AM–5:12 PM	Erin Bergman	Rare Plant Surveys	67–72°F; 0% cloud cover; 0–4 mph wind
05/31/2022	8:23 AM–4:05 PM	Erin Bergman	Rare Plant Surveys	64–82°F; 0–10% cloud cover; 0–4 mph wind

Notes: °F = degrees Fahrenheit; cc = cloud cover; mph = miles per hour, NR = not recorded
[1] Appendix G

3.2.1 Resource Mapping

Mapping of the existing site conditions, biological resources, and jurisdictional areas present was performed in the field directly onto a 100-scale (1 inch = 100 feet) color aerial map of the site. The vegetation community and land cover mapping was also performed directly in the field and follow the classifications described by Holland (1986), as revised by Oberbauer et al. (2008).

A GPS unit was used where necessary to record the biological resources within the study area. All areas identified as being potentially subject to the jurisdiction of the USACE, RWQCB, CDFW, and the City were also verified and mapped directly in the field. Following completion of the field work, Dudek Geographic Information System operator Andrew Greis mapped findings using ArcGIS and calculated coverage acreages.

3.2.2 Flora

All plant species encountered during the field surveys were identified and recorded. For those species that could not be identified immediately, samples suitably sized for identification were brought into the laboratory for further investigation. Latin and common names for plant species with a California Rare Plant Rank (CRPR; formerly CNPS List) follow the California Native Plant Society Online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2021). For plant species without a CRPR, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2018), and common names follow the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service Plants Database (USDA-NRCS 2021c). The list of plant species observed on site is presented in Appendix A, Plant Compendium.

3.2.3 Fauna

Wildlife species detected during field surveys by sight, calls, tracks, scat, or other signs were recorded. Wildlife surveys were conducted as summarized in Table 1. Binoculars (8 mm × 32 mm or 10 mm × 50 mm power) were used to identify observed animals. In addition to species actually observed, expected wildlife use of the study area was determined by known habitat preferences of local species and knowledge of their range and relative distributions in the area. A list of animal species observed or detected on site is presented in Appendix B, Wildlife Compendium.

Latin and common names of animals follow Crother (2012) for reptiles and amphibians, American Ornithological Society (AOS 2018) for birds, Wilson and Reeder (2005) for mammals, and North American Butterfly Association (NABA 2001) or San Diego Natural History Museum (2002) for butterflies.

3.2.4 Jurisdictional Aquatic Resources

Features that convey or hold water are regulated by multiple agencies. Federal, state, and local agencies have different definitions and terminology for these types of features. Hereinafter in this document, water-dependent resources potentially regulated by the USACE, RWQCB, CDFW, and City will be collectively referred to as jurisdictional aquatic resources. A jurisdictional delineation for the study area was conducted in July 2021 by Dudek biologist Callie Amoaku; the offsite easement area was delineated in September 2021 by Dudek biologist Erin Bergman; and the offsite riprap modification areas were delineated in March 2022 by Dudek biologist Dylan Ayers. The delineation defined areas under the jurisdiction of CDFW, pursuant to Sections 1600–1603 of the California Fish and Game Code; USACE, pursuant to Section 404 of the federal Clean Water Act; and RWQCB, pursuant to Clean Water Act Section 401 and the Porter–Cologne Act.

The methodology used for each jurisdiction or regulating agency (USACE, CDFW, and RWQCB) is described as follows. The USACE wetlands delineation was performed in accordance with the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual (USACE 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Arid West Supplement) (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), and guidance provided by the USACE and Environmental Protection Agency on the geographic extent of jurisdiction based on the U.S. Supreme Court's interpretation of the Clean Water Act. The USACE and RWQCB jurisdictional areas, pursuant to the federal Clean Water Act, include all areas supporting the three wetlands criteria described in the USACE manual: hydric soils, hydrology, and hydrophytic vegetation.

RWQCB jurisdiction is coincident with the USACE in accordance with the federal Clean Water Act, except in cases where a resource is determined to be isolated from navigable waters of the United States and where the RWQCB may take jurisdiction under the Porter–Cologne Act. The RWQCB may also take jurisdiction over surface waters lacking USACE regulation, pursuant to the Porter–Cologne Act. These areas generally include areas with at least one of the three wetlands indicators but isolated from a tributary of navigable water through lack of evidence of surface water hydrology. A predominance of hydrophytic vegetation, where associated with a stream channel, was used to determine CDFW-regulated riparian areas. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification (Cowardin et al. 1979), which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology).

To assist in the determination of jurisdictional areas within the study area, data were collected at five sampling points and are included in Appendix C, Jurisdictional Delineation Forms. Hydrology, vegetation, and soils were assessed, and sampling data were collected on approved USACE forms. The site was evaluated for evidence of an OHWM, surface water, saturation, wetland vegetation, and nexus to a traditional navigable water. The extent of jurisdictional aquatic resources was determined by mapping the areas with similar vegetation and topography to sampled locations.

3.2.4.1 Hydrophytic Vegetation

Seasonal changes in species composition, human land use practices, wildfires, and other natural disturbances can adversely affect the hydrophytic vegetation determination. During the delineation, a sampling point was considered positive for hydrophytic vegetation if it passed the basic dominance test (Indicator 1), meaning that more than 50% of the dominant species sampled were characterized as either obligate, facultative wetland, and/or facultative, per the 2018 National Wetland Plant List for the Arid West region (USACE 2018). In those cases, where the dominance test failed, the vegetation parameter was re-evaluated using the prevalence index (Indicator 2), which takes into account all plant species in the community, not just dominants. All plant species observed during the surveys were identified and recorded. Where plant identification could not be made in the field, a sample was taken and later identified in the laboratory.

3.2.4.2 Hydric Soils

According to the National Technical Committee for Hydric Soils, hydric soils are "soils that are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USDA-NRCS 2018). Soil pits were prepared using a "sharp shooter" shovel to determine if hydric soils were present. The presence of hydric soils was determined through consultations with the USACE's 2018 *Field Indicators of Hydric Soils in the United States v. 8.2* (USDA-NRCS 2021a), USACE's Arid West Supplement (USACE 2008a), and Munsell Soil Color Charts. Where feasible, soil pits were prepared to depths ranging from 10 to 16 inches, and dry soils were moistened to obtain the most accurate color. Excavated soils were examined for evidence of hydric conditions, including low chroma values and mottling, vertical streaking, sulfidic odor, and high organic matter content in the upper horizon. Evidence of previous ponding or flooding was assessed along with the slope, slope shape, existing landform characteristics, soil material/composition, and hydrophytic vegetation to determine whether hydric soils were present.

3.2.4.3 Hydrology

Per the guidelines prescribed in the Arid West Supplement (USACE 2008a), wetland hydrology indicators are separated into four major groups: A, B, C, and D. Group A indicators are based on direct observations of surface flow, ponding, and soil saturation/groundwater. Group B indicators consist of evidence of ponding, including water marks, drift deposits, and sediment deposits. Group C indicators include signs of previous and/or current saturation, including oxidized rhizospheres surrounding living roots and the presence of reduced iron or sulfur, both of which are indicative of extended periods of soil saturation. Group D indicators consist of "vegetation and soil features that are indicative of current rather than historic wet conditions and include a shallow aquitard and results of the Facultative (FAC)-Neutral test" (USACE 2008a). Each group is subdivided into primary and secondary categories based on their frequency and reliability to occur in the Arid West region. Signs of hydrology, where present, were evaluated in the project.

The jurisdiction of Chula Vista MSCP Subarea Plan wetlands was also determined during the delineations. According to the Subarea Plan, wetlands are generally defined as those areas that are inundated or saturated by surface water or groundwater at a frequency or duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. For purposes of the Subarea Plan, wetlands are those lands that contain naturally occurring wetland communities listed on Table 5-6 of the Subarea Plan and further described in Appendix

B of the Subarea Plan. Wetlands also include areas lacking wetland communities due to non-permitted filling of previously existing wetlands. The following list is the wetlands included on Table 5-6 of the Subarea Plan:

- Coastal wetlands
  - Salt marsh
  - Saltpan
- Riparian habitats
  - Oak Riparian Forest
  - Riperian Forest
  - Riparian Woodland
  - Ripiarian Scrub
  - Riparian Scrubv (Coastal Overlay Zone)
- Open water/freshwater
- Freshwater marsh
- Freshwater march (Coastal Overlay Zone)
- Natural flood channel
- Disturbed wetlands
- Vernal pools
- Marine habitat
- Eelgrass beds

3.2.5 Sensitive Biological Resources

Sensitive biological resources are defined as follows:

1. Species that have been given special recognition by federal, state, or local agencies and organizations due to limited, declining, or threatened population sizes
2. Habitat types recognized by local and regional agencies as sensitive
3. Habitat areas or plant communities that are unique, are of relatively limited distribution, or are of particular value to wildlife
4. Wildlife corridors and habitat linkages

Sources used for determination of sensitive biological resources are as follows: plants—USFWS (2000), CDFW (2021a, 2021b), and CNPS (2021); wildlife—USFWS (2000) and CDFW (2021a, 2021b); plant communities—Holland (1986) and Oberbauer et al. (2008) and the City of Chula Vista MSCP Subarea Plan (City of Chula Vista 2003).

Several focused surveys have been conducted for this study area to determine the presence/absence of special-status plant and animal species (Table 1). Dudek conducted focused surveys and/or habitat assessments for the following sensitive biological resources: focused protocol surveys for coastal California gnatcatcher (*Polioptila californica californica*), rare plant surveys, vegetation mapping, and jurisdictional resources.

3.3 Survey Limitations

Site visits were conducted during daylight hours. Complete inventories of biological resources present on a site often require numerous focused surveys at different times of day during different seasons. Some species, such as annual plants, may only be observable in the early spring, and 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 study area may support. Special-status plant and wildlife species with potential to occur in the study area are described in Sections 4.5.1, Special-Status Plant Species, and 4.5.2, Special-Status Wildlife Species, of this report and in Appendices D and E.

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4 Results of Surveys

4.1 Vegetation Communities

Vegetation communities and land covers mapped within the study area include the following: maritime succulent scrub, tamarisk scrub, unvegetated stream, and disturbed habitat (Figure 3, Biological Resources; Table 2). While cactus species commonly occur within the maritime succulent scrub, there are no cactus patches to map separately.

Table 2. Vegetation Communities and Land Cover within the Study Area

Vegetation Community/ Land Cover	Acres
Non-Sensitive Vegetation Communities	
Disturbed Habitat	0.46
Non-sensitive vegetation communities/land covers subtotal	*0.46*
Sensitive Vegetation Communities	
Maritime succulent scrub	13.75
Tamarisk scrub	0.42
Unvegetated Stream	0.11
Sensitive vegetation communities subtotal	*14.28*
Total[1]	**14.74**

[1] May not total due to rounding.

4.1.1 Maritime Succulent Scrub

Maritime succulent scrub is a low-lying community with openings that range from 25% to 75% cover and is dominated by drought deciduous, woody, malacophyllous shrubs with a rich admixture of stem and leaf succulents. Cacti is more dominant in inland populations and southern populations. Large portions of the ground are bare between the shrubs. Most of the growth and flowering occurs in the springtime within this community. Maritime succulent scrub extends as far inland as Bonita, Ca. Maritime succulent scrub is typically dominated by some or all of the following species: California copperleaf (*Acalypha californica*), Shaw's agave (*Agave shawii*), California sagebrush (*Artemisia californica*), golden spined cereus (*Bergerocactus emoryi*), California encelia (*Encelia californica*), cliff spurge (*Euphorbia misera*), coast barrel cactus (*Ferocactus viridescens*), California box thorn (*Lycium californicum*), coast prickly pear (*Opuntia littoralis*), chaparral prickly pear (*Opuntia oricola*), coast cholla (*Cylindropuntia prolifera*), lemonade berry (*Rhus integrifolia*), San Diego sunflower (*Viguiera or Bahiopsis laciniata*) (Oberbauer et al. 2008).

On site, there are 13.75 acres of Maritime succulent scrub present. Numerous succulent species are present and, in some areas, abundant. Succulents are present within the plant community and include coastal barrel cactus (*Ferocactus viridescens*), coast cholla (*Cylindropuntia prolifera*), strawberry cactus (*Mammillaria dioica*), and coastal prickly pear (*Opuntia littoralis*). Larger dominant shrubs growing with the succulents include jojoba (*Simmondsia chinensis*), lemonadeberry (*Rhus integrifolia*), California buckwheat (*Eriogonum fasciculatum*), San Diego sunflower (*Bahiopsis laciniata*), laurel sumac (*Malosma laurina*), and California adolphia (*Adolphia californica*). Less commonly occurring species within the maritime succulent scrub include Mojave yucca (*Yucca*

schidigera), cane bluestem (*Bothriochloa barbinodis*), and clustered tarplant (*Deinandra fasciculata).* The majority of the maritime succulent scrub on site is high quality with only few non-native grass species. Non-native grasses scattered throughout the site are few and include mostly a variety of European bromes like red brome (*Bromus rubens*), rip gut brome (*Bromus diandrus*), and false brome (*Brachypodium distachyon*). Large open patches of the maritime succulent scrub are dominated by cryptogamic crusts and spikemoss species. Ashy spikemoss (*Selaginella cinerascens*) is a dominate plant on site within most openings. Soils within this vegetation community consist of clay loams. Maritime succulent scrub is the overall dominant plant community on site.

4.1.2 Tamarisk scrub

Tamarisk scrub (*Tamarix ramosissima*) is a non-native community consisting almost entirely as a monoculture. Tamarisk scrub supplants native vegetation following a major disturbance. Tamarisk scrub is found in sandy, gravelly braided channels, or washes or intermittent streams. Tamarisk is a prolific seeding species and an aggressive competitor to other species in riparian corridors. Tamarix scrub is widely scattered and increasing its range, throughout the drier parts of California. Tamarix scrub is also moving into the deserts of Nevada, Arizona, and beyond (Oberbauer et al. 2008).

Tamarisk scrub is dominant within the plant community on site, present on 0.42 acres and making up 95% of the vegetative cover. This tamarisk community can be easily identified with aerial photography due to the density. Two narrow riparian corridors are present within the project boundary that contain tamarisk. One corridor sits on the very western side of the site and the other near the central portion of the site. In addition, at the two offsite riprap areas south of Main street, tamarisk scrub was recorded along the fringes of the riparian zone associated with the Otay River floodplain. Large, mature tamarisk occur in these two small sections of the project site, intermixed with some mule fat shrubs (*Baccharis salicifolia*). Tamarisk creates dense monocultures that allow minimal light penetration to the ground, though a few remnant willows were still present on site. Thick stands of tamarisk allow for few annuals and few small perennials to persist below the canopy. The soils below the tamarisk consist of sand or sandy loams. Red willow (*Salix laevigata*), Goodding's willow (*Salix gooddingii*), and mulefat occur in a very small percentage within the tamarisk scrub. Red brome, rip gut brome, and smilograss (*Stipa miliacea*) are the dominant species in the understory. Additional species observed, but in less than 1% cover include wild celery (*Apium graveolens*) and cocklebur (*Xanthium strumarium*).

4.1.3 Unvegetated Stream Channel

Unvegetated stream channel is an aquatic community characterized by sandy, gravelly, or rocky fringes found around waterways or flood channels. Vegetation may be present but is usually is less than 10% total cover and grows on the outer edge of the channels (Oberbauer et al. 2008).

Unvegetated stream occurs on 0.11 acres within the three drainages that generally flow north to south across the site. These drainages are all found at the bottom of steep slopes, two at the western and eastern edges of the project, the third in the center. The central channel's eastern slope and edge consist of patches of dense singlewhorl burrobush (*Ambrosia monogyra*). Unvegetated stream channel also occurs south of Main street in the offsite riprap areas where the western and central drainages flow beneath Main street via culvert structures.

4.1.4 Disturbed Habitat

Disturbed habitats are areas that have been physically disturbed and are no longer recognizable as a native or naturalized vegetation association. 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).

Disturbed habitat is found on 0.46 acres near the central portion of the site, and in the offsite riprap areas south of Main street. Disturbed habitat on the main portion of the project site consists of an old dirt road and other disturbances; disturbed habitat south of Main street is associated with undeveloped land directly adjacent to Main street. The majority of this disturbed habitat has either compacted soils, soils that may have been historically disced and or graded to maintain a dirt road. In these disturbed areas, non-native European bromes dominate. Near the center of the site, the edges of observed disturbed habitat consist of San Diego ambrosia (*Ambrosia pumila*). San Diego ambrosia continues into the maritime succulent scrub habitat.

4.2 Jurisdictional Waters and Wetlands

The study area supports several potential jurisdictional aquatic resources. Figure 4, Potential Jurisdictional Resources, shows where these areas are located. Wetland sampling points were collected along the western and central channels on site, as well as at the outlet of the western channel south of Main Street, and concluded there are no three-parameter wetlands. The eastern-most channel displayed similar characteristics as the other two, with an unvegetated channel and tamarisk along the slope. The three channels on site are unnamed. These channels are visible on aerial imagery before major site disturbance and development in the area started in the 1960s and 1970s. Rainfall along with runoff from the commercial developments to the north convey water into these channels through large metal culverts that outlet in the northern upstream portion of the study area. The channels flow south into a culvert beneath Main Street and into the Otay River. The western channel appears to receive perennial water, perhaps due to irrigation or other land uses; water was ponded at the outlet on the south side of Main Street during the March 2022 visit. The middle channel had a small amount of water at the culvert outlet but was dry for the majority of its length. At least half of this channel is filled with tires that were illegally dumped on site. The culvert beneath Main Street is clogged with sediment and the City was in the process of sediment removal in the off-site area during the March 2022 visit. This sediment removal and associated work areas had temporarily disturbed the channel configuration. Dudek mapped the estimated extent of the channel prior to the temporary disturbance. The eastern channel was dry during the site visit and was also partially filled with tires that were illegally dumped on site. These unvegetated stream features would be considered non-wetland waters and streams, potentially regulated by the jurisdiction of the USACE, RWQCB, and CDFW.

While not a three-parameter wetland, tamarisk scrub is considered a “riparian scrub” and therefore a Chula Vista MSCP Subarea Plan wetland. In addition, this tamarisk would be regulated by CDFW as riparian habitat since it occurs along the slopes of the streams.

There are two erosional features created on very steep slopes where water runoff has eroded the soils. While these are not typically regulated by resource agencies, they can convey stormwater and may be regulated by RWQCB. Table 3 summarizes these resources.

Table 3. Jurisdictional Wetlands and Waters at the Project Site

Wetlands Vegetation Community/ Water Feature	Jurisdiction	Acres
Tamarisk scrub (riparian)	CDFW; City	0.42
Unvegetated channel	USACE/CDFW/RWQCB Non-wetlands waters	0.11
Maritime succulent scrub (top of bank)	CDFW	0.02
Erosional Feature	RWQCB Non-wetland waters	0.01
	Total	**0.56**

4.2.1 Wetlands Discussion

Merkel & Associates conducted a jurisdictional delineation in 2007. Their delineation mapped wetlands on site. However, the 2021 jurisdictional delineation concluded there were no three-parameter wetlands on site. As described in Sections 2 and 3, wetlands must have hydrophytic vegetation, hydric soils, and hydrology present in order to be considered a wetland. The previous report and data forms indicate certain wetland species were present on site during that time, including southern cattail (*Typha domingensis*) and areas dominated by willows or mulefat. Their report concluded that the riparian scrub communities were wetlands; however, their report also states that only two parameters were present at their data points: hydrophytic vegetation and hydrology. Hydric soils were absent from their data points and the report states they were assumed "due to dominance of FACW plant species". USACE guidance documents, such as the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008) describe assuming hydric soils under certain circumstances, such as a combination of various factors or "problematic" hydric soils. The Merkel & Associates report does not provide any further explanation besides the presence of certain plant species, nor does the report include the second page of the wetland data determination forms to provide further clarification to support this conclusion. The presence of certain hydrophytic plant species alone is not sufficient to assume hydric soils.

Regardless, the site has changed between 2007 and 2022 and the biological resources present have changed. The 2021 and 2022 delineations represent the current conditions of the site, which lack three-parameter wetlands. Tamarisk is the dominant riparian plant present on site, with the understory dominated by upland grasses. Tamarisk is a facultative plant, which means it can occur in both wetlands and non-wetlands. No facultative wetland or obligate plants were dominant in areas on site. None of the soils on site (Olivenhain-Urban land complex, 9 to 30 percent slopes, Salinas clay loam, 2 to 9 percent slopes) or gravel pits are mapped as hydric nor do they have indications of being a problematic soil (e.g., alkaline). While not a three-parameter wetland, the tamarisk is mapped as a riparian resource regulated by CDFW and a City wetland. Willows and mulefat are a very small component of the tamarisk; however, they are not dominant or co-dominant (typically one tree or shrub) and do not meet the definition of a stand-alone vegetation community based on Oberbauer (2008).

4.3 Botany

A total of 94 species of native or naturalized plants, 48 native (51%) and 46 non-native (49%), was recorded on the site (Appendix A). Twenty-four families were observed on site, with members of Asteraceae and Poaceae representing most of the recorded species. Special-status plants known to occur at the project or with moderate to high to potential to occur at the study area are discussed in Section 4.5.1, Special-Status Plant Species.

4.4 Zoology

Historic information and recent surveys are the basis for the description of wildlife on the study area. Special-status wildlife known to occur at the project or with moderate to high to potential to occur at the study area are discussed in Section 4.5.2, Special-Status Wildlife Species. A list of wildlife species observed or detected on site is included in Appendix B.

4.4.1 Birds

A total of 22 species of birds were observed within study area or immediately off site during the surveys conducted by Dudek in 2021. Some of the species observed include coastal American kestrel (*Falco sparverius*), Anna's hummingbird (*Calypte anna*), California towhee (*Melozone crissalis*), common yellowthroat (*Geothlypis trichas*), house finch (*Haemorhous mexicanus*), red-tailed hawk (*Buteo jamaicensis*), Pacific-slope flycatcher (*Empidonax difficilis*), and northern mockingbird (*Mimus polyglottos*).

4.4.2 Reptiles and Amphibians

Only one reptile species was observed within the study area during the Dudek surveys: western fence lizard (*Sceloporus occidentalis*). Based on the habitat present and Dudek biologists' knowledge of the area, it is presumed that several other reptile and amphibian species occur on the study area. Some of these include common side-blotched lizard (*Uta stansburiana*), red-diamond rattlesnake (*Crotalus ruber*), Blainville's horned lizard (*Phrynosoma blainvillii*), tree frogs (*Pseudacris* spp.), and western toad (*Bufo boreas*).

4.4.3 Mammals

Two species of mammal were detected within the study area by direct observation or sign: California ground squirrel (*Spermophilus (Otospermophilus) beecheyi*) and coyote (*Canis latrans*). Other mammal species that likely use the site include Botta's pocket gopher (*Thomomys bottae*), desert cottontail (*Sylvilagus audubonii*), and common raccoon (*Procyon lotor*).

4.4.4 Invertebrates

Eight species of invertebrates, all of which were butterflies, were identified within the study area by direct observation. Common species on site include Behr's metalmark (*Apodemia mormo virgulti*), marine blue *(Leptotes marina)*, Edward's blue (*Hemiargus ceraunus gyas*), western pygmy-blue (*Brephidium exile*), and cloudless sulphur (*Phoebis sennae*). Invertebrate diversity is expected to be moderately high, especially in the naturally vegetated portions of the study area.

4.5 Sensitive Biological Resources

The following resources are discussed in this section:

1. Plant and wildlife species present in the project vicinity that are given special recognition by federal, state, or local agencies and organizations
2. Habitat types recognized by local and regional agencies as sensitive
3. Habitat areas that are unique, are of relatively limited distribution, or are of particular value to wildlife
4. Wildlife corridors and habitat linkages

4.5.1 Special-Status Plant Species

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"); have a CRPR of 1–4; are listed as an MSCP-covered species; and/or have been adopted by the City as narrow endemic. An evaluation of known records in the Imperial Beach quadrangle and the surrounding four quadrangles (CDFW 2021a; CNPS 2021; USFWS 2021a) was conducted to determine which species have been recorded in the project vicinity. Figure 5 shows the CNDDB occurrences within 1 mile of the study area. In addition, Dudek's knowledge of biological resources, the regional distribution of each species (SDNHM 2021; Calflora 2021; Reiser 2001), and anecdotal observations from other 2021 surveys, as well as elevation, habitat, and soils present within the project footprint and study area, were evaluated to determine the potential for various special-status species to occur.

Rare plant surveys were conducted in 2007 by Merkel & Associates Inc. Multiple special status plant species were observed during those surveys and the results contained in the *Biological Impact Analysis Report for the Chula Vista Street Western Parcel Project* (Appendix G) were considered during this assessment.

Protocol level special-status plant surveys to determine the presence or absence of plant species that are considered endangered, rare, or threatened under CEQA Guidelines Section 15380 (14 CCR 15000 et seq.) were conducted in April and May 2022.

Focused surveys for other resources within the study area were conducted in 2021. One federally listed plant species was detected within the study area: San Diego ambrosia (*Ambrosia pumila)* (federally threatened; CRPR 1B.1; MSCP Covered species and narrow endemic). Five other species considered sensitive by various agencies also occur within the study area: singlewhorl burrobrush (*Ambrosia monogyra*; CRPR 2B.2), California adolphia (*Adolphia californica*; CRPR 2B.1), San Diego barrel cactus (*Ferocactus viridescens;* CRPR 2B.1; MSCP Covered species), Ashy spike-moss (*Selaginella cinerascens*; CRPR 4.1), and San Diego County viguiera (*Viguiera laciniata*; CRPR 4.3).

The six observed rare plants observed on site are shown in Table 4 and shown on Figure 3. Plants with low or no potential to occur are listed in Appendix E. Species observed during the 2021 and 2022 focused surveys are described herein.

Table 4. Special Status Plant Species Observed On Site

Scientific Name	Common Name	Status (Federal/State /CRPR/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Adolphia californica	California adolphia	None/None/ 2B.1/None	Chaparral, Coastal scrub, Valley and foothill grassland; Clay/perennial deciduous shrub/ Dec–May/33–2,425	Observed on site during vegetation mapping and rare plant surveys, and in 2007 (Appendix G).
Ambrosia monogyra	singlewhorl burrobrush	None/None/ 2B.2/None	Chaparral, Sonoran desert scrub; sandy/perennial shrub/Aug–Nov/ 33–1,640	Observed on site during vegetation mapping and rare plant surveys.
Ambrosia pumila	San Diego ambrosia	FE/None/ 1B.1/Covered; NE	Chaparral, Coastal scrub, Valley and foothill grassland, Vernal pools; sandy loam or clay, often in disturbed areas, sometimes alkaline/perennial rhizomatous herb/ Apr–Oct/66–1,360	Observed on site during vegetation mapping.
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/ 10–1,475	Observed on site during vegetation mapping and rare plant surveys, and in 2007 (Appendix G).
Selaginella cinerascens	ashy spike-moss	None/None/ 4.1/None	Chaparral, Coastal scrub/perennial rhizomatous herb/N.A./66–2,095	Observed on site during vegetation mapping and rare plant surveys.
Viguiera laciniata	San Diego County viguiera	None/None/ 4.3/None	Chaparral, Coastal scrub/perennial shrub/Feb–June(Aug)/ 197–2,460	Observed on site during vegetation mapping and rare plant surveys.

Source: Calflora 2021; iNaturalist 2021; Reiser 2001; SDNHM 2021

Status Designations

Covered: species covered under the Chula Vista MSCP
FE: Federally listed as endangered
SE: State listed as endangered
CRPR (California Rare Plant Rank):
CRPR 1A: Plants presumed extirpated in California and either rare or extinct elsewhere
CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
CRPR 2A: Plants presumed extirpated in California, but common elsewhere
CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
CRPR 3: Plants about which more information is needed – a review list
CRPR 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: moderately threatened in California (20%–80% of 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)

California adolphia (*Adolphia californica*), CRPR 2B.1. California adolphia is a dicot, California native shrub that occurs in San Diego, Los Angeles, and Monterey counties (Calflora 2021). This species is found in chaparral, valley grassland, and coastal sage scrub, and typically blooms from December to May. California adolphia occurs at elevations of 33 to 2,428 feet amsl. California adolphia was observed in the western portion of the study area (Figure 3).

Singlewhorl burrobrush (*Ambrosia monogyra*), CRPR 2B.2. Singlewhorl burrobrush is a dicot, California native shrub that occurs in Imperial, Inyo, Orange, Riverside, San Bernardino, and San Diego counties (Calflora 2021). This species is found in coastal sage scrub, freshwater wetland, and chaparral habitat and typically blooms from August to November. Singlewhorl burrobrush occurs at elevations below 1,640 feet amsl. Singlewhorl burrobrush was observed along the western and middle drainages (Figure 3).

San Diego ambrosia (*Ambrosia pumila*), CRPR 1B.1, Federally Endangered, MSCP Covered Species, Narrow Endemic. San Diego ambrosia is an herbaceous plant that blooms April through October and grows in freshwater wetland, coastal sage scrub, and chaparral communities (CNPS 2021). San Diego ambrosia was observed adjacent to the middle drainage (Figure 3).

San Diego Barrel Cactus (*Ferocactus viridescens*), CRPR 2B.1, MSCP Covered Species. San Diego barrel cactus is a dicot, California native species of cactus that is found almost exclusively in the coastal regions of San Diego (Calflora 2021). This species is often found in coastal scrub, chaparral, and grassland environments, blooming May through June. It is found at elevations ranging from 10 to 1,475 feet amsl. San Diego barrel cactus was observed in the far western and northeastern portions of the study area (Figure 3).

Ashy Spike Moss (*Selaginella cinerascens*), CRPR 4.1. Ashy spike moss is a pteridophyte, California native fern found only in southern San Diego and Orange counties. It is also found in parts of northern Mexico. This species occurs in chaparral and coastal scrub communities ranging from 66 to 2,095 amsl. Ashy spike moss was observed in the western portion of the study area (Figure 3).

San Diego County viguiera (*Viguiera laciniata*), CRPR 4.3 San Diego County viguiera is a dicot, California native perennial shrub that occurs in San Diego and Orange counties (Calflora 2021). This species is found in chaparral and coastal sage scrub. The bloom period for San Diego County viguiera is from February to August. San Diego County viguiera occurs at elevations of 195 to 2,460 feet amsl. This species is present throughout the maritime succulent scrub on site and was not mapped.

4.5.2 Special-Status Wildlife Species

Table 5 provides a cumulative list of special-status wildlife species that were observed during focused surveys or that have moderate to high potential to occur in the study area based on the literature search. Figure 5 shows the CNDDB occurrences within 1 mile of the study area. Appendix E shows all species that have low or no potential to occur. The potential to occur is based on known occurrences in the region, life history, and the general habitat requirements.

Focused surveys of the study area were conducted according to the methods presented in Section 3.2.3, Fauna. Focused surveys for coastal California gnatcatcher were conducted at the study area during the 2021 season. Special-status wildlife species observed include wrentit (*Chamaea fasciata*), Cooper's hawk (*Accipiter cooperii*), and least Bell's vireo (*Vireo bellii pusillus*). Surveys conducted in 2007 by Merkel & Associates observed multiple special-status wildlife species and the results of those surveys were considered during this assessment.

Regarding quino checkerspot butterfly, per Section 5.2.8.2 in the City's Subarea Plan, "Outside of the Preserve, protocol surveys for QCB presence will be required for Development Areas only within Non-Preserve Habitat-Category A east of SR125". The Proposed Project is located west of SR125 and therefore does not require focused surveys. Within the 100% Conservation Areas, potential impacts to quino checkerspot butterfly habitat will be minimized. There is no suitable habitat for quino checkerspot butterfly in the two riprap modification areas within the 100% Conservation Area since they are comprised of disturbed habitat and tamarisk scrub, both lacking the soil substrate and plant composition that would support quino checkerspot butterfly.

A description of special-status wildlife species observed or detected during surveys conducted in 2021 is included herein.

Table 5. Special Status Wildlife Species Observed On Site or With Moderate to High Potential to Occur On Site

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Reptiles				
Aspidoscelis hyperythra	orange-throated whiptail	None/WL/ Covered	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood	High potential to occur. Appropriate vegetation on site and site with species occurrence range. Nearest CNDDB occurrence occurs within study area.
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC/ None	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	High potential to occur on site. There is suitable vegetation on site. The nearest CNDDB occurrence record, collected in 2000 or 2001, is 6.8 miles southeast of the study area. Some suitable vegetation present.
Crotalus ruber	red diamondback rattlesnake	None/SSC/ None	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	High potential to occur. Suitable coastal scrub vegetation present on site. Nearest CNDDB record of occurrence, collected in 2006, is 1 mile northwest of the study area.
Masticophis fuliginosus	Baja California coachwhip	None/SSC/ None	In California restricted to southern San Diego County, where it is known from grassland	Moderate potential to occur. The nearest CNDDB record of occurrence, collected in 1941, is 1 mile south of the study area.

Table 5. Special Status Wildlife Species Observed On Site or With Moderate to High Potential to Occur On Site

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			and coastal sage scrub. Open areas in grassland and coastal sage scrub.	Suitable scrub habitat present on site.
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC/ Covered	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	High potential to occur. The nearest CNDDB record of occurrence, collected in 1981, is 2.4 miles south of the study area. There is an observation just south of Main Street from 2017 (iNaturalist 2021). Suitable riparian and coastal scrub vegetation present on site.
Birds				
Accipiter cooperii (nesting)	Cooper's hawk	None/WL/ Covered	Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water	Observed foraging on site. Low potential to nest on site with the limited number of trees and surrounding development. The Otay River is located just south and has much better-quality nesting habitat. There is suitable nesting habitat for this species near the offsite riprap modification areas. The nearest CNDDB record of occurrence, collected in 2001, is 6.8 miles southwest of the study area.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/WL/ Covered	Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches	High potential to occur. The nearest CNDDB record of occurrence, collected in 2002, is 1.2 miles northeast of the study area. Suitable vegetation is present for foraging or nesting individuals.
Artemisiospiza belli	Bell's sparrow	None/WL/ None	Nests and forages in coastal scrub and dry chaparral; typically in large, unfragmented patches dominated by chamise; nests in more dense patches	Moderate potential to occur. The nearest CNDDB record of occurrence, collected in 2000, is 6.8 miles northwest of the study area. Suitable coastal scrub vegetation present on site.

Table 5. Special Status Wildlife Species Observed On Site or With Moderate to High Potential to Occur On Site

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			but uses more open habitat in winter	
Campylorhynchus brunneicapillus sandiegensis (San Diego & Orange Counties only)	coastal cactus wren	None/SSC/ Covered	Southern cactus scrub patches	Low potential to nest on site and moderate potential to forage on site. The nearest CNDDB record of occurrence, collected in 1989, is 0.5-mile east of the study area. There is cactus throughout the study area, though there are no cactus thickets or patches typically required for nesting. Additionally, no nests or individuals were heard or observed during the 2021 focused California gnatcatcher surveys or previous surveys done in 2007 (Appendix G). Site could be used by transient individuals but has low nesting potential.
Chamaea fasciata	wrentit	BCC/None/ None	Primarily coastal scrub and chaparral, but also riparian habitats, oak woodland, mixed hardwood, and mixed conifer forests	Observed.
Icteria virens (nesting)	yellow-breasted chat	None/SSC/ None	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Moderate potential to nest on site. The nearest CNDDB record of occurrence, collected in 2001, is 1.7 miles east of the study area. Some marginal riparian vegetation present that could support nesting or could occur on site as transient forager. There is suitable habitat for this species near the offsite riprap modification areas.
Polioptila californica	coastal California gnatcatcher	FT/SSC/ Covered	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a	High potential to occur. Two pairs were documented nesting on site during the 2007 surveys (Appendix G). Suitable scrub vegetation dominates the study area. Site could be used by foraging and nesting individuals. Protocol level surveys were

Table 5. Special Status Wildlife Species Observed On Site or With Moderate to High Potential to Occur On Site

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			slope of greater than 40%; majority of nesting at less than 1,000 feet amsl	conducted in July, August, and October 2021 with no recorded observations; however, based on the presence of suitable habitat it is assumed this species can nest on site.
Setophaga petechia (nesting)	yellow warbler	None/SSC/ None	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Moderate potential to nest on site. The nearest CNDDB record of occurrence, collected in 2017, is 4.3 miles southeast of the study area. Some marginal riparian vegetation present that could support nesting or could occur on site as transient forager. There is suitable habitat for this species near the offsite riprap modification areas.
Vireo bellii pusillus (nesting)	least Bell's vireo	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 nest on site north of Main Street. This species nests in the Otay River, just south of the main project site. An individual least Bell's vireo was observed on July 1, 2021 during the focused California gnatcatcher survey but was not detected later in the day or during subsequent surveys. Riparian habitats on site are small in size, dominated by non-native tamarisk, and offer little nesting opportunity for this species. There is high likelihood that this species could use the main project site (north of Main Street) as a transient forager, though nesting is unlikely. The offsite riprap modification areas south of Main Street are comprised of disturbed habitat or tamarisk but assumed to be adjacent to suitable nesting habitat for least Bell's vireo.

Table 5. Special Status Wildlife Species Observed On Site or With Moderate to High Potential to Occur On Site

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Mammals				
Chaetodipus fallax	northwestern San Diego pocket mouse	None/SSC/ None	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon–juniper, and annual grassland	Moderate potential to occur. The nearest CNDDB record of occurrence, collected in 1993, is 0.5 miles south of the study area. This species prefers rocky habitat near shrubs and occurrence numbers in chaparral is negligible (Tremor 2017). The site is dominated by maritime succulent scrub which is dense, and the site lacks rocky areas.
Eumops perotis californicus	western mastiff bat	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	Moderate potential to occur. The nearest CNDDB record of occurrence is 2.5 miles west of the study area. No date is associated with this record. Suitable coastal scrub vegetation is present, roosting opportunity is limited to a few palm trees and eucalyptus.
Lasiurus blossevillii	western red bat	None/SSC/None	Forest, woodland, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy	Moderate potential to occur on site. The nearest CNDDB record of occurrence, collected in 2003, is 9.2 miles north of the project site. There is potential for this species to roost in the few palm trees and eucalyptus on site.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/SSC/ None	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	High potential to occur. The nearest CNDDB record of occurrence, collected in 2002, is 1 mile northeast of the study area. Suitable coastal scrub vegetation is present on site.
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC/ None	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Moderate potential to occur. The nearest CNDDB record of occurrence, collected in 2003, is 0.6 miles south of the study area. Suitable coastal scrub and cacti vegetation present on site;

Table 5. Special Status Wildlife Species Observed On Site or With Moderate to High Potential to Occur On Site

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				however, the area lacks records of this species (Tremor 2017).
Perognathus longimembris pacificus	Pacific pocket mouse	FE/SSC/ None	fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium	Not expected to occur. The only location where this subspecies occurs in San Diego County is at Camp Pendleton and Santa Margarita (Tremor 2017).

Source: Appendix G; iNaturalist 2021; Tremor 2007
Note: amsl = above mean sea level; CNDDB = California Natural Diversity Database; FE: Federally listed as endangered; FT: Federally listed as threatened; BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern; SSC: California Species of Special Concern; WL: California Watch List species; SE: State listed as endangered; Covered: covered species under the MSCP

Least Bell's vireo (*Vireo bellii pusillus*), Federally Endangered, State Endangered Least Bell's vireo is federally listed as endangered, state-listed as endangered, and an MSCP Covered Species. The breeding range of least Bell's vireo includes coastal and inland Southern California (including the western edge of Southern California's southern deserts), a small area within California's Central Valley, and extreme northern Baja California, Mexico. Least Bell's vireo overwinters primarily along southern Baja California (Kus 2002). Least Bell's vireo primarily occupy riverine riparian habitats along water, including dry portions of intermittent streams that typically provide dense cover within 1 to 2 meters (3.3 to 6.6 feet) off the ground, often adjacent to a complex, stratified canopy. Least Bell's vireo nesting habitats in cismontane and coastal areas include southern willow scrub; mulefat scrub; arroyo willow riparian forest edge; wild blackberry thickets; and more rarely, cottonwood forest, sycamore alluvial woodland, and southern coast live oak riparian forest. A single individual was observed at the study area during 2021 surveys. They are assumed to be nesting in the Otay River.

Cooper's Hawk (*Accipiter cooperii*), Federal Bird of Conservation Concern Cooper's hawk is found in many regions of California, primarily in wooded habitats. It is listed as an MSCP Covered Species and appears on CDFW's Special Animals list (CDFW 2021d). It nests and forages in dense stands of live oak and riparian communities, often near water, and is rarely found in areas that lack wooded habitat. A single individual was observed on site during focused surveys conducted in 2021. Similar observations were recorded in 2007 (Appendix G).

Wrentit (*Chamaea fasciata*), Federal Bird of Conservation Concern The wrentit is listed on the USFWS's 2021 Birds of Conservation Concern list. This species is often found in chaparral and woodland communities on California's coasts and in the interior mountain regions. A single individual was observed at the study area during 2021 focused surveys.

4.5.2.1 Coastal California Gnatcatcher Focused Survey Results

A coastal California gnatcatcher California Natural Diversity Database occurrence has been recorded within 1 mile of the study area to the east (Figure 5) and suitable habitat exists on site. No coastal California gnatcatcher were detected within the study area during focused protocol surveys in 2021. Two pair of gnatcatcher were detected during the 2007 focused surveys (Appendix G). While not detected during the 2021 surveys, there is suitable nesting habitat on site and

the site is considered potential habitat for this species. Details regarding the 2021 on-site and off-site surveys can be found in the focused survey report in Appendix H, Coastal California Gnatcatcher Protocol Survey Reports.

4.5.3 Sensitive Vegetation Communities

Sensitive habitats are those that are considered rare within the region, support special-status plant and/or wildlife species, or are important to provide connections for wildlife movement. The City of Chula Vista defines sensitive biological resources as those that contain natural vegetation; that are identified as Tier I, II, or III on Table 5-3 of the Chula Vista MSCP Subarea Plan; and/or that are wetlands identified in Table 5-6 of the Chula Vista MSCP Subarea Plan. Habitat types found on the study area that are considered sensitive include maritime succulent scrub, unvegetated stream, and tamarisk scrub (Table 2; Figure 3).

Maritime Succulent Scrub

Maritime succulent scrub is considered a sensitive vegetation community by the Chula Vista MSCP Subarea Plan because it supports species that are covered under the plan.

Tamarisk Scrub

Tamarisk scrub is considered a sensitive vegetation community by the Chula Vista MSCP Subarea Plan because it supports species that are covered under the plan and because of its function as a wetland community under the plan. In addition, this vegetation community is regulated by CDFW as riparian habitat.

Jurisdictional Resources

Three drainages occur in the study area. These drainages are considered waters that may be regulated by USACE, RWQCB, and CDFW and flow into the Otay River. These waters are described in greater detail in Section 4.2, Jurisdictional Waters and Wetlands. Tamarisk scrub is also found on site and regulated by CDFW as riparian habitat and the City under the Chula Vista MSCP Subarea Plan Wetlands Protection Program. Two erosional features may be regulated by RWQCB.

4.5.4 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 through the following:

1. Ensuring the continual exchange of genes between populations, which helps maintain genetic diversity
2. Providing access to adjacent habitat areas, representing additional territory for foraging and mating
3. Allowing for a greater carrying capacity
4. 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 reduce the adverse effects of habitat fragmentation. Although individual animals may not move through a habitat linkage, the linkage does represent a potential route for gene

flow and long-term dispersal. Habitat linkages may serve as both habitat and 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 "stepping stones" for dispersal.

The MSCP defines core and linkage areas as those maintaining ecosystem function and processes, including large animal movement. Each core area is connected to other core areas or to habitat areas outside of the MSCP either through common boundaries or through habitat linkages. Core areas have multiple connections to help ensure that the balance in the ecosystem will be maintained.

The Otay River Valley provides a major wildlife corridor for the entire South Bay region (Figure 2). As such, the study area sits near a major center for regional wildlife movement but is not a linkage or corridor itself. The southern border of the project is less than 200 feet away from the active floodplain of the river as it flows west towards the bay and species that spend all or a portion of their life cycle in the Otay River may use the site for foraging.

5 Anticipated Project Impacts

This section addresses direct, indirect, and cumulative impacts to biological resources that would result from implementation of the proposed project.

Direct impacts were quantified by overlaying the anticipated limits of grading on the biological resources map and quantifying impacts. The direct impacts are based on the limits of grading and the limits of the work area for the offsite riprap modification areas.

Indirect Impacts result from adverse edge effects, either short-term indirect impacts related to construction, or long-term, chronic indirect impacts associated with the location of urban development in proximity to biological resources within natural open space. During construction of the project, short-term indirect impacts may include dust and noise, which could disrupt habitat and species vitality temporarily, and construction-related soil erosion and runoff. However, all project grading is subject to established restrictions and requirements that restrict erosion and runoff, including the federal Clean Water Act and National Pollution Discharge Elimination System, as well as preparation of a stormwater pollution prevention plan. These programs minimize project impacts to erosion/runoff. Long-term indirect impacts to adjacent open space may include intrusions by humans and domestic pets, noise, lighting, invasion by exotic plant and wildlife species, effects of toxic chemicals (e.g., fertilizers, pesticides, herbicides, and other hazardous materials), urban runoff from developed areas, soil erosion, litter, fire, and hydrological changes (e.g., changes in groundwater level and quality).

Cumulative Impacts refer to incremental individual environmental effects of two or more projects when considered together. These impacts taken individually may be minor but become collectively significant as they occur over time. Cumulative impacts will be discussed in the CEQA document.

5.1 Explanation of Findings of Significance

Impacts to sensitive habitats, special-status plants, and special-status wildlife species must be quantified and analyzed to determine whether such impacts are significant under CEQA. CEQA Guidelines Section 15064(b) states that an ironclad definition of "significant" effect is not possible because the significance of an activity may vary with the setting. Appendix G of the Guidelines, however, does provide "examples of consequences which may be deemed to be a significant effect on the environment" (Guidelines Section 15064[e]). These effects include substantial effects on rare or endangered species of animal or plant or the habitat of the species. Guidelines Section 15065(a) is also helpful in defining whether a project may have "a significant effect on the environment." Under that section, a proposed project may have a significant effect on the environment if the project has the potential to:

1. Substantially degrade the quality of the environment
2. Substantially reduce the habitat of a fish or wildlife species
3. Cause a fish or wildlife population to drop below self-sustaining levels
4. Threaten to eliminate a plant or animal community
5. Reduce the number or restrict the range of a rare or endangered plant or animal
6. Eliminate important examples of the major period of California history or prehistory

The evaluation of whether or not an impact to a particular biological resource is significant must consider both the resource itself and the role of that resource in a regional context. Substantial impacts are those that contribute to, or result in, permanent loss of an important resource, such as a population of a rare plant or animal. Impacts may be important locally because they result in an adverse alteration of existing site conditions, but considered not significant because they do not contribute substantially to the permanent loss of that resource regionally. The severity of an impact is the primary determinant of whether or not that impact can be mitigated to a level below significant.

5.2 Direct Impacts

5.2.1 Impacts to Vegetation Communities at the Project Site

Implementation of the proposed project would result in permanent impacts to 14.44 acres of the project site (both on-site and off-site areas), including 13.98 acres of upland areas. See Figure 6, Impacts to Biological Resources. Figure 7A shows the project site plan depicting proposed roads, facilities, parking, etc. Figure 7B shows the riprap modifications.

Impacts to native upland vegetation communities and wetlands habitats are considered significant under the Subarea Plan and in accordance with the HLIT Ordinance require mitigation (Subarea Plan Tables 5-3 and 5-6) (City of Chula Vista 2003). Sensitive vegetation communities to be permanently impacted within the project site include maritime succulent scrub, tamarisk scrub, and unvegetated channel. The impacts to tamarisk scrub and unvegetated channel are described in Section 5.2.4. Impacts to sensitive vegetation communities (as noted in Table 6) are considered significant (**Impact BIO-1**) and would be reduced to a less-than-significant level by virtue of the biological mitigation (See **Mitigation Measure [MM]-1**). In addition, the Project will be required to obtain a HLIT permit, in accordance with the HLIT Ordinance, as described in **MM-2**. The required findings for issuance of an HLIT permit are included in Appendix F.

Vegetation communities that are considered to be sensitive by the City are listed as wetlands or classified as Tier I through Tier III (City of Chula Vista 2003). Table 6 includes the summary of impacts to upland vegetation communities and land covers. These communities are expected to be directly impacted, since project activities will result in soil disturbance and grading. Impacts to the City wetlands and regulated waters are described in Section 5.2.4.

Table 6. Impacts and Mitigation Requirements for Upland Vegetation Communities and Land Cover

Habitat Type	Impacts (Ac.)	HLIT Habitat Tier/Type	MSCP Mitigation Ratio	Upland Required Mitigation (Ac.)
Maritime succulent scrub	13.53	I	1:1	13.53
Disturbed Habitat	0.45	IV	NA	0
Total	**13.98**	–	–	**13.53**

Notes: HLIT = Habitat Loss and Incidental Take (Ordinance); MSCP = Multiple Species Conservation Program

Direct, temporary impacts could occur to native vegetation east of the project site if work extends beyond the approved limits of grading due to lack of adequate construction fencing. This could result in significant impacts to vegetation communities that are not covered under the proposed project, which would be a significant impact (**Impact BIO-2**). This potential impact would be reduced to less than significant through implementation of **MM-3** and **MM-4**.

5.2.2 Special-Status Plant Species

Implementation of the proposed project would result in the direct loss of special-status plant species occurring within the project site, as discussed in Section 4.5.1. Six special-status plant species were recorded at the project site during focused surveys conducted in 2021 and 2022.

Impacts to special-status plants with CRPR 1 or 2 that are not covered under the MSCP are considered significant (**Impact BIO-3**). The proposed project would result in impacts to 239 California adolphia and 20 singlewhorl burrobrush. These impacts would be reduced to less than significant through implementation of **MM-1**, which requires the mitigation land to support these special-status species or provide relocation and/or re-seeding of these plants. Plants with a CRPR 3 are plants that need review and are taxonomically problematic; plants with a CRPR 4 are uncommon in California with limited distribution but are not considered extirpated, rare, or endangered. These are not considered rare from a statewide perspective and thus impacts to these species are not considered a significant impact.

Covered plants under the MSCP are considered adequately conserved by virtue of implementing the Subarea Plan. No additional measures are required for San Diego barrel cactus since that is a covered species; however, the applicant will salvage and translocate the 14 impacted species to the mitigation site per the request of CDFW. Additional measures are required under the conditions of coverage for San Diego ambrosia. Impacts to San Diego ambrosia (Narrow Endemic) exceed the allowable 20% of the population on site and therefore require mitigation to demonstrate a superior biological preservation alternative. **MM-1** requires the mitigation land to establish San Diego ambrosia at a 2:1 mitigation ratio. Therefore, impacts to Covered plants would be reduced to less than significant through implementation of mitigation measures.

Direct, temporary impacts could occur to special-status plants, if present in the native vegetation east of the project site, if work extends beyond the approved limits of grading. This could result in significant impacts to special-status plants that are not covered under the proposed project, which would be a significant impact (**Impact BIO-4**). This potential impact would be reduced to less than significant through implementation of **MM-3** and **MM-4**.

5.2.3 Special-Status Wildlife Species

Implementation of the proposed project could result in the direct loss of habitat for the special-status wildlife species discussed in Section 4.5.2. Figure 3 shows the special-status wildlife species occurrences on site and Figure 5 shows the CNDDB records within 1 mile of the study area.

Impacts to habitat for special-status wildlife species observed or listed as having a moderate to high potential to occur within the study area that are not covered under the MSCP are considered significant (**Impact BIO-5**). These impacts would be reduced to less than significant through habitat preservation (**MM-1** and **MM-2** would preserve habitat for wildlife species) and avoiding direct and indirect impacts to nesting birds (**MM-5**).

Covered wildlife species under the MSCP are considered adequately conserved by virtue of implementing the Subarea Plan. Significant impacts would occur if the proposed project did not implement species-specific conditions of coverage (**Impact BIO-6**). **MM-1** and **MM-2** would preserve habitat for wildlife species and **MM-5** would be implemented to adhere to the conditions of coverage, which are summarized in Section 5.2.6, Consistency with Chula Vista MSCP Subarea Plan. These impacts would be reduced to less than significant through implementation of the mitigation measures.

Direct, temporary impacts could occur to special-status wildlife species or their habitat, if present in the native vegetation east of the project site, if work extends beyond the approved limits of grading due to lack of adequate construction fencing. This could result in significant impacts to special-status wildlife species or their habitat that are not covered under the proposed project, which would be a significant impact (**Impact BIO-7**). This potential impact would be reduced to less than significant through implementation of **MM-3** and **MM-4**, which requires installation of construction fencing and pre-construction meetings with the contractor and biologist.

The MBTA prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, "take" is defined as pursuing, hunting, shooting, capturing, collecting, killing, or attempting to commit any of these acts (16 U.S.C. 703 et seq.). Additionally, Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 FR 3853–3856). The executive order requires federal agencies to work with the USFWS to develop a memorandum of understanding. The USFWS reviews actions that might affect these species. Fish and Game Code 3503 affords protection over the destruction of nests or eggs of native bird species. If any active nests or the young of nesting special-status bird species are impacted through direct grading, these impacts would be considered significant, absent mitigation (**Impact BIO-8**). Impacts to potential nesting covered species shall be mitigated through avoidance of clearing occupied habitat between February 15 and September 14 (avoidance of nesting season) or conducting a pre-construction survey for nesting birds (**MM-5**).

5.2.4 Jurisdictional Waters and Wetlands

Impacts to jurisdictional aquatic resources would occur as a result of the project as shown on Figure 6 and summarized in Table 7 The proposed project would result in impacts to jurisdictional aquatic resources within the project. Impacts to jurisdictional waters and wetlands are considered significant (**Impact BIO-9**); however, through implementation **of MM-1**, **MM-2**, and **MM-6**, these impacts would be reduced to less than significant.

Table 7. Impacts to City Wetlands and Jurisdictional Wetlands and Waters at the Project Site

Wetlands Vegetation Community/Water Feature	Jurisdiction	Total Impacts (Ac.)	Mitigation Ratio	Required Mitigation (Ac.)
Tamarisk scrub (riparian)	CDFW; City	0.36	1:1	0.36
Unvegetated channel	USACE/CDFW/RWQCB Non-wetlands waters	0.09	1:1	0.09
Maritime succulent scrub (top of bank)	CDFW	0	1:1	0
Erosional Feature	RWQCB Non-wetland waters	0.01	1:1	0.01
	Total	**0.46**	–	**0.46**

Direct, temporary impacts could occur to jurisdictional aquatic resources east of the project site if work extends beyond the approved limits of grading due to lack of adequate construction fencing. This could result in significant impacts to aquatic resources that are not covered under the proposed project, which would be a significant impact (**Impact BIO-10**). This potential impact would be reduced to less than significant through implementation of **MM-3** and **MM-4**.

Section 5.2.4 of the Subarea Plan states that development projects are required to demonstrate that impacts to wetlands have been avoided or minimized to the greatest extent practicable. The entire project site will be impacted as a result of proposed activities and therefore no feasible avoidance or minimization is realistically practicable.

5.2.5 Habitat Linkages/Movement Corridors

The project lies near the Otay River Valley which supports a large riparian zone that extends to the north and south of the river's channel. The river is located south of the project, outside the Development Area, separated from the site by the approximately 100-foot wide Main Street. As such, the study area sits near a major center for regional wildlife movement but is not a linkage or corridor itself. The proposed direct impacts associated with construction of the buildings would occur within the limits of the project site north of Main Street and the project will not adversely affect the habitat connectivity or wildlife movement functions of the Otay River.

The riprap modification will occur in two small areas (0.07 acres and 0.08 acres) immediately south of Main Street near the Otay River. This work will be contained within the small work areas as all equipment will operate entirely from Main Street. The riprap will be placed at existing headwall structures with the riprap extending approximately 10 feet from Main Street. The work is taking place in already disturbed areas with some encroaching into tamarisk scrub. There are no long-term activities associated with this activity. The Otay River will still remain a regional wildlife movement, with wildlife likely using the more interior portions of the river rather than alongside the road where the activities will occur.

Therefore, there are no significant impacts to wildlife corridors or habitat linkages.

5.3 Indirect Impacts

5.3.1 Vegetation Communities

Four vegetation communities and landcovers–maritime succulent scrub, tamarisk scrub, disturbed habitat, and unvegetated stream–occur on the project site. Outside the project's boundaries, the site is surrounded by commercial facilities and roadway on all sides except for some non-native grassland habitat that borders the project's eastern edge. Indirect impacts to this vegetation community would primarily result from adverse edge effects. During construction of the project, edge effects may include dust, which could disrupt plant vitality in the short term, as well as construction-related soil erosion and runoff.

However, in accordance with the City's Subarea Plan and the City's Best Management Practices (BMP) Design Manual (City of Chula Vista 2003), projects are required to implement site design, source control, and treatment control BMPs. As part of the project development, projects will be required to meet National Pollutant Discharge Elimination System regulations with the RWQCB, incorporate BMPs during construction, and install permanent BMPs as defined by the BMP Design Manual. With implementation of construction discharge water quality BMPs and other standard construction BMPs these short-term indirect impacts are not expected. Thus, implementation of the proposed project is not expected to indirectly impact any adjacent vegetation communities.

5.3.2 Special-Status Plant Species

The indirect impacts to vegetation communities noted above can also affect special-status plants. The implementation of the stated measures would serve eliminate impacts to off-site special-status plant species.

5.3.3 Special-Status Wildlife Species

Indirect impacts associated with the project could affect special-status wildlife. However, with implementation of required construction discharge water quality BMPs, other standard construction BMPs (including dust control, use of approved access and staging areas, use of trash receptacles, sediment control measures, and more) these short-term indirect impacts are not expected.

In addition, wildlife may be indirectly affected in the short-term and long-term by noise and lighting which can disrupt normal activities and subject wildlife to higher predation risks. Breeding birds can be affected by short-term construction-related noise, which can result in the disruption of foraging, nesting, and reproductive activities.

The disturbed habitat surrounding the study area may support habitat for nesting birds. Indirect impacts from construction-related noise may occur to nesting birds if construction occurs during the breeding season (i.e., February 15 through September 14 for most bird species). These impacts would be considered significant, absent mitigation (**Impact BIO-5**). Impacts to potential nesting covered species shall be mitigated through avoidance of clearing occupied habitat between February 15 and August September 14 (avoidance of nesting season) or conducting a pre-construction survey for nesting birds (**MM-5**).

5.3.4 Jurisdictional Resources

The potential short-term indirect impacts to vegetation communities described above also apply to off-site jurisdictional waters only. On-site waters would be 100% impacted and the offsite riprap modifications would result in additional impacts to non-wetland waters and riparian areas. Potential edge effects to any jurisdictional aquatic resources outside of the study area are not anticipated since BMPs will be incorporated into the proposed project work area to eliminate any indirect impacts (e.g., dust, erosion, and runoff) to jurisdictional waters. Indirect project impacts will be further minimized in compliance with any agency permits that are issued for construction.

5.3.5 Habitat Linkages/Movement Corridors

The Otay River Valley is south of the project site. Implementation of the project would only result in direct impacts to the project site and the site is at least 100 feet away from the Otay River, separated by Main Street, a wide and busy road. No indirect impacts to the Otay River are anticipated and because the site does not abut the preserve, the project is not subject to the Adjacency Management Issues.

The offsite riprap modification areas are located immediately south of Main Street near the edge of the Otay River. This work will be contained within the small work areas as all equipment will operate entirely from Main Street. The riprap will be placed at existing headwall structures with the riprap extending approximately 10 feet from Main Street. The work is taking place in already disturbed areas with some encroaching into tamarisk scrub. All of the potential short-term indirect impacts and associated minimization measures described for vegetation communities and jurisdictional resources would apply to these activities. There are no long-term activities associated with this

activity and the work is consistent with the Adjacency Management Issues (see Section 5.4.3); therefore, there are no long-term indirect impacts.

5.4 Consistency with Regional Resource Planning

5.4.1 Chula Vista Multiple Species Conservation Program Subarea Plan

The proposed project design is consistent with the MSCP Subarea Plan through specific adherence to mitigation/conveyance requirements for Development Projects Outside of Covered Projects as defined in the City MSCP Subarea Plan. As noted in Section 1, Introduction, the project is located within the Development Area of the City Planning Component as identified in the Subarea Plan and as such has not been identified as a strategic preserve area within the City nor is it located within a designated conservation area/preserve. The project site is separated from the Otay River preserve by Main Street, and therefore, is not subject to the Adjacency Management Issues. The offsite riprap modification within the Preserve is consistent with the Adjacency Management Issues (see Section 5.4.3). Overall, the proposed project is consistent with the goals and objectives of the City's Subarea Plan.

Land uses within the Preserve are limited to those uses which are considered compatible with the need to permanently protect Covered Species and their habitats. The offsite riprap modification activities are described in Section 5.4.2.

Table 8 includes a list of the plant and wildlife species observed or with potential to occur on site that are Covered species under the MSCP and their conditions of coverage from Table 3-5 of the Subarea Plan.

Table 8. Conditions of Coverage under City of Chula Vista MSCP Subarea Plan

Species	Conditions of Coverage	Project Compliance
Plants		
San Diego thorn-mint	This species is covered because all major populations with in the MHPA and each of the 8 major populations will be conserved from 80%–100%. Area-specific management directives must include monitoring of transplanted populations and specific measures to protect against detrimental edge effects.	This species does not occur on site.
San Diego ambrosia	This species is covered because 90% of the only major population (Mission Trails Regional Park) in the MSCP will be conserved and the adjoining population at the radio tower site will be 100% conserved. If more than 10% of the population at Mission Trails Regional Park is impacted, this species will no longer be a covered species. Area-specific management directives must include monitoring of transplanted populations and specific	These area-specific management directives are specific to preserves and does not apply to the project site. While the impacts to narrow endemics may be covered, they are subject to additional provisions, including additional analysis and mitigation for impacts beyond policy thresholds. San Diego ambrosia will be mitigated at a 2:1 ratio through

Table 8. Conditions of Coverage under City of Chula Vista MSCP Subarea Plan

Species	Conditions of Coverage	Project Compliance
	measures to protect against detrimental edge effects.	establishment at the mitigation site within the Preserve, resulting in a superior biological preservation.
Snake cholla	This species is covered because 75% of major population and 67% of southern maritime chaparral will be conserved. Area-specific management directives must include monitoring of transplanted populations and specific measures to protect against detrimental edge effects. The Otay Ranch RMP and GDP require protection of 80% of existing occurrences and transplantation.	This species does not occur on site.
Otay tarplant	This species is covered because 66% of major populations will be conserved. MSCP coverage requires avoidance of populations in the Otay River Valley through sensitive design and development of the active recreation areas as described in the Otay Ranch RMP and GDP. Area-specific management directives must include monitoring of populations and specific measures to protect against detrimental edge effects.	This species does not occur on site.
Variegated dudleya	This species is covered because 56% of major population and 75% of known localities will be conserved. Area-specific management directives must include monitoring of transplanted populations and specific measures to protect against detrimental edge effects.	This species does not occur on site.
San Diego barrel cactus	This species is covered because 81% of major populations will be conserved. Area-specific management directives must include monitoring of transplanted populations and specific measures to protect against detrimental edge effects.	These area-specific management directives are specific to preserves and does not apply to the project site. This species is considered adequately covered and does not require additional mitigation. However, the applicant will salvage and translocate the San Diego barrel cactus to the mitigation site.
Wildlife		
Orange-throated whiptail	This species is covered because 59% of its potential habitat and 62% of known point occurrences will be conserved. Area-specific management directives must address edge effects.	These area-specific management directives are specific to preserves and does not apply to the project site. This species is considered adequately covered and does not require additional mitigation.

Table 8. Conditions of Coverage under City of Chula Vista MSCP Subarea Plan

Species	Conditions of Coverage	Project Compliance
Blainville's horned lizard	This species is covered because 60% of its potential habitat and 63% of known point occurrences will be conserved. Area-specific management directives must include specific measures to maintain native ant species, discourage the Argentine ant, and protect against detrimental edge effects.	These area-specific management directives are specific to preserves and does not apply to the project site. This species is considered adequately covered and does not require additional mitigation.
Cooper's hawk	This species is covered because 59% of its potential foraging habitat, 52% of potential nesting habitat, and 57% of known occurrences will be conserved. Area-specific management directives must include 300-foot impact avoidance areas around active nests and minimization of disturbance in oak woodlands and oak riparian forests.	While potential to nest on site is low, the proposed project includes pre-construction nesting bird surveys within the project site and would establish a 300-foot avoidance area around active nests if found within the project site (**MM-5**).
Southern California rufous-crowned sparrow	This species is conserved because 61% of potential habitat will be conserved. Area-specific management directives must include maintenance of dynamic processes, such as fire, to perpetuate some open phases of coastal sage scrub with herbaceous components.	These area-specific management directives are specific to preserves and does not apply to the project site. This species is considered adequately covered and does not require additional mitigation.
Coastal cactus wren	This species is covered because four of five major populations are conserved and 60% of potential habitat will be conserved. No clearing of occupied habitat may occur from the period of February 15 through August 15.	If found during the pre-construction nesting bird surveys, no clearing of occupied habitat will occur between February 15 and September 14 (**MM-5**). Additionally, maritime succulent scrub will be mitigated at a 1:1 ratio in accordance with the MSCP Subarea Plan (**MM-1 and MM-2**).
Coastal California gnatcatcher	This species is covered because over 73,000 acres of existing and potential gnatcatcher habitat will be conserved, 81% of the core areas will be conserved, and 65% of the known locations will be conserved. Area-specific management directives must include measures to reduce edge effects and minimize disturbance during the nesting period. No clearing of occupied habitat within the cities' MHPAs BRCA may occur between March 1 and August 15.	The project site is not located within a MHPA or BRCA. If found during the pre-construction nesting bird surveys, no clearing of occupied habitat will occur between March 1 and August 15 (MM-5). Additionally, maritime succulent scrub will be mitigated at a 1:1 ratio in accordance with the MSCP Subarea Plan (**MM-1 and MM-2**).
Least Bell's vireo	This species is covered because 1,700 acres of potential habitat will be conserved. Protocol surveys will be conducted as part of the CEQA review process. Measures included in state and/or federal permitting will apply to the	While potential to nest on site is low, the proposed project includes pre-construction nesting bird surveys within the project site and would avoid clearing of occupied habitat between March 16 and September 14 (**MM-5**). The offsite

Table 8. Conditions of Coverage under City of Chula Vista MSCP Subarea Plan

Species	Conditions of Coverage	Project Compliance
	project. Any clearing of occupied must occur between September 15 and March 15.	riprap modifications would occur adjacent to suitable nesting habitat and is subject to the measures described in **MM-5**.

Notes: BRCA = Biological Resource Core Areas; CEQA = California Environmental Quality Act; GDP = general development plan; MM = mitigation measure; MSCP = Multiple Species Conservation Program; RMP = resource management plan

5.4.2 Equivalency Analysis for Narrow Endemic Species

Equivalency finding requirements are provided in Section 5.2.3.6 of the Subarea Plan. Equivalency findings are required when a project results in impacts to covered Narrow Endemic Species beyond the threshold limits identified in the Subarea Plan. The proposed project would result in a net loss of Narrow Endemic plants (San Diego ambrosia) within the project area but would provide compensation for the species through off-site mitigation within a Preserve.

1 Definition of the project area.

The project is the development of three vacant parcels, Parcels 1 and 2 of Parcel Map 21587 (APNs 644-050-13 and 644-050-14, respectively) and a portion of Lot 2, Section 20, Township 18 South, Range 1 West, San Bernardino Meridian (APN 644-050-08). A proposed lot line adjustment (LLA21-0007) will adjust the common property line between Parcel 2 and a portion of Lot 2. Once the lot line adjustment is complete, the resultant parcels Parcel 1 of PM 21587 and Parcel A of Adjustment Plat LLA21-0007 will have a combined net area of 13.31 acres.

2 A written description of the project.

The proposed includes the development of two parcels with four buildings, construction of a driveway to access the project, slope stabilization. Off-site trenching activities will occur in Nirvana Avenue for sewer and water laterals and in Main Street for Fire laterals and storm drain connections. Riprap modification is required on the south side of Main Street where the western and middle drainages outlet toward the Otay River. The modifications at these locations will add riprap to dissipate energy as a result of estimated increased runoff. Mitigation for the site has been preliminarily identified through habitat restoration with the Preserve.

3. A written description of biological information available for the project site including the results of Narrow Endemic surveys.

Please refer to Section 4 of this report for a written description of biological information available for the project area. One Narrow Endemic plant species was detected within the project area: San Diego ambrosia (also listed as federally endangered). There are approximately 500 San Diego ambrosia mapped within the project site, which is entirely impacted. No additional Narrow Endemic species occur on site.

4. Written finding of infeasibility of total avoidance of Narrow Endemic species' population(s).

Based on the steep slopes and slope stabilization required in order to achieve a factor of safety for grading the site, it would be infeasible to modify the site plan and still be able to develop the site. As described in this report,

this project area is identified as a Development Area in the Subarea Plan. The riprap modifications are located within the 100% Preserve areas. There are no rare plants, including Narrow Endemic species, within the 100% Preserve areas.

5. *Quantification of impacts to Narrow Endemic Species associated with the project including direct and indirect effects.*

There are approximately 500 San Diego ambrosia mapped within the impact area. There are no indirect impacts since the entire population would be impacted.

6. *A written description of project design features that reduce indirect effects such as edge treatments, landscaping, elevation differences; minimization; and/or compensation through restoration or enhancement.*

During construction of the project, edge effects may include dust, which could disrupt plant vitality in the short term, as well as construction-related soil erosion and runoff. MM-3 requires temporary construction fencing to ensure no impacts occur outside the approved impact footprint.

Additionally, in accordance with the City's Subarea Plan and the City's Best Management Practices (BMP) Design Manual (City of Chula Vista 2003), projects are required to implement site design, source control, and treatment control BMPs. As part of the project development, projects will be required to meet National Pollutant Discharge Elimination System regulations with the RWQCB, incorporate BMPs during construction, and install permanent BMPs as defined by the BMP Design Manual. With implementation of construction discharge water quality BMPs and other standard construction BMPs these short-term indirect impacts are not expected. Thus, implementation of the proposed project is not expected to indirectly impact any adjacent populations Narrow Endemic plant species, if present.

7. *Description of measures proposed to compensate for identified impacts in a manner that demonstrates that the proposed design including compensation would result in a long-term Preserve design for the species of concern that is functionally equivalent to or better than the Preserve design that would occur in the absence of the identified impact. The equivalency analysis will be based on the particular requirements of the species of concern.*

The upland mitigation will occur through habitat restoration to create maritime succulent scrub within the Otay Ranch Preserve. The restoration will provide compensatory mitigation for maritime succulent scrub at a 1:1 mitigation ratio. The mitigation sites include areas that are identified as suitable to support the establishment of San Diego ambrosia at a 2:1 mitigation ratio. This includes suitable soils, topography, elevation and associated vegetation. The Resource Salvage Plan shall, at a minimum, evaluate options for plant salvage and relocation, native plant mulching, selective soil salvaging, application of plant materials on manufactured slopes, and application/relocation of resources within the mitigation site. The Resource Salvage Plan shall include incorporation of relocation and/or establishment of San Diego ambrosia at the mitigation site. Relocation efforts may include establishment and/or transplantation to the mitigation site and will be based on the most reliable methods of successful relocation of San Diego Ambrosia on other translocation projects, ultimately achieving a functionally equivalent or better Preserve design. The Resource Salvage Plan shall also contain recommendations for methods of establishment, salvage and/or relocation/application based on feasibility of implementation and likelihood of success. The Resource Salvage Plan shall include, at a minimum, an implementation plan, maintenance and monitoring program, success criteria, estimated completion time, and any relevant contingency measures.

The mitigation sites chosen within the Otay Ranch Preserve would achieve a greater Preserve design because it will 1) include restoration of disturbed habitat, consisting of either non-native grassland or heavily disturbed scrub with minimal native vegetation; 2) have appropriate rocky clay loam soils suitable for maritime succulent scrub; and 3) have appropriate exposures for maritime succulent scrub, with south or west facing slopes, or areas that are relatively flat and on fully exposed landscapes. The sites chosen include the appropriate microhabitats to support the establishment of San Diego ambrosia which will in turn allow for natural expansion of this species within the Preserve which is already afforded long-term conservation.

The three sites identified for restoration are adjacent to existing restoration or managed preserves. One of the sites is specifically designed to complement the proposed Phase 2 Otay Valley Wetland Mitigation Bank being planned by HomeFed. The other two sites are near areas where the City's Preserve Manager, RECON Environmental, has conducted past maritime succulent scrub restoration. Therefore, the mitigation results in a functionally greater design, and thus will be consistent with Section 5.2.3.6 of the Subarea Plan and the HLIT.

The restoration includes a 7-Year Restoration, Maintenance, and Monitoring Plan. An endowment shall be funded to provide for the long-term management of these sites. The Otay Ranch Preserve relies on Community Facilities District (CFD) taxes paid by the resident annually, and these funds primarily go for maintenance of the Preserve. There are no other continuous funding sources other than the CFD, and because this funding is limited to maintenance, there is limited ability to fund more expensive habitat enhancement and restoration activities. With this limited funding from the CFD, the City is finding some habitat enhancement and restoration work need to be deferred.

The Nirvana project mitigation will provide the City and Otay Ranch Preserve with another resource to not only maintain the Nirvana mitigation sites in perpetuity, but also fund enhancement and restoration in other areas of the Preserve system. Because of this win-win opportunity for both the City and the Otay Ranch Preserve, the City of Chula Vista fully supports the Nirvana project habitat restoration for mitigation in the Otay Ranch Preserve.

8. A summary conclusion, including findings of consistency with the applicable percentage criterion.

Based on the information summarized above, the proposed project will provide conservation of Covered Narrow Endemic Species and restoration and enhancement of maritime succulent scrub within a Preserve. As described above, the Otay Ranch Preserve is an underfunded Preserve lacking the necessary resources to provide adequate maintenance, enhancement of native habitat, and regular monitoring of the Preserve. Through restoration in areas identified for suitable maritime succulent scrub and San Diego ambrosia, combined with contributing to the CFD for management of the restoration areas in the Preserve, the Preserve will achieve high quality habitat over the long term.

5.4.3 Future Facilities Siting Criteria

The offsite riprap modification will occur within a 100% Conservation Area. Section 6 of the Subarea Plan describes the land uses that are allowed within the Preserve. This includes existing legal uses, compatible uses (i.e., Public Access and Recreation, Preserve Management, Scientific and Biologic Activities, and Emergency, Safety and Police Services), and conditionally compatible uses. The riprap modifications fall into the "conditionally compatible uses" category. Section 6.3.3 of the Subarea Plan further differentiates these uses as "Planned Facilities" and "Future Facilities." There are no Planned Facilities associated with this project. Future Facilities are those facilities necessary to support planned development that were not identified at the time of the Subarea Plan but were anticipated to be required. Table 6-2 of the Subarea Plan identifies Future Facilities and Implementation Criteria. These facilities include storm drain and flood control/detention facilities.

Future Facilities located within the Preserve are subject to the Facilities Siting Criteria contained in Section 6.3.3.4 of the City's MSCP Subarea Plan. Compliance with the Facilities Siting Criteria ensures that the facilities located within the Preserve have been sited within the least environmentally sensitive areas and that impacts to the Preserve have been minimized to the maximum extent practical.

The following is a summary of the Facilities Siting Criteria (Section 6.3.3.4 and Table 6-1 of the Subarea Plan) as required for the project's Future Facilities:

1. Such facilities will be located in the least environmentally sensitive location feasible, and use existing roads, trails and other disturbed areas, including use of the active recreation areas in the Otay River Valley, as much as possible (except where such areas are occupied by the QCB [Quino checkerspot butterfly]). Facilities should be routed through developed or developing areas where possible. If no other routing is feasible, alignments should follow previously existing roads, easements, rights of way, and disturbed areas, minimizing habitat fragmentation.
2. Such facilities shall avoid, to the maximum extent practicable, impacts to Covered Species and Wetlands, and will be subject to the provisions, limits, and mitigation requirements for Narrow Endemic Species and Wetlands pursuant to Section 5.2.3 and 5.2.4 of the Subarea Plan.
3. Where roads cross the Preserve, they should provide for wildlife movement in areas that are graphically depicted on and listed in the MSCP Subregional Plan Generalized Core Biological Resource Areas and Linkages map as a core biological area or a regional linkage between core biological areas. All roads crossing the Preserve should be designed to result in the least impact feasible to Covered Species and Wetlands. Where possible at wildlife crossings, road bridges for vehicular traffic rather than tunnels for wildlife use will be employed. Culverts will only be used when they can achieve the wildlife crossing/movement goals for a specific location. To the extent feasible, crossings will be designed as follows: the substrate will be left in a natural condition or revegetated if soils engineering requirements force subsurface excavation and vegetated with native vegetation if possible; a line-of-sight to the other end will be provided; and if necessary, low-level illumination will be installed in the tunnel.
4. To minimize habitat disruption, habitat fragmentation, impediments to wildlife movement and impact to breeding areas, road and/or right-of-way width shall be narrowed from existing City design and engineering standards, to the maximum extent practicable. In addition, roads shall be located in lower quality habitat or disturbed areas to the maximum extent practicable.
5. Impacts to Covered Species and habitats within the Preserve resulting from construction of Future Facilities will be evaluated by the City during project review and permitting. The City may authorize Take for impacts to Covered Species and habitats resulting from construction of Future Facilities located outside the Preserve, pursuant to the Subarea Plan and consistent with the Facility Siting Criteria in this Section.
6. The City may authorize "Take" for impacts to Covered Species resulting from construction of Future Facilities located within the Preserve, subject to a limitation of 2 acres of impact for individual projects and a cumulative total of 50 acres for all Future Facilities. Wildlife Agency concurrence will be required for authorization of Take for any impacts to Covered Species and habitat within the Preserve that exceed 2 acres that may result from construction of any individual Future Facility. Wildlife Agency concurrence will

be required for authorization of Take for impacts to Covered Species and habitat within the Preserve that exceed 50 acres that may result from all Future Facilities combined.

7. Planned and Future Facilities must avoid impacts to covered Narrow Endemic Species and the QCB [Quino checkerspot butterfly] to the maximum extent practicable. When such impacts cannot be avoided, Planned and Future facilities located within the Preserve are subject to the provisions of Section 5.2.3.6 of the Subarea Plan. Impacts to QCB that will result from construction of Planned and Future Facilities within the Preserve are subject to the provisions of Section 5.2.8 of the Subarea Plan.

This section outlines the Future Facilities associated with the proposed project and how they adhere to the Facilities Siting Criteria. The facilities necessary to support the proposed project were sited in primarily disturbed habitat adjacent to Main Street with equipment limited to working from the road. The riprap will be placed at the existing headwall where flows outlet on the south side of Main Street. Because the proposed work is required for energy dissipation associated with an estimated increase in flow within the existing channels, the flexibility to site the riprap placement is limited. The least impactful approach is to place riprap at each headwall as shown on Figure 7B. The work area is limited to the areas needed to prepare the areas and install the riprap; equipment will work from the road in order to further reduce impacts from access.

The facilities were analyzed by overlaying potential Future Facility locations with biological resources, including vegetation communities and jurisdictional aquatic resources. There are impacts to sensitive resources; however, the effects of shifting or modifying the facilities to achieve the energy dissipation would have been more impactful.

5.4.3.1 Impact Summary for Future Facilities

The locations of the riprap modifications are shown on Figure 7B. These modifications would result in permanent impacts to 0.15 acres of tamarisk scrub, unvegetated stream channel, and disturbed habitat (Table 9).

Table 9. Impacts to Vegetation Communities and Land Cover Associated with Future Facilities

Habitat Type	Impacts (Ac.)
Tamarisk Scrub	0.09
Unvegetated Stream Channel	0.02
Disturbed Habitat	0.04
Total	**0.15**

The western and middle drainage features continue south of the headwalls, and the riprap modifications would result in permanent impacts to 0.11 acres of jurisdictional aquatic resources that are likely regulated by USACE, RWQCB, and/or CDFW (Table 10).

Table 10. Jurisdictional Wetlands and Waters at the Project Site Associated with Future Facilities

Wetlands Vegetation Community/ Water Feature	Jurisdiction	Acres
Tamarisk scrub (riparian)	CDFW; City	0.09
Unvegetated channel	USACE/CDFW/RWQCB Non-wetlands waters	0.02
	Total	0.11

There is no suitable habitat for coastal California gnatcatcher within the riprap modification areas and special-status plants will be surveyed for in April and June 2022.

The Otay River is known to support least Bell's vireo, a Covered species. While it is unlikely to nest in the tamarisk adjacent to Main Street, the riprap modification activities could result in indirect noise and human presence effects if activities occurred during the nesting season.

Table 11 provides a summary of the facilities as they relate to the Facilities Siting Criteria.

Table 11. Summary Facilities Siting Criteria Detention Basin and Associated Facilities

Facilities Siting Criteria	Riprap Modification
Least environmentally sensitive location	The riprap will be placed at the existing headwalls at the base of the slope immediately south of Main Street. A portion of each area is already disturbed. They are placed as close to the existing road and away from the Otay River as possible.
Avoid wetlands and covered species and address Narrow Endemic Species	The riprap modification will be placed at existing headwalls where the drainages outlet on the south side of Main Street and will result in impacts to 0.11 acres of non-wetland waters and riparian areas. Alternative designs would likely result in increased impacts to jurisdictional resources since the proposed location is sited at the existing outlet and close to the road. There are no rare plants, including Narrow Endemic species, within the riprap modification areas.
Provide for wildlife movement	There are no proposed roads in the Preserve. Placement of the riprap will not preclude wildlife from using the area since there is no barrier to movement by wildlife.
Road widths are narrowed and in lower quality habitat	N/A. There are no proposed roads.
Impacts to Covered Species within the Preserve	The City is evaluating these impacts and their consistency with the Future Facilities Siting Criteria.
Future facilities are limited to 2 acres or cumulative total of 50 acres	The impacts associated with the riprap modification are 0.15 acres. The City confirmed via email on May 11, 2022 that these impacts are within their cumulative total limit of 50 acres.
Avoid impacts to covered Narrow Endemic Species and Quino Checkerspot Butterfly	The riprap modification will not impact suitable quino checkerspot butterfly habitat. There are no rare plants, including Narrow Endemic species, within the riprap modification areas.

5.4.3.2 Equivalency Analysis for Future Facilities

Equivalency finding requirements are contained in Section 5.2.3.6 of the Subarea Plan. Per the MSCP Subarea Plan: "Impacts to covered Narrow Endemic Species from Planned and Future Facilities located within the 100% Conservation Areas of Covered Projects will be avoided to the maximum extent practicable. Where impacts are demonstrated to be unavoidable, impacts will be limited to 5% of the total Narrow Endemic Species population within the Project Area. Findings of equivalency will be made by the City for such Take Authorization for covered Narrow Endemic Species, pursuant to Section 5.2.3.6 of this Subarea Plan." No Narrow Endemic Species occur within the 100% Conservation Area.

The equivalency analysis for impacts to Narrow Endemic Species is described in Section 4.5.5.

5.4.4 Adjacency Management Issues

The offsite riprap modifications will be consistent with the Adjacency Management Issues per Section 7.5.2 of the Subarea Plan. See Table 12.

Table 12. Adjacency Management Issues (Section 7.5.2)

Findings for New Development	Analysis	Consistency
Drainage	The project will collect runoff from the new development in private, on-site storm drain systems. The collected runoff will be routed through a hydrodynamic separator system for trash, debris, oil, and sediment removal. Then, the collected runoff will enter underground detention chambers that provide peak storm water flow control (detention) to mimic pre-development peak flow rates. Next, the attenuated flows flow through proposed Modular Wetlands storm water treatment devices, TAPE certified proprietary biofiltration, which provide water quality treatment prior to the runoff leaving the proposed project site.	Consistent
Toxic substances	There are no agricultural or recreational uses on site that would contribute potentially toxic substances into the Preserve.	Consistent
Lighting	All lighting associated with the project is separated from the Preserve by Main Street and is not adjacent. The offsite riprap modification would not have any associated lighting and no work would be done at night.	Consistent
Noise	Temporary noise would be associated with the riprap modification. Pre-construction surveys are required if the work is done during the bird breeding season (February 15 to September 14) and clearance limitations and avoidance measures are described in MM-5.	Consistent
Invasives	No landscaping or other planting is planned as part of the offsite riprap modification.	Consistent

Table 12. Adjacency Management Issues (Section 7.5.2)

Findings for New Development	Analysis	Consistency
Buffers	The offsite riprap modification is required to be placed at the existing headwalls and no buffer requirements apply to this activity.	Consistent

5.4.5 Habitat Loss Incidental Take Ordinance

The proposed project will impact native vegetation and City wetlands (i.e., maritime succulent scrub; tamarisk scrub) and as such, the proposed project is subject to conformance with the City's HLIT Ordinance. The HLIT Ordinance findings are provided in Appendix F.

5.4.6 Wetland Protection

Wetland protection must be provided throughout the Subarea and an evaluation of wetlands avoidance and minimization is required. If impacts are unavoidable, no net loss of wetlands must be achieved through compensatory mitigation as prescribed by the Subarea Plan Table 5-6. As stated previously, the proposed project will impact City wetlands (i.e., tamarisk scrub), which are unavoidable due to the small overall size of the project, topography, the location of the wetlands in the middle of the site, and the project plan to build large warehouses facility with associated infrastructure.

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6 Mitigation

This section describes the MMs required to offset significant direct and indirect impacts to sensitive vegetation communities, special-status plants and wildlife, nesting birds, and jurisdictional aquatic resources. These MMs will reduce identified and potential significant impacts to a level that is less than significant pursuant to CEQA.

Table 13 lists the significant impacts to vegetation communities and the required mitigation per the City's Subarea Plan and HLIT Ordinance (Subarea Plan Tables 5-3 and 5-6). As noted in Section 5.2.4, the City Subarea Plan Wetlands Protection Program requires that impacts to wetlands be avoided to the maximum extent possible and where impacts are unavoidable, compensatory mitigation within the Chula Vista Subarea or Chula Vista Planning Area shall be required resulting in no overall net loss of City wetlands.

Table 13. Mitigation for Significant Impacts to Sensitive Vegetation Communities and Wetlands

Vegetation Community	MSCP Subarea Plan Tier	Mitigation Ratio*	Impact Acreage	Mitigation Acreage Required
Uplands				
Maritime succulent scrub	Tier I	1:1	13.53	13.53
Waters or Wetlands				
Unvegetated Stream	N/A	1:1	0.09	0.09
Tamarisk scrub	Wetlands	1:1	0.37	0.37
Erosional feature	N/A	1:1	0.01	0.01
	Grand Total	—	**14.00**	**14.00**

Note:
* City of Chula Vista 2003

6.1 Mitigation Measures

MM-1 **Compensatory Mitigation**: Per the HLIT ordinance, 14.00 acres of impacts to sensitive uplands, jurisdictional resources, and City wetlands shall be mitigated at the required mitigation ratios (Table 13). All impacts to wetlands will be mitigated at a 1:1 ratio, upland impacts may be mitigated at a 1:1 ratio. Prior to issuance of any land development permits (including clearing, grubbing and/or grading permits), the Permittee/Owner shall finalize the mitigation option(s) with concurrence from the City of Chula Vista. Mitigation would be provided through one of the following options and the ratio would be determined by the location of the proposed mitigation site.

Mitigation Bank. Mitigation would occur through the purchasing of credits at a City-approved mitigation bank in order to achieve the required Tier I and wetland mitigation per the mitigation ratios in Table 5-3 of the Subarea Plan.

Habitat Preservation. Prior to the issuance of any grading permit, the applicant shall provide evidence to the City of Chula Vista Planning Division that City-approved Tier I and wetland habitat

are provided as mitigation through compensatory preservation per the mitigation ratios in Table 5-3 of the Subarea Plan. The habitat preservation mitigation site shall (1) be protected by a conservation easement or other City-approved mechanism that provides preservation in perpetuity, (2) have a permanent responsible party clearly designated, and (3) be managed in accordance with a Habitat Management Plan (or similar) in perpetuity. The Habitat Management Plan (or similar) shall also include Property Analysis Report (PAR) analysis to identify yearly maintenance and monitoring costs pursuant to meeting those performance criteria, as well as identify an initial management fund endowment to provide for management in perpetuity. Prior to grading permit issuance, the applicant shall provide proof that such funds have been provided to the permanent responsible party.

Habitat Restoration. Prior to the issuance of any grading permit, the applicant shall provide evidence to the City of Chula Vista Planning Division that Tier I and wetland habitat type is being restored and/or enhanced per the mitigation ratios in Table 5-3 of the Subarea Plan. In addition, the applicant shall provide a performance bond to the City prior to the issuance of a grading permit to ensure the completion of the restoration and funds for enhancement are provided. The habitat restoration mitigation site shall (1) be protected by a conservation easement or other City-approved mechanism that provides preservation in perpetuity, (2) have a permanent responsible party clearly designated, and (3) be managed in accordance with a Habitat Management Plan (or similar) in perpetuity. If mitigation credits are not purchased, the Applicant shall prepare a Habitat Mitigation and Monitoring Plan to the satisfaction of the City. The Habitat Mitigation and Monitoring Plan shall include, at a minimum, an implementation strategy; appropriate seed mixtures and planting method; irrigation; quantitative and qualitative success criteria; maintenance, monitoring, and reporting program; estimated completion time; contingency measures; and identify a long-term funding source. The Project Applicant shall also be required to implement the Habitat Mitigation and Monitoring Plan subject to the oversight and approval of the Development Services Director (or their designee).

Special-Status Plants. If special-status plants require salvage, relocation and/or re-seeding at the mitigation site, the Resource Salvage Plan shall be written by a City-approved biologist to the satisfaction of the Development Services Director (or their designee). Impacts to Covered Narrow Endemic plants require mitigation at a 1:1 to 3:1 ratio. The Resource Salvage Plan shall, at a minimum, evaluate options for plant salvage (during appropriate bloom periods for identification of special-status plants) and relocation, native plant mulching, selective soil salvaging, application of plant materials on manufactured slopes, and application/relocation of resources within the mitigation site. The Resource Salvage Plan shall include incorporation of relocation and reseeding efforts for Narrow Endemic plants to achieve a 2:1 mitigation ratio, as well as San Diego barrel cactus and non-covered plant species at a 1:1 mitigation ratio that are considered special status according to the California Environmental Quality Act and would be impacted with project implementation. Relocation efforts may include seed collection and/or transplantation to the mitigation site and will be based on the most reliable methods of successful relocation to achieve a functionally equivalent or better Preserve design. Compensatory mitigation may also include restoration of the mitigation site with supplemental seeds or live plants from native seedbanks/plant nurseries. The Resource Salvage Plan shall also contain a recommendation for method of salvage and relocation/application based on feasibility of implementation and likelihood of success. The Resource Salvage Plan shall include,

at a minimum, a discussion of the compensatory mitigation required for the Covered Narrow Endemic plants and a discussion of the appropriate mitigation ratio, an implementation plan, maintenance and monitoring program, estimated completion time, and any relevant contingency measures. The Resource Salvage Plan shall also be subject to the oversight of the Development Services Director (or their designee).

MM-2 Prior to issuance of any land development permits (including clearing, grubbing and/or grading permits), the Permittee/Owner will be required to obtain a HLIT Permit pursuant to Section 17.35 of the Chula Vista Municipal Code for impacts to MSCP Tier I habitat and wetland resources and Narrow Endemic Species.

MM-3 Prior to issuance of land development permits, including clearing, grubbing, grading and/or construction permits, the Permittee/Owner shall install temporary construction fencing in accordance with Chula Vista Municipal Code (CVMC) 17.35.030 to avoid any unexpected accidental impacts (i.e., encroachment) into sensitive vegetation and/or jurisdictional waters. Prominently colored, well installed fencing and signage shall be in place to demarcate all approved access paths and construction work areas wherever the limits of grading are adjacent to sensitive vegetation communities or other biological resources, as identified by the qualified monitoring biologist. The limits of work, including the designated temporary off-site construction access, will be delineated with temporary construction fencing as appropriate, which will be installed prior to initiation of work activities.

Fencing shall remain in place during all construction activities. All temporary fencing shall be shown on grading plans for areas adjacent to the preserve and for all off-site facilities constructed within the preserve. Prior to release of grading and/or improvement bonds, a qualified biologist shall provide evidence that work was conducted as authorized under the approved land development permit and associated plans.

A pre-construction meeting should be held between all contractors and the qualified project biologist and during this meeting, the biologist will educate the contractors on sensitive habitat and project avoidance measures. All project personnel shall provide written acknowledgement of their receiving avoidance training. This training shall include information on the location of the approved access paths and work areas, the necessity of preventing damage and impacts to sensitive habitat; and the discussion of work practices that will accomplish such. Lastly, the project biologist will be on site to monitor all project activities within natural habitats.

If unauthorized impacts occur outside of the approved project boundary, the contractor shall notify the City Resident Engineer and project biologist immediately. The project biologist shall evaluate the additional impacts to determine the size of the impact and the vegetation communities, land covers and/or jurisdictional resources impacted. The footprint of the impact shall be recorded with a GPS and the project biologist will report the impact(s) to City Staff as well as to the appropriate permitting agencies (where appropriate) for approval of the impact record and to establish any necessary follow-up mitigation measures. These measures may include development of an in-place Revegetation Plan for the identified impacts, including a 120-day plant establishment period and subsequent 25-month maintenance and monitoring period to ensure success of the revegetation effort.

Any unauthorized impacts to jurisdictional waters/wetlands would require reporting to the USACE, CDFW, RWQCB, and the City as well as development of a Waters/Wetlands Restoration Plan to restore pre-impact conditions as directed by the agencies. The Revegetation Plan and/or Waters/Wetlands Restoration Plan shall include a description of the suitability of the restoration area, planting and irrigation plan, maintenance and monitoring requirements, and performance standards that ensures that the intended restoration is achieved. The plan(s) and associated monitoring reports shall be submitted to City staff.

MM-4 Prior to issuance of land development permits, including clearing, grubbing, grading, and/or construction permits, the Permittee/Owner shall provide written confirmation that a City-approved biological monitor has been retained and shall be on site during clearing, grubbing, and/or grading activities. The biological monitor shall attend all preconstruction meetings and be present during the removal of any vegetation to ensure that the approved limits of disturbance are not exceeded and provide periodic monitoring of the impact area including, but not limited to, trenches, stockpiles, storage areas and protective fencing. The biological monitor shall be authorized to halt all associated project activities that may be in violation of the City's MSCP Subarea Plan and/or permits issued by any other agencies having jurisdictional authority over the project.

Before construction activities occur in areas containing sensitive biological resources, all workers shall be educated by a City-approved biologist to recognize and avoid those areas that have been marked as sensitive biological resources.

MM-5 To avoid any direct impacts to nesting birds, construction activities should occur outside of the breeding season (February 15 to September 14). If construction activity is scheduled during the general bird breeding season, a qualified biologist shall conduct a pre-construction survey to determine the presence or absence of nesting bird species within the proposed work areas. The pre-construction survey shall be conducted within 4 calendar days prior to the start of construction activities. The applicant shall submit the results of the pre-construction survey to City Staff for review and approval prior to initiating any construction activities. If nesting birds are detected, a letter report or mitigation plan in conformance with the applicable local, State, and Federal Law (i.e., appropriate follow up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report shall also describe any species-specific measures to comply with the MSCP's conditions of coverage:

- Active Cooper's hawk nest requires a 300-foot avoidance area.
- No clearing of occupied coastal cactus wren habitat will occur between February 15 and September 14.
- No clearing of occupied coastal California gnatcatcher habitat will occur between March 1 and August 15.
- No clearing of occupied least Bell's vireo habitat will occur between March 16 and September 14. If an occupied least Bell's vireo nest is identified in a pre-construction survey, noise reduction techniques, such as temporary noise walls or berms, shall be incorporated into the construction plans to reduce noise levels below 60 LEQ (equivalent continuous sound level).

The report or mitigation plan shall be submitted to the City for review and approval and implemented to the satisfaction of the City. The project Biologist shall verify and approve that all measures identified in the report or mitigation plan are in place prior to and/or during construction.

If nesting birds are not detected during the pre-construction survey, no further mitigation is required. Implementation of pre-construction surveys for nesting birds, and any required follow up protection measures, will reduce the potential impact levels to below significant.

MM-6 Prior to issuance of land development permits, including clearing, grubbing, grading and/ or construction permits that impact jurisdictional waters, the Permittee/Owner shall notify the resource agencies and obtain all necessary permits from the USACE, RWQCB, and CDFW. All terms and conditions of required permits shall be implemented.

The Applicant shall secure wetland creation mitigation credits within a City-approved Conservation Bank in accordance with the terms and conditions of the Subarea Plan and all required permits. Verification of mitigation credit purchase by the Applicant to the City and resource agencies is required prior to issuance of any land development permits.

Prior to issuance of land development permits, including clearing, grubbing, and grading permits for areas that impact jurisdictional waters, the Permittee/Owner shall provide evidence that all required regulatory permits, such as those required under Section 404 of the federal Clean Water Act, Section 1600 of the California Fish and Game Code, and the Porter Cologne Water Quality Act, have been obtained.

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7 Acknowledgements

This report was prepared by Dudek biologists Callie Amoaku, Erin Bergman, and Dylan Ayers. Graphics were provided by Andrew Greis.

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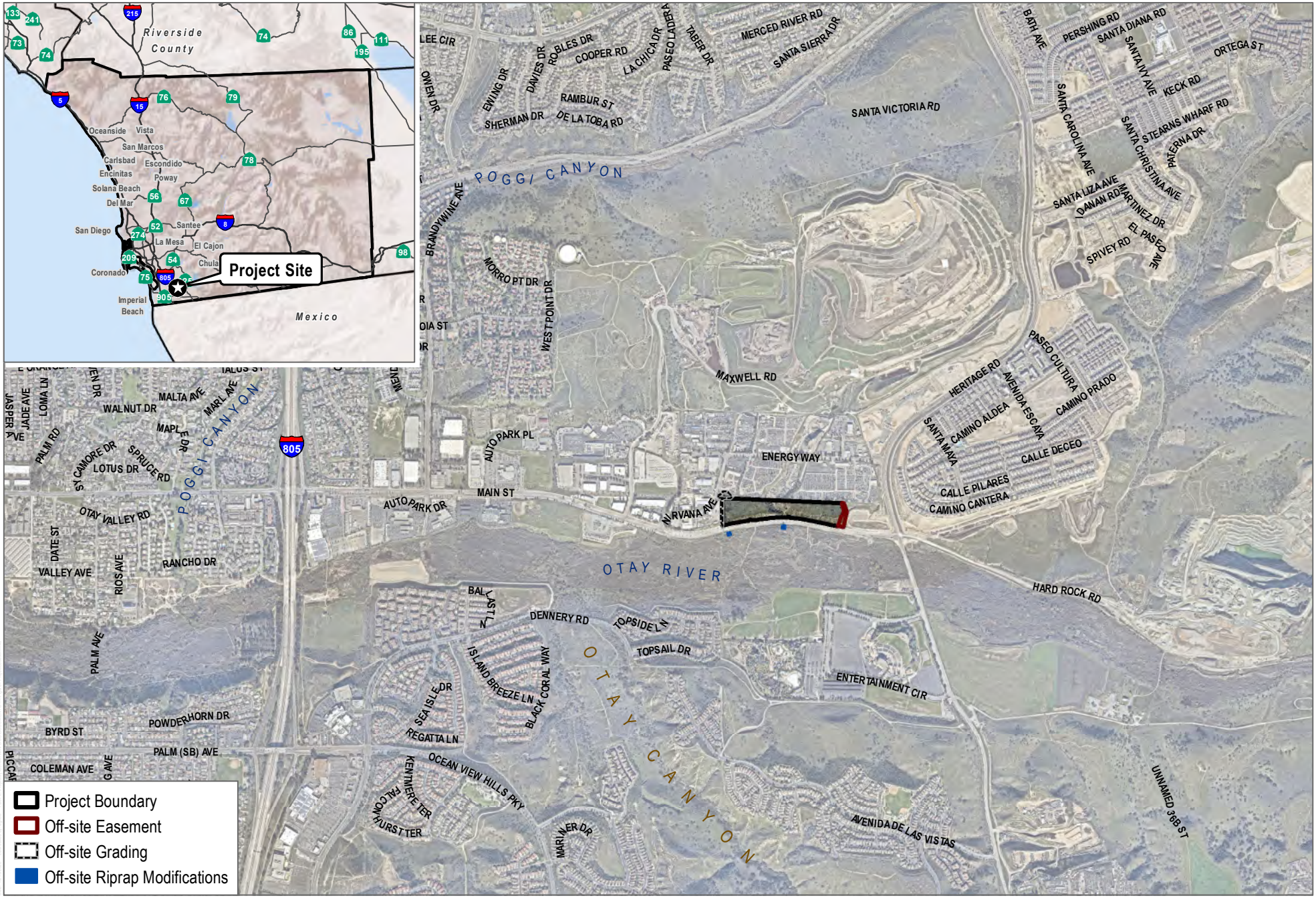

SOURCE: PLSA 2022; SANGIS 2020, 2022

DUDEK

FIGURE 1

Project Location

Biological Technical Report for the Nirvana Project

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SOURCE: PLSA 2022; SANGIS 2020, 2022

DUDEK

FIGURE 2

Multi-Habitat Planning Area (MHPA)

Biological Technical Report for the Nirvana Project

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SOURCE: PLSA 2022; SANGIS 2020, 2022

DUDEK

0 100 200 Feet

FIGURE 3

Biological Resources

Biological Technical Report for the Nirvana Project

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SOURCE: PLSA 2022; SANGIS 2020, 2022

DUDEK

0 100 200 Feet

FIGURE 4

Potential Jurisdictional Resources

Biological Technical Report for the Nirvana Project

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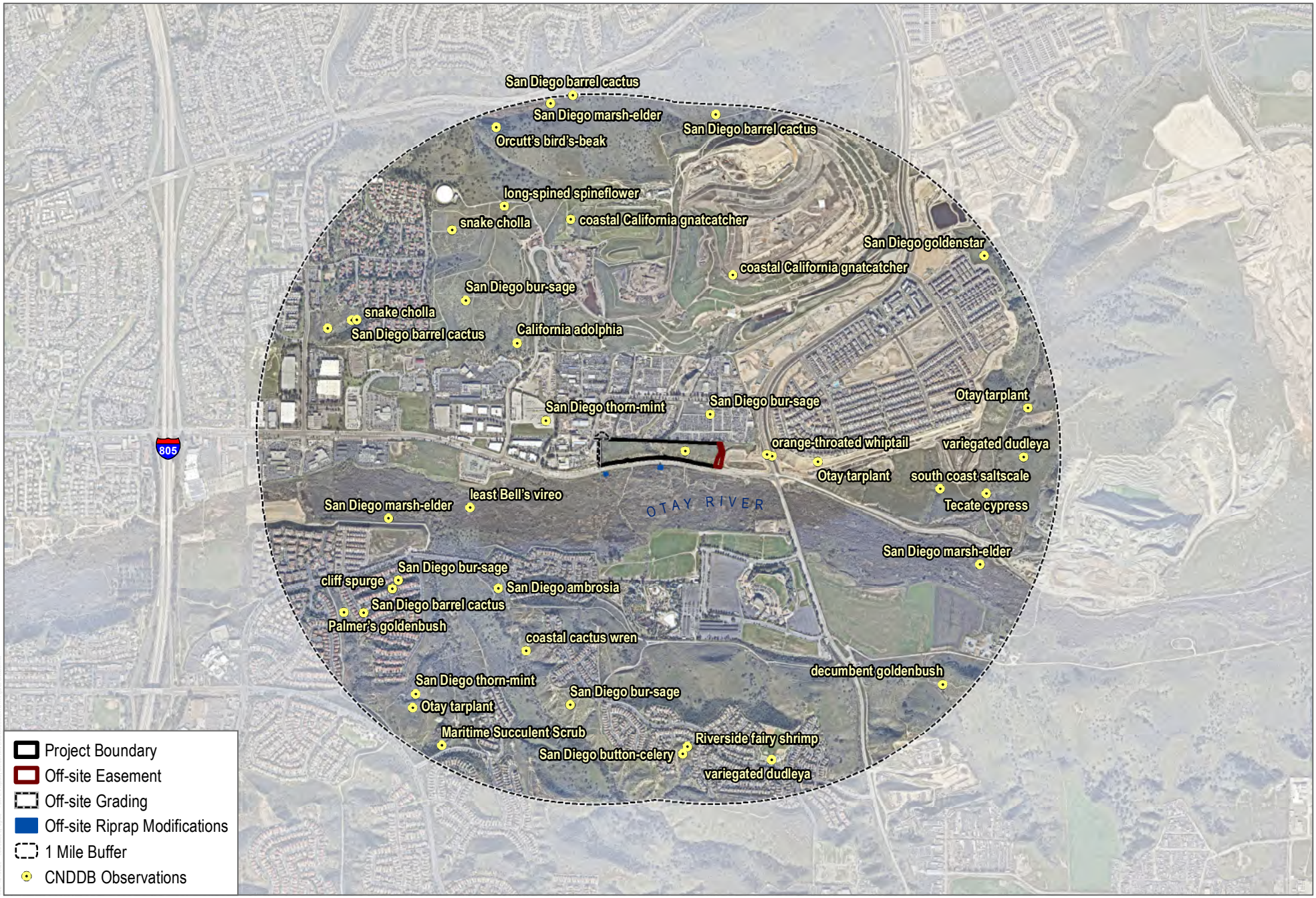

SOURCE: PLSA 2022; CDFW 2022; SANGIS 20210, 2022

DUDEK

0 1,000 2,000 Feet

FIGURE 5

CNDDB Occurrences within 1-Mile

Biological Technical Report for the Nirvana Project

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SOURCE: PLSA 2022; SANGIS 2020, 2022

DUDEK

0 100 200 Feet

FIGURE 6

Impacts to Biological Resources

Biological Technical Report for the Nirvana Project

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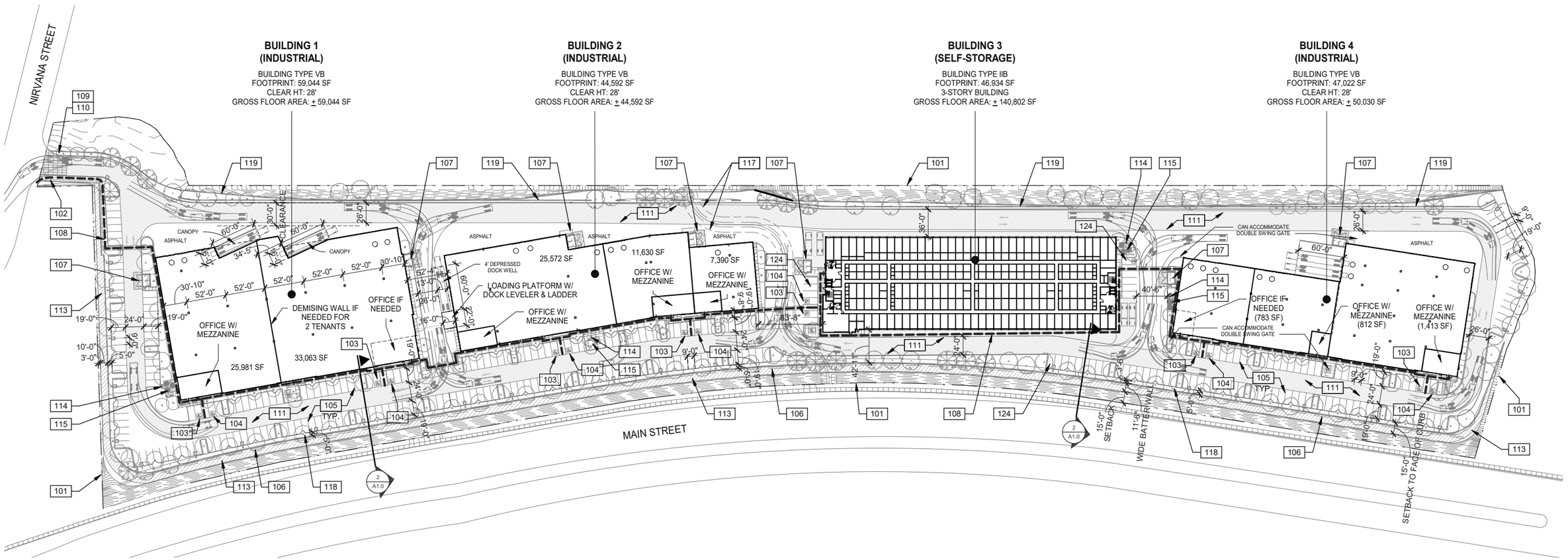

SOURCE: PLSA Engineering, 2022

FIGURE 7A

Site Plan

Biological Technical Report for the Nirvana Project

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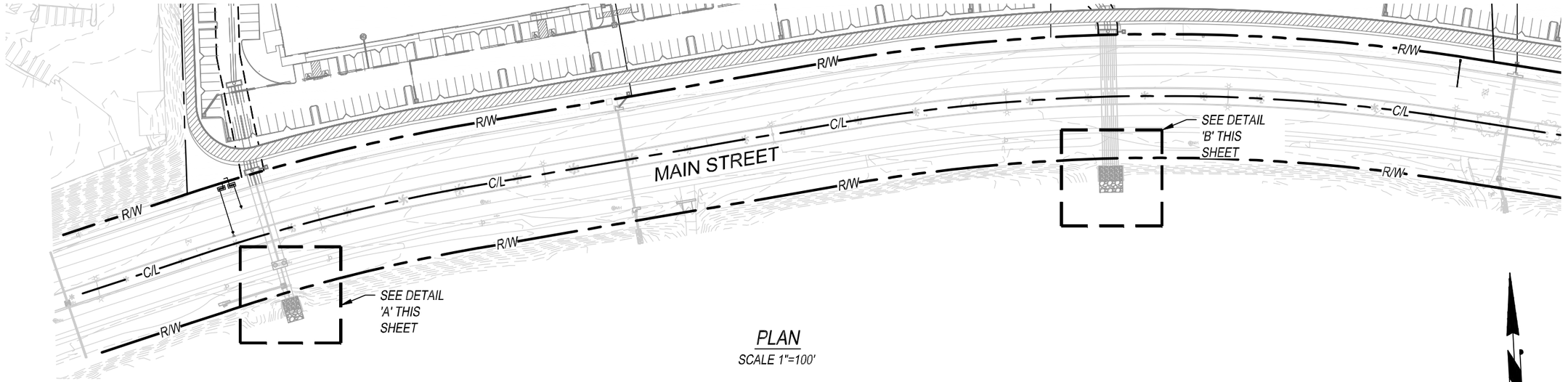
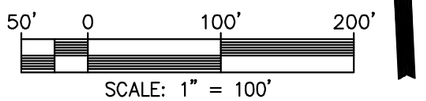
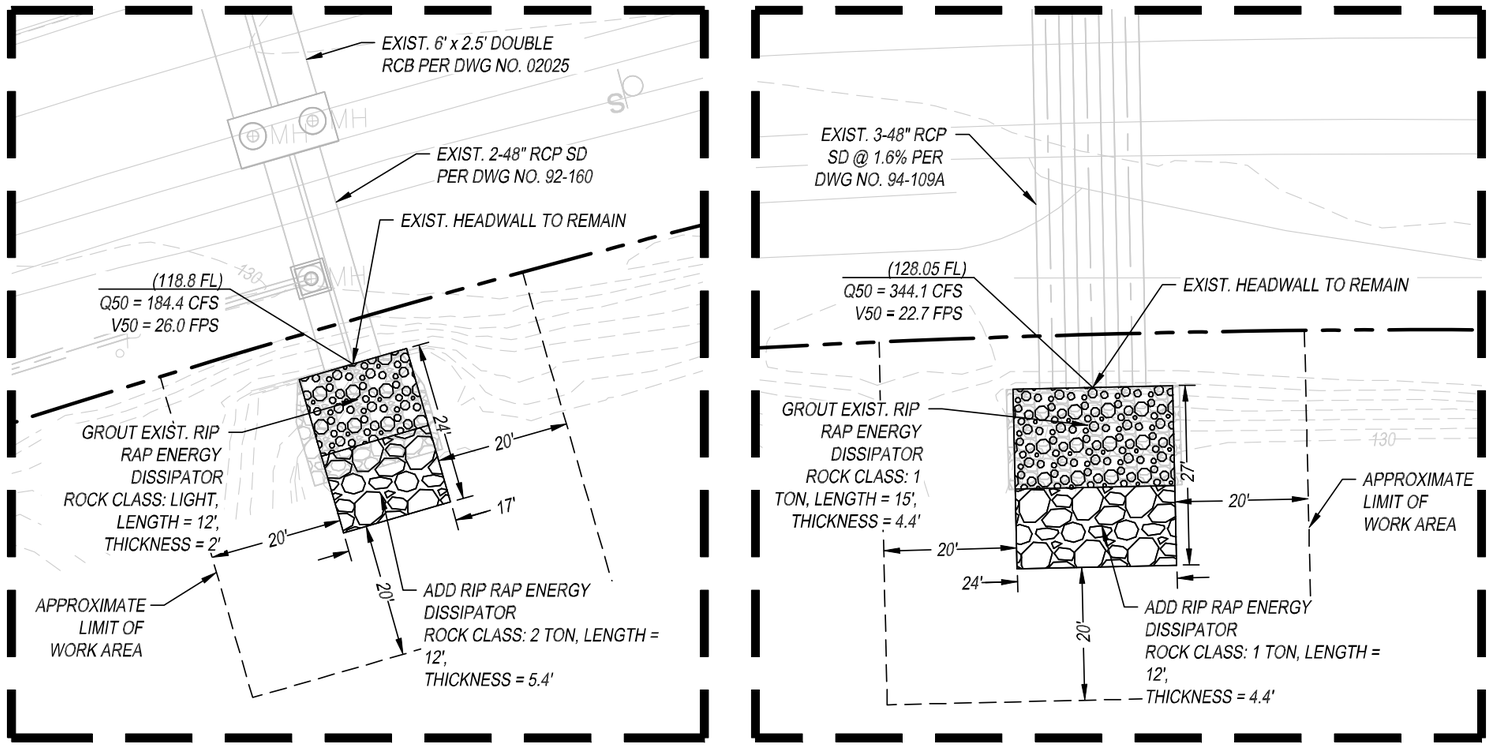


PLAN
SCALE 1"=100'





DETAIL 'A'
SCALE 1"=20'

DETAIL 'B'
SCALE 1"=20'

SOURCE: PLSA Engineering, 2022

FIGURE 7B
Riprap Modifications
Biological Technical Report for the Nirvana Project

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Appendix A
Plant Compendium

Vascular Species

Eudicots

ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra ssp. *caerulea*—blue elderberry

AIZOACEAE—FIG-MARIGOLD FAMILY

* *Mesembryanthemum crystallinum*—common iceplant
* *Mesembryanthemum nodiflorum*—slenderleaf iceplant

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Malosma laurina—laurel sumac

Rhus integrifolia—lemonade berry

* *Schinus molle*—Peruvian peppertree

Toxicodendron diversilobum—poison oak

APIACEAE—CARROT FAMILY

* *Apium graveolens*—wild celery

Daucus pusillus—American wild carrot

* *Foeniculum vulgare*—fennel

ASTERACEAE—SUNFLOWER FAMILY

Ambrosia monogyra—singlewhorl burrobrush

Ambrosia psilostachya—western ragweed

Ambrosia pumila—San Diego ambrosia

Artemisia californica—California sagebrush

Baccharis salicifolia—mulefat

Baccharis sarothroides—desertbroom

* *Centaurea melitensis*—Maltese star-thistle

Deinandra fasciculata—clustered tarweed

Encelia californica—California brittle bush

Erigeron canadensis—Canadian horseweed

* *Glebionis coronaria*—crowndaisy

Helianthus annuus—common sunflower

Isocoma menziesii var. *vernonioides*—Menzies' goldenbush

* *Lactuca serriola*—prickly lettuce
* *Oncosiphon piluliferum*—stinknet
* *Sonchus oleraceus*—common sowthistle

Viguiera laciniata—San Diego County viguiera

Xanthium strumarium—cocklebur

BORAGINACEAE—BORAGE FAMILY

Emmenanthe penduliflora var. *penduliflora*—whisperingbells

Phacelia cicutaria var. *hispida*—caterpillar phacelia

BRASSICACEAE—MUSTARD FAMILY

* *Brassica nigra*—black mustard
* *Hirschfeldia incana*—shortpod mustard
* *Lepidium nitidum*—shining pepperweed

CACTACEAE—CACTUS FAMILY

Cylindropuntia prolifera—coastal cholla

Ferocactus viridescens—San Diego barrel cactus

Mammillaria dioica—strawberry cactus

Opuntia littoralis—coast prickly pear

CARYOPHYLLACEAE—PINK FAMILY

* *Silene gallica*—common catchfly

CHENOPODIACEAE—GOOSEFOOT FAMILY

* *Atriplex semibaccata*—Australian saltbush
* *Chenopodium album*—lambsquarters
* *Chenopodium murale*—nettleleaf goosefoot
* *Salsola tragus*—prickly Russian thistle

CLEOMACEAE—CLEOME FAMILY

Peritoma arborea var. *arborea*—bladderpod spiderflower

Peritoma arborea—bladderpod

CONVOLVULACEAE—MORNING-GLORY FAMILY

Calystegia macrostegia—island false bindweed

CRASSULACEAE—STONECROP FAMILY

Dudleya pulverulenta—chalk dudleya

EUPHORBIACEAE—SPURGE FAMILY

* *Ricinus communis*—castorbean

FABACEAE—LEGUME FAMILY

* *Acacia cyclops*—coastal wattle
* *Acacia melanoxylon*—blackwood

Acmispon strigosus—strigose bird's-foot trefoil

Lupinus succulentus—hollowleaf annual lupine

* *Medicago polymorpha*—burclover
* *Melilotus albus*—yellow sweetclover

GERANIACEAE—GERANIUM FAMILY

* *Erodium botrys*—longbeak stork's bill
* *Erodium cicutarium*—redstem stork's bill

LAMIACEAE—MINT FAMILY

* *Marrubium vulgare*—horehound

MALVACEAE—MALLOW FAMILY

* *Malva parviflora*—cheeseweed mallow

PLANTAGINACEAE—PLANTAIN FAMILY

Antirrhinum nuttallianum ssp. *nuttallianum*—violet snapdragon

POLYGONACEAE—BUCKWHEAT FAMILY

Eriogonum fasciculatum var. *fasciculatum*—California buckwheat

* *Rumex crispus*—curly dock

RHAMNACEAE—BUCKTHORN FAMILY

Adolphia californica—California adolphia

SALICACEAE—WILLOW FAMILY

Salix gooddingii—Goodding's willow

Salix laevigata—red willow

SIMMONDSIACEAE—JOJOBA FAMILY

Simmondsia chinensis—jojoba

SOLANACEAE—NIGHTSHADE FAMILY

Datura wrightii—sacred thorn-apple

Lycium brevipes var. *brevipes*—Baja desert-thorn

* *Nicotiana glauca*—tree tobacco

TAMARICACEAE—TAMARISK FAMILY

* *Tamarix ramosissima*—tamarisk

URTICACEAE—NETTLE FAMILY

Urtica dioica ssp. *holosericea*—stinging nettle

Ferns and Fern Allies

SELAGINELLACEAE—SPIKE-MOSS FAMILY

Selaginella cinerascens—ashy spike-moss

Monocots

AGAVACEAE—AGAVE FAMILY

Yucca schidigera—Mojave yucca

ARECACEAE—PALM FAMILY

* *Washingtonia robusta*—Washington fan palm

CYPERACEAE—SEDGE FAMILY

Schoenoplectus californicus—California bulrush

LILIACEAE—LILY FAMILY

Calochortus splendens—splendid mariposa lily

POACEAE—GRASS FAMILY

* *Avena barbata*—slender oat
* *Avena fatua*—wild oat
Bothriochloa barbinodis—cane bluestem
* *Brachypodium distachyon*—purple false brome
* *Bromus diandrus*—ripgut brome
* *Bromus rubens*—red brome
* *Cynodon dactylon*—Bermudagrass
* *Ehrharta erecta*—panic veldtgrass
* *Festuca myuros*—rat-tail fescue
* *Festuca perennis*—perennial rye grass
* *Hordeum murinum*—mouse barley
* *Lamarckia aurea*—goldentop grass
Melica imperfecta—smallflower melicgrass
* *Pennisetum setaceum*—fountain grass
* *Phalaris minor*—littleseed canarygrass
* *Poa annua*—annual bluegrass
* *Polypogon monspeliensis*—annual rabbitsfoot grass
* *Stipa miliacea* var. *miliacea*—smilograss
Stipa pulchra—purple needlegrass

THEMIDACEAE—BRODIAEA FAMILY

Dipterostemon capitatus—bluedicks

Appendix B
Wildlife Compendium

Birds

Blackbirds, Orioles and Allies

ICTERIDAE—BLACKBIRDS

Icterus cucullatus—hooded oriole

Bushtits

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

Falcons

FALCONIDAE—CARACARAS AND FALCONS

Falco sparverius—American kestrel

Finches

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch

Spinus psaltria—lesser goldfinch

Flycatchers

TYRANNIDAE—TYRANT FLYCATCHERS

Empidonax difficilis—Pacific-slope flycatcher

Sayornis nigricans—black phoebe

Sayornis saya—Say's phoebe

Tyrannus vociferans—Cassin's kingbird

Hummingbirds

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird

Jays, Magpies and Crows

CORVIDAE—CROWS AND JAYS

Corvus corax—common raven

Mockingbirds and Thrashers

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird

Pigeons and Doves

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

Vireos

VIREONIDAE—VIREOS

Vireo bellii pusillus—least Bell's vireo

Wood Warblers and Allies

PARULIDAE—WOOD-WARBLERS

Geothlypis trichas—common yellowthroat

Setophaga coronata—yellow-rumped warbler

Wrens

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren

New World Sparrows

PASSERELLIDAE—NEW WORLD SPARROWS

Melospiza melodia—song sparrow

Melozone crissalis—California towhee

Pipilo maculatus—spotted towhee

Zonotrichia leucophrys—white-crowned sparrow

Typical Warblers, Parrotbills, Wrentit

SYLVIIDAE—SYLVIID WARBLERS

Chamaea fasciata—wrentit

Invertebrates

Butterflies

LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS

Brephidium exile—western pygmy-blue

Euphilotes battoides bernardino—Bernardino square-spotted blue

Hemiargus ceraunus gyas—Edward's blue

Leptotes marina—marine blue

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark

PIERIDAE—WHITES AND SULFURS

Phoebis sennae—cloudless sulphur

Pieris rapae—cabbage white

Pontia protodice—checkered white

Mammals

Canids

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote

Squirrels

SCIURIDAE—SQUIRRELS

Otospermophilus beecheyi—California ground squirrel

Reptiles

Lizards

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

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Appendix C
Jurisdictional Delineation Forms

OHWM DATA SHEET

Project: Nirvana Date: 7-1-21

Investigator(s): Callie Amoaku

Transect: T-01

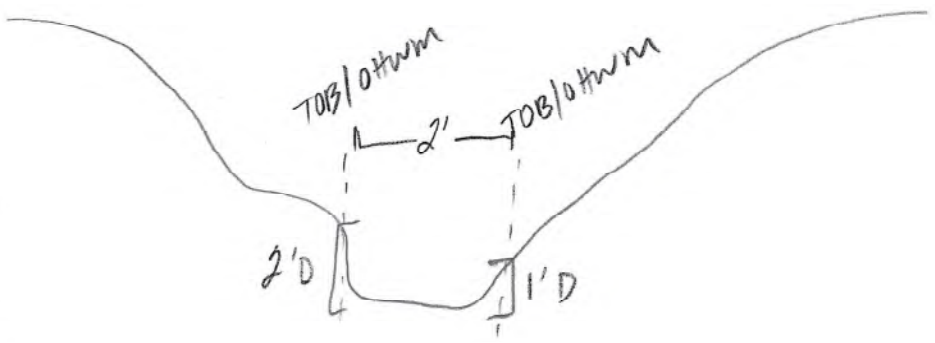
Feature Name: NWW-1

Site Location: western drainage

Feature Type: ☐ Ephemeral ☐ Intermittent ☑ Perennial ☐ Other

Transect (cross-section) drawing(s):

View Facing: S



☑ Transect length
☑ OHWM width
☑ Channel depth
☑ Photo

Break in Slope at OHWM: ☑ Sharp (>60°) ☐ Moderate (30-60°) ☐ Gentle (<30°)

☑ Natural line impressed on the bank	☐ Sediment sorting
☐ Shelving	☐ Leaf litter disturbed or washed away
☐ Changes in the character of soil	☐ Scour
☑ Destruction of terrestrial vegetation	☐ Deposition
☐ Presence of litter and debris	☐ Bed and banks
☐ Wracking	☐ Water staining
☑ Vegetation matted down, bent, or absent	☐ Change in plant community and/or cover

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM				0%	
Below OHWM				— 50% —	

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	60	5	80	0
Below OHWM	0	0	1-5	95

Stage: ☐ Early (herbs & seedlings) ☑ Mid (herbs, shrubs, saplings) ☑ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
Brodia	Brodia	Pol mon
Amb mon	Tam ram	Api gra
Cyl pro	Sti mil	

OHWM DATA SHEET

Condition/Disturbances (e.g., erosion, grazing, culverts, etc.):

Hydrology:

- ☑ Flowing water
- ☐ Standing water
- ☐ Saturated
- ☐ Dry

Avg. depth: 2.5"
Min. depth: 2
Temp:
Max. depth: 3

Checklist of resources (if available):

☑ Aerial photography	☑ Vegetation maps	☑ GPS unit
☐ Remotely-sensed images	☐ Soil maps	☐ Stream gage data
☐ Topographic maps	☐ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (plan view), notes:

Very slowly moving water with algae present @ ≥ 10%. Dragonflies observed

Other forms related to this feature: ☑ Yes ☐ No

- ☑ Terrace, fringe, or floodplain wetland (wetland datasheet)
- ☐ Low flow channel or other representative section (OHWM datasheet)

OHWM DATA SHEET

Project: Nirvana Date: 7-1-21 Transect: T-02

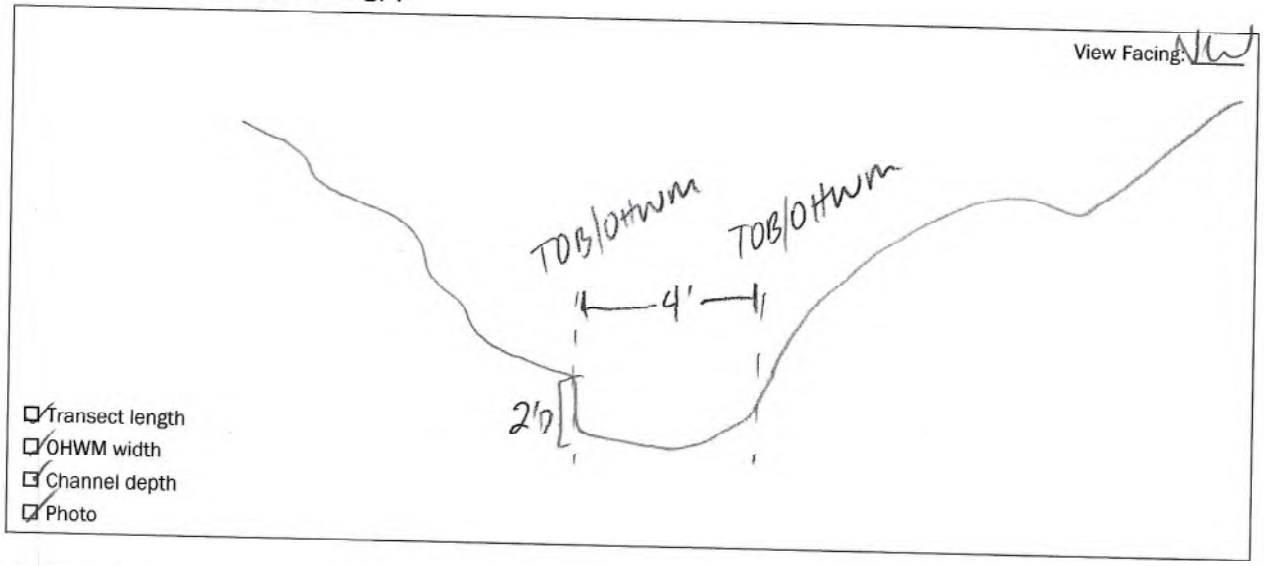
Investigator(s): Callie Amoaku Feature Name: NWW-02

Site Location:

middle drainage

Feature Type: ☐ Ephemeral ☑ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s):



Break in Slope at OHWM: ☑ Sharp (>60°) ☐ Moderate (30-60°) ☐ Gentle (<30°)

☑ Natural line impressed on the bank	☐ Sediment sorting
☐ Shelving	☐ Leaf litter disturbed or washed away
☐ Changes in the character of soil	☐ Scour
☑ Destruction of terrestrial vegetation	☑ Deposition
☐ Presence of litter and debris	☑ Bed and banks
☐ Wracking	☐ Water staining
☑ Vegetation matted down, bent, or absent	☑ Change in plant community and/or cover

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM					
Below OHWM					

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	30	30	40	Ø
Below OHWM	0	0	0	100

Stage: ☑ Early (herbs & seedlings) ☑ Mid (herbs, shrubs, saplings) ☑ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
Simchi Brodia	Tamram Bradac Sallal Simchi Brodia Brorub	Ø

OHWM DATA SHEET

Condition/Disturbances (e.g., erosion, grazing, culverts, etc.):

Tires + concrete slabs dumped in channel especially in the north end.

Hydrology:

- ☐ Flowing water
- ☐ Standing water
- ☐ Saturated
- ☑ Dry

Avg. depth:

Min. depth:

Temp:

Max. depth:

Checklist of resources (if available):

☑ Aerial photography	☐ Vegetation maps	☑ GPS unit
☐ Remotely-sensed images	☑ Soil maps	☐ Stream gage data
☐ Topographic maps	☐ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (plan view), notes:

Water dripping out of culvert upstream for about 10 ft. Tires + concrete completely cover channel so you can't tell exactly where the water dissipates but channel completely dry where bottom is visible again downstream. Channel enters large concrete apron, then culvert beneath main street, then into Otay River.

Other forms related to this feature: ☑ Yes ☐ No

- ☑ Terrace, fringe, or floodplain wetland (wetland datasheet)
- ☐ Low flow channel or other representative section (OHWM datasheet)

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Nirvana City/County: Chula Vista/San Diego Sampling Date: 2021-07-01

Applicant/Owner: OnPoint State: California Sampling Point: 1a

Investigator(s): Callie Amoaku Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR): C Lat: 32.5937500 Long: -117.0142508 Datum: WGS 84

Soil Map Unit Name: Salinas clay loam, 2 to 9 percent slopes (SbC) NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Drought

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarisk ramosissima	60	✓	FAC
2.			
3.			
4.			
	60%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1. Ambrosia monogyra	5	✓	UPL
2. Simmondsia chinensis	3	✓	NI
3.			
4.			
5.			
	8%	= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Bromus diandrus	70	✓	NI
2. Stipa miliacea	3		NI
3. Ehrharta erecta	2		NI
4.			
5.			
6.			
7.			
8.			
	75%	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	65 (A)		205 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 1a

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 - 16		5						Cobble
0 - 16	10YR 3/2	95					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 ✓

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 Vis ble on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No hydrology present on terrace

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Nirvana City/County: Chula Vista/San Diego Sampling Date: 2021-07-01

Applicant/Owner: OnPoint State: California Sampling Point: 1b

Investigator(s): Callie Amoaku Section, Township, Range:

Landform (hillslope, terrace, etc.): Upland, Hillslope Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR): C Lat: 32.5937500 Long: -117.0142508 Datum: WGS 84

Soil Map Unit Name: Salinas clay loam, 2 to 9 percent slopes (SbC) NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Drought

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarisk ramosissima	10	✓	FAC
2.			
3.			
4.			
	10%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1. Simmondsia chinensis	15	✓	NI
2. Ambrosia monogyra	5	✓	UPL
3. Artemesia californica	5	✓	NI
4.			
5.			
	25%	= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Bromus diandrus	40	✓	NI
2. Brachypodium distachyon	25	✓	
3.			
4.			
5.			
6.			
7.			
8.			
	65%	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	15 (A)		55 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 1b

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 - 16	10YR 3/2	100					Sandy Loam	Cobble
-								
-								
-								
-								
-								
-								
-								

[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 ✓

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 Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No hydrology present on terrace

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Nirvana City/County: Chula Vista/San Diego Sampling Date: 2021-07-01

Applicant/Owner: OnPoint State: California Sampling Point: 2a

Investigator(s): Callie Amoaku Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C Lat: 32.5941467 Long: -117.0114606 Datum: WGS 84

Soil Map Unit Name: Terrace escarpments (TeF) NWI classification: Freshwater Forested/Shrub Wetland

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	20	✓	FACW
2. Tamarisk ramossissima	20	✓	FAC
3.			
4.			
	40%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Brachypodium distachyon	35	✓	NI
2. Bromus diandris	35	✓	NI
3. Bromus rubens	30	✓	NI
4.			
5.			
6.			
7.			
8.			
	100%	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	40 (A)		100 (B)

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 2a

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 - 16	10YR 5/3	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 ✓

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 Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Nirvana City/County: Chula Vista/San Diego Sampling Date: 2021-07-01

Applicant/Owner: OnPoint State: California Sampling Point: 2b

Investigator(s): Callie Amoaku Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 90

Subregion (LRR): C Lat: 32.5941162 Long: -117.0115179 Datum: WGS 84

Soil Map Unit Name: Terrace escarpments (TeF) NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1. Rhus integrifolia	50	✓	NI
2.			
3.			
4.			
5.			
	50% = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Brachypodium distachyon	40	✓	NI
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40% = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0.0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 2b

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 - 16	7.5YR 4/3	100					Sandy Loam	
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

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 Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Nirvana City/County: San Diego Sampling Date: 2022-03-28

Applicant/Owner: Nirvana OnPoint Development State: California Sampling Point: 3

Investigator(s): DMA Section, Township, Range:

Landform (hillslope, terrace, etc.): Stream Channel Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): C 19 Lat: 32.5932527 Long: -117.0141566 Datum: WGS 84

Soil Map Unit Name: Gravel Pits NWI classification: NA

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix ramosissima	20	✓	FAC
2.			
3.			
4.			
	20% = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1. Baccharis salicifolia	30	✓	FAC
2. Tamarix ramosissima	30	✓	FAC
3. Nicotiana glauca	5		FAC
4.			
5.			
	65% = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Bromus hordeaceus	35	✓	FACU
2. Apium graveolens	15	✓	UPL
3. Brassica nigra	15	✓	UPL
4. Xanthium strumarium	5		FAC
5.			
6.			
7.			
8.			
	70% = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 30.0 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	90	x 3 =	270
FACU species	35	x 4 =	140
UPL species	30	x 5 =	150
Column Totals:	155 (A)		560 (B)

Prevalence Index = B/A = 3.61

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
1 - 12	2.5Y 4/2	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 ✓

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 Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Appendix D

Special-Status Plant Species with Low to No Potential to Occur in the Study area

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Abronia maritima	red sand-verbena	None/None/4.2/None	Coastal dunes/perennial herb/Feb–Nov/0–330	Not expected to occur. No suitable vegetation present. Red-sand-verbena occurs in sandy coastal dune habitat which is not present on-site (SDNHM 2021; Calflora 2021; Reiser 2001).
Acanthomintha ilicifolia	San Diego thorn-mint	FT/SE/1B.1/Covered; NE	Chaparral, Coastal scrub, Valley and foothill grassland, Vernal pools; Clay, openings/annual herb/Apr–June/33–3,145	Low potential to occur. Habitat for San Diego thorn-mint occurs on site; however, this plant was absent during focused plant surveys in April and May 2022.
Acmispon prostratus	Nuttall's acmispon	None/None/1B.1/None	Coastal dunes, Coastal scrub (sandy)/annual herb/ Mar–June(July)/0–35	Not expected to occur. The site is outside of the species' known elevation range. As the elevation for Nuttall's acmispon is near the beach in coastal dunes. In addition, Nuttal's acmispon occurs in sandy costal dune and sandy coastal scrub habitat which is not present on-site (SDNHM 2021; Calflora 2021; Reiser 2001). The soil onsite is unsuitable for this species. In addition, Nuttall's acmispon would have likely been observed during wildlife surveys as it can bloom in July.
Agave shawii var. *shawii*	Shaw's agave	None/None/2B.1/ Covered	Coastal bluff scrub, Coastal scrub; Maritime succulent scrub/perennial leaf succulent/Sep–May/10–395	Not expected to occur. Shaw's agave can be clearly identified year-round and was not observed during, reconnaissance surveys, coastal California gnatcatcher surveys, vegetation mapping or during the jurisdictional delineation. In addition, Shaw's agave is more likely to be found within proximity of the coastline (SDNHM 2021; Calflora 2021; Reiser 2001).
Ambrosia chenopodiifolia	San Diego bur-sage	None/None/ 2B.1/None	Coastal scrub/perennial shrub/Apr–June/180–510	While San Diego bur-sage was observed in 2007 (Appendix G), it was absent during the 2022 surveys despite 100% coverage of the site in April and May 2022.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Aphanisma blitoides	aphanisma	None/None/1B.2/None	Coastal bluff scrub, Coastal dunes, Coastal scrub; sandy or gravelly/annual herb/ Feb–June/3–1,000	Not expected to occur. Aphanisma is typically observed on coastal bluffs and coastal dunes in sandy soils which are not present on-site. In addition, the distribution range of aphanisma is only along the coastline and within southern California islands (SDNHM 2021; Calflora 2021; Reiser 2001).
Arctostaphylos otayensis	Otay manzanita	None/None/1B.2/None	Chaparral, Cismontane woodland; metavolcanic/perennial evergreen shrub/Jan–Apr/902–5,575	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Otay manzanita would have been observed during vegetation mapping studies if present. Otay manzanita can be clearly identified year-round. In addition, Otay manzanita has only been collected and or observed on Otay mountain, Mt. San Miguel, and Jamul mountains and Guatay mountain (SDNHM 2021; Calflora 2021; Reiser 2001).
Artemisia palmeri	San Diego sagewort	None/None/4.2/None	Chaparral, Coastal scrub, Riparian forest, Riparian scrub, Riparian woodland; sandy, mesic/perennial deciduous shrub/(Feb)May–Sep/ 49–3,000	Not expected to occur. San Diego Sagewort can be clearly identified year-round. San Diego sagewort was not observed during vegetation mapping. San Diego sagewort typically occurs within or near riparian areas. The riparian areas on-site were highly disturbed with trash in many of the channels where San Diego sagewort would have potential to occur. Collections for San Diego sagewort occur near the site in Otay Valley Regional park where riparian areas are dense (SDNHM 2021; Calflora 2021; Reiser 2001).
Asplenium vespertinum	western spleenwort	None/None/4.2/None	Chaparral, Cismontane woodland, Coastal scrub; rocky/perennial rhizomatous herb/Feb–June/ 591–3,280	Not expected to occur. The site is outside of the species' known elevation range.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Astragalus deanei	Dean's milk-vetch	None/None/1B.1/None	Chaparral, Cismontane woodland, Coastal scrub, Riparian forest/perennial herb/ Feb–May/246–2,280	Not expected to occur. The site is outside of the species' known elevation range. In addition, the closest known locations for Dean's milk-vetch is near Rancho San Diego, California (SDNHM 2021; Calflora 2021; Reiser 2001).
Astragalus tener var. *titi*	coastal dunes milk-vetch	FE/SE/1B.1/None	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie (mesic); often vernally mesic areas/annual herb/ Mar–May/3–165	Not expected to occur. No suitable vegetation or habitat is present on-site. In addition, coastal dunes milk-vetch occurs within proximity of the coastline (SDNHM 2021; Calflora 2021; Reiser 2001).
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/10–1,505	Low potential to occur. Coulter's saltbush is a small perennial that requires rare plant surveys to observe where tight transects are walked. It typically needs alkaline soils which were not observed therefore making potential for this species low. (SDNHM 2021; Calflora 2021; Reiser 2001).
Atriplex pacifica	South Coast saltscale	None/None/1B.2/None	Coastal bluff scrub, Coastal dunes, Coastal scrub, Playas/annual herb/Mar–Oct/0–460	Low potential to occur. South coast saltscale is an annual herb that requires tight transects to observe. 100% of the site was surveyed in April and May 2022 and this plant was absent.
Bergerocactus emoryi	golden-spined cereus	None/None/2B.2/None	Closed-cone coniferous forest, Chaparral, Coastal scrub; sandy/perennial stem succulent/May–June/10–1,295	Not expected to occur. Golden-spined cereus would have been observed during vegetation mapping as it can be clearly identified year-round. Golden-spined cereus also has a distribution that occurs along the coastline and near Border Field State Park (SDNHM 2021; Calflora 2021; Reiser 2001).
Bloomeria clevelandii	San Diego goldenstar	None/None/1B.1/None	Chaparral, Coastal scrub, Valley and foothill grassland, Vernal pools; clay/perennial bulbiferous herb/Apr–May/164–1,525	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
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/perennial bulbiferous herb/May–July/98–5,550	Low potential to occur. The closest Orcutt's brodiaea collections and or observations are near Otay mountain open space preserve. Therefore, considering the distance of observations or collections, Orcutt's brodiaea is presumed to have low potential. A rare plant survey in the spring will be performed (SDNHM 2021; Calflora 2021; Reiser 2001).
Calandrinia breweri	Brewer's calandrinia	None/None/4.2/None	Chaparral, Coastal scrub; sandy or loamy, disturbed sites and burns/annual herb/ (Jan)Mar–June/33–4,000	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent.
Calochortus dunnii	Dunn's mariposa lily	None/SR/1B.2/Covered	Closed-cone coniferous forest, Chaparral, Valley and foothill grassland; gabbroic or metavolcanic, rocky/perennial bulbiferous herb/ (Feb)Apr–June/607–6,000	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. In addition, Dunn's mariposa lily collections and observations are closer to Otay mountain open space preserve (SDNHM 2021; Calflora 2021; Reiser 2001).
Camissoniopsis lewisii	Lewis' evening-primrose	None/None/3/None	Coastal bluff scrub, Cismontane woodland, Coastal dunes, Coastal scrub, Valley and foothill grassland; sandy or clay/annual herb/Mar–May(June)/0–985	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent.
Ceanothus cyaneus	Lakeside ceanothus	None/None/1B.2/ Covered	Closed-cone coniferous forest, Chaparral/perennial evergreen shrub/Apr–June/771–2,475	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. In addition, most of the population of Lakeside ceanothus occurs near Lakeside, Fernbrook and Flinn Springs, California (SDNHM 2021; Calflora 2021; Reiser 2001).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Ceanothus otayensis	Otay Mountain ceanothus	None/None/1B.2/None	Chaparral (metavolcanic or gabbroic)/perennial evergreen shrub/Jan–Apr/1,965–3,605	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. In addition, most of the population of Otay mountain ceanothus occurs on Otay Mountain (SDNHM 2021; Calflora 2021; Reiser 2001).
Ceanothus verrucosus	wart-stemmed ceanothus	None/None/2B.2/None	Chaparral/perennial evergreen shrub/Dec–May/3–1,245	Not expected to occur. No suitable vegetation present. The closest collection of wart-stemmed ceanothus is north of the city of San Diego (SDNHM 2021; Calflora 2021; Reiser 2001).
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/None/1B.1/None	Coastal bluff scrub (sandy), Coastal dunes/annual herb/ Jan–Aug/0–330	Not expected to occur. No suitable vegetation present. Orcutt's pincushion generally occurs in sandy soils and sandy dunes which are not present onsite. In addition, Orcutt's pincushion has a coastline distribution based upon collection and observations (SDNHM 2021; Calflora 2021; Reiser 2001).
Chamaebatia australis	southern mountain misery	None/None/4.2/None	Chaparral (gabbroic or metavolcanic)/perennial evergreen shrub/Nov–May/984–3,345	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. In addition, southern mountain misery is easily identified year-round and would have been observed during vegetation mapping. Collections and observations of southern mountain misery are on Otay mountain, San Miguel mountain, and Jamul mountains (SDNHM 2021; Calflora 2021; Reiser 2001).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	FE/SE/1B.2/None	Coastal dunes, Marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct(Nov)/ 0–100	Not expected to occur. No suitable vegetation present. Salt marsh birds beak only occurs in saltmarsh. Habitat onsite is not suitable for saltmarsh birds' beak. The distribution of salt marsh birds beak is almost entire on the coastline just east of the coastline in saltmarsh habitat (SDNHM 2021; Calflora 2021; Reiser 2001).
Chorizanthe orcuttiana	Orcutt's spineflower	FE/SE/1B.1/None	Closed-cone coniferous forest, Chaparral (maritime), Coastal scrub; sandy openings/annual herb/Mar–May/10–410	Low potential to occur. Orcutt's spineflower occurs in sandy soils unlike those observed on-site. Orcutt's spineflower is extremely rare and where it is found disturbance is minimal. In addition, the closest collection or observation is in Point Loma. No recorded or Orcutt's pincushion have been documented within Chula Vista, California (SDNHM 2021; Calflora 2021; Reiser 2001).
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/98–5,015	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent.
Cistanthe maritima	seaside cistanthe	None/None/4.2/None	Coastal bluff scrub, Coastal scrub, Valley and foothill grassland; sandy/annual herb/ (Feb)Mar–June(Aug)/16–985	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Clarkia delicata	delicate clarkia	None/None/1B.2/None	Chaparral, Cismontane woodland; often gabbroic/annual herb/ Apr–June/771–3,280	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Delicate clarkia is more typically found in oak woodland and open oak woodland which is not present on-site. In addition, delicate clarkia generally occurs within central San Diego county east and north of Otay Mesa, California (SDNHM 2021; Calflora 2021; Reiser 2001).
Clinopodium chandleri	San Miguel savory	None/None/1B.2/None	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland; Rocky, gabbroic or metavolcanic/perennial shrub/Mar–July/394–3,525	Not expected to occur. The site is outside of the species' known elevation range. San Miguel Savory occurs near mountain peaks. San Miguel mountain and Jamul mountains are the closest collection and observations for San Miguel mountain savory (SDNHM 2021; Calflora 2021; Reiser 2001).
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	None/None/1B.2/None	Chaparral, Cismontane woodland/perennial evergreen shrub/Apr–June/98–2,590	Low potential to occur. Summer holly can be identified year-round if the leaf serrations are studied closely. Summer holly (a large shrub) would have likely been observed during vegetation mapping but every shrub wasn't studied in detail. A rare plant survey is needed to determine presence. The closest collection of summer holly is near Otay mountain and further north of Chula Vista, California (SDNHM 2021; Calflora 2021; Reiser 2001).
Convolvulus simulans	small-flowered morning-glory	None/None/4.2/None	Chaparral (openings), Coastal scrub, Valley and foothill grassland; clay, serpentinite seeps/annual herb/Mar–July/ 98–2,425	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent.
Corethrogyne filaginifolia var. *incana*	San Diego sand aster	None/None/1B.1/None	Coastal bluff scrub, Chaparral, Coastal scrub/perennial herb/June–Sep/10–375	Not expected to occur. San Diego san aster typically occurs on costal bluff scrub which is not present on-site.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Cylindropuntia californica var. *californica*	snake cholla	None/None/1B.1/ Covered NE	Chaparral, Coastal scrub/perennial stem succulent/Apr–May/98–490	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent. The *Cylindropuntia* species on site was determined to be the common coastal cholla (*C. prolifera*) based on the presence of flowers during the April and May surveys.
Deinandra conjugens	Otay tarplant	FT/SE/1B.1/ Covered; NE	Coastal scrub, Valley and foothill grassland; clay/annual herb/(Apr)May–June/82–985	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent. Rare plant reference checks were performed for this species less than 4 miles away on the same day as the May 2022 pass. Reference checks documented this plant in full bloom.
Deinandra floribunda	Tecate tarplant	None/None/1B.2/None	Chaparral, Coastal scrub/annual herb/Aug–Oct/230–4,000	Low potential to occur. Tecate tarplant has a distribution near Otay mountain and further east and into the high desert (SDNHM 2021; Calflora 2021; Reiser 2001).
Deinandra paniculata	paniculate tarplant	None/None/4.2/None	Coastal scrub, Valley and foothill grassland, Vernal pools; usually vernally mesic, sometimes sandy/annual herb/ (Mar)Apr–Nov(Dec)/82–3,080	Low potential to occur. Paniculate tarplant has a distribution that is north of Camp Pendleton (with a few collections near Terrasanta) and into Orange County (SDNHM 2021; Calflora 2021; Reiser 2001).
Dichondra occidentalis	western dichondra	None/None/4.2/None	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial rhizomatous herb/(Jan)Mar–July/164–1,640	Low potential to occur. Western dichondra would have likely been observed during vegetation mapping as it can be observed year-round. However, it is easier to observe after fire. Collections have been surrounding Chula Vista for western dichondra (SDNHM 2021; Calflora 2021; Reiser 2001).
Dicranostegia orcuttiana	Orcutt's bird's-beak	None/None/2B.1/None	Coastal scrub/annual herb (hemiparasitic)/ (Mar)Apr–July(Sep)/33–1,145	Low potential to occur. Orcutt's bird-beak is especially rare and the majority of all locations are being monitored. One population does occur within a Chula Vista preserve (SDNHM 2021; Calflora 2021; Reiser 2001).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Diplacus clevelandii	Cleveland's bush monkeyflower	None/None/4.2/None	Chaparral, Cismontane woodland, Lower montane coniferous forest; Gabbroic, often in disturbed areas, openings, rocky/perennial rhizomatous herb/ Apr–July/1,475–6,560	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. The closest documentation of Cleveland's bush monkeyflower is on Otay mountain, California. None are documented near Chula Vista, California (SDNHM 2021; Calflora 2021; Reiser 2001).
Dudleya attenuata ssp. *attenuata*	Orcutt's dudleya	None/None/2B.1/None	Coastal bluff scrub, Chaparral, Coastal scrub; rocky or gravelly/perennial herb/ May–July/10–165	Not expected to occur. Orcutt's Dudleya occurs at the US/Mexico border in one location. Orcutt's Dudleya has not been observed within or directly surrounding Chula Vista, California (SDNHM 2021; Calflora 2021; Reiser 2001).
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	None/None/1B.1/None	Coastal bluff scrub, Chaparral, Coastal scrub, Valley and foothill grassland; rocky, often clay or serpentinite/perennial herb/Apr–June/16–1,475	Not expected to occur. Blochman's Dudleya has a coastal distribution and occurs in unique serpentinite soils not present on-site (SDNHM 2021; Calflora 2021; Reiser 2001).
Dudleya variegata	variegated dudleya	None/None/1B.2/ Covered NE	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland, Vernal pools; clay/perennial herb/ Apr–June/10–1,900	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent.
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	None/None/1B.1/ Covered	Chaparral, Coastal scrub; mesic/perennial evergreen shrub/(July)Sep–Nov/ 98–1,965	Low potential to occur. Palmer's goldenbush can easily be observed year-round. Palmer's goldenbush was not observed during vegetation mapping. In addition, collections have not been made within or directly surrounding Chula Vista, California (SDNHM 2021; Calflora 2021; Reiser 2001).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE/1B.1/None	Coastal scrub, Valley and foothill grassland, Vernal pools; mesic/annual / perennial herb/Apr–June/66–2,030	Not expected to occur. San Diego button celery occurs within vernal pools. Vernal pools were not observed onsite. In addition, no collections have been made within or immediately surrounding Chula Vista, California (SDNHM 2021; Calflora 2021; Reiser 2001).
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. Sand-loving wallflower occurs in coastal sand and coastal dunes. Habitat for this species doesn't occur onsite. Sand-loving wallflower also has a distribution near the coastline (SDNHM 2021; Calflora 2021; Reiser 2001).
Erythranthe diffusa	Palomar monkeyflower	None/None/4.3/None	Chaparral, Lower montane coniferous forest; sandy or gravelly/annual herb/ Apr–June/4,000–6,000	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Palomar moneyflower occurs within central and eastern San Diego far from Chula Vista, California (SDNHM 2021; Calflora 2021; Reiser 2001).
Euphorbia misera	cliff spurge	None/None/ 2B.2/None	Coastal bluff scrub, Coastal scrub, Mojavean desert scrub; rocky/perennial shrub/ Dec–Aug(Oct)/33–1,640	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent.
Fremontodendron mexicanum	Mexican flannelbush	FE/SR/1B.1/None	Closed-cone coniferous forest, Chaparral, Cismontane woodland; gabbroic, metavolcanic, or serpentinite/perennial evergreen shrub/Mar–June/33–2,345	Not expected to occur. No suitable vegetation present. Mexican flannel bush populations generally occur on Otay mountain. Some collections have been documented in Bonita, California. However, if Mexican flannelbush was present onsite it would have likely been observed during vegetation mapping as this species can easily be identified year-round (SDNHM 2021; Calflora 2021; iNaturalist 2021; Reiser 2001).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Galium proliferum	desert bedstraw	None/None/2B.2/None	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland; rocky, carbonate (limestone)/annual herb/Mar–June/3,900–5,345	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Collections are east of Bonita, California and a majority of collections are in the Mojave desert (SDNHM 2021; Calflora 2021; iNaturalist 2021; Reiser 2001).
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 and there is no suitable vegetation present. The majority of collections are within the Cuyamaca and Laguna mountains (SDNHM 2021; Calflora 2021; iNaturalist 2021; Reiser 2001).
Harpagonella palmeri	Palmer's grapplinghook	None/None/4.2/None	Chaparral, Coastal scrub, Valley and foothill grassland; Clay; open grassy areas within shrubland/annual herb/ Mar–May/66–3,130	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent.
Hesperevax caulescens	hogwallow starfish	None/None/4.2/None	Valley and foothill grassland (mesic, clay), Vernal pools (shallow); sometimes alkaline/annual herb/ Mar–June/0–1,655	Not expected to occur. No suitable vegetation present. Only three collections have been documented within San Diego county. One collection is off the 125 freeway in Otay valley, one in Otay mesa and one near sweetwater reservoir. No collections have been made in Chula Vista, California but it is an especially rare plant in San Diego county (SDNHM 2021; Calflora 2021; iNaturalist 2021; Reiser 2001).
Hesperocyparis forbesii	Tecate cypress	None/None/1B.1/None	Closed-cone coniferous forest, Chaparral; clay, gabbroic or metavolcanic/perennial evergreen tree/N.A./262–4,920	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. In addition, tecate cypress would have been observed during vegetation mapping as it is a tree that can be identified year-round (SDNHM 2021; Calflora 2021; iNaturalist 2021; Reiser 2001).

Scientific Name	Common Name	Status (Federal/State/CRPR)	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/0–4,015	Not expected to occur. Beach goldenaster occurs on coastal dunes, on the edge of salt marsh and coastal scrub near the beach. Typically, beach golden aster is found in sandy soils. Soils within the CSS on-site are clay loam (SDNHM 2021; Calflora 2021; iNaturalist 2021; USDA 2021; Reiser 2001).
Holocarpha virgata ssp. *elongata*	graceful tarplant	None/None/4.2/None	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/annual herb/May–Nov/197–3,605	Low potential to occur. Graceful tarplant has not been documented within Chula Vista or near Chula Vista, California. A rare plant survey is needed to determine presence for this annual (SDNHM 2021; Calflora 2021; iNaturalist 2021; USDA 2021; Reiser 2001).
Hosackia crassifolia var. *otayensis*	Otay Mountain lotus	None/None/1B.1/None	Chaparral (metavolcanic, often in disturbed areas)/perennial herb/May–Aug/1,245–3,295	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/33–445	Low potential to occur. Decumbent goldenbush occurs near the site. However, it would likely have been observed during vegetation mapping as it can be identified for much of the year. A rare plant survey is needed to confirm presence (SDNHM 2021; Calflora 2021; iNaturalist 2021; USDA 2021; Reiser 2001).
Iva hayesiana	San Diego marsh-elder	None/None/2B.2/None	Marshes and swamps, Playas/perennial herb/ Apr–Oct/33–1,640	Low potential to occur. San Diego marsh elder occurs in channels, swales, and marsh areas. High quality habitat for this species was not present onsite due to the disturbances in those microhabitats. San Diego marsh elder has been documented right next to the site in Otay Valley regional park (SDNHM 2021; Calflora 2021; iNaturalist 2021; USDA 2021; Reiser 2001).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Juglans californica	Southern California black walnut	None/None/4.2/None	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; alluvial/perennial deciduous tree/Mar–Aug/164–2,950	Not expected to occur. Southern California black walnut would have been observed during vegetation mapping. It was not present. Southern California black walnut has not been collected within or near Chula Vista, California (SDNHM 2021; Calflora 2021; iNaturalist 2021; USDA 2021; Reiser 2001).
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	None/None/4.2/None	Coastal dunes (mesic), Meadows and seeps (alkaline seeps), Marshes and swamps (coastal salt)/perennial rhizomatous herb/(Mar)May–June/10–2,950	Not expected to occur. No suitable vegetation present. Southwestern spiny rush would have been observed during vegetation mapping in the wash areas. Southwestern spiny rush can be easily observed year-round. Southwestern spiny rush was not present. Collections have been made in Otay Valley regional park near the site (SDNHM 2021; Calflora 2021; iNaturalist 2021; USDA 2021; Reiser 2001).
Lepechinia ganderi	Gander's pitcher sage	None/None/1B.3/ Covered	Closed-cone coniferous forest, Chaparral, Coastal scrub, Valley and foothill grassland; Gabbroic or metavolcanic/perennial shrub/June–July/1,000–3,295	Not expected to occur. The site is outside of the species' known elevation range. Gander's pitcher sage also requires unique soils like gabbroic or metavolcanic soils which are not present on-site. The majority of collections near the site are on Otay mountain (SDNHM 2021; Calflora 2021; iNaturalist 2021; USDA 2021; Reiser 2001).
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/4.3/None	Chaparral, Coastal scrub/annual herb/Jan–July/3–2,900	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent.
Leptosyne maritima	sea dahlia	None/None/2B.2/None	Coastal bluff scrub, Coastal scrub/perennial herb/ Mar–May/16–490	Not expected to occur. Sea dahlia occurs in sandy soils near the coast. Collections and observations occur near the coastline. In addition, sea dahlia can easily be identified year-round. Sea dahlia was not observed during vegetation mapping (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Lilium humboldtii ssp. *ocellatum*	ocellated Humboldt lily	None/None/4.2/None	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Riparian woodland; openings/perennial bulbiferous herb/ Mar–July(Aug)/98–5,905	Low potential to occur. Ocellated Humbold lily has not been documented near the site. It generally has a distribution near Otay mountain and near the Cuyamacas (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Lycium californicum	California box-thorn	None/None/4.2/None	Coastal bluff scrub, Coastal scrub/perennial shrub/(Dec)Mar,June, July, Aug/16–490	Low potential to occur. While California box thorn was observed in 2007 (Appendix G) and has been documented right next to the site, it was absent during the 2022 surveys despite 100% coverage of the site in April and May 2022.
Microseris douglasii ssp. *platycarpha*	small-flowered microseris	None/None/4.2/None	Cismontane woodland, Coastal scrub, Valley and foothill grassland, Vernal pools; clay/annual herb/Mar–May/ 49–3,510	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent.
Mobergia calculiformis	light gray lichen	None/None/3/None	Coastal scrub (?); On rocks/crustose lichen (saxicolous)/N.A./33–35	Not expected to occur. The site is outside of the species' known elevation range.
Monardella viminea	willowy monardella	FE/SE/1B.1/Covered	Chaparral, Coastal scrub, Riparian forest, Riparian scrub, Riparian woodland; alluvial ephemeral washes/perennial herb/ June–Aug/164–740	Not expected to occur. Willowy monardella occurs in a unique microhabitat that consist of cobbly washes. Habitat for willowy monardella is not present onsite. In addition, willowy monardella generally occurs north of the City of San Diego. No collections have been made within or surrounding Chula Vista, California (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Mucronea californica	California spineflower	None/None/4.2/None	Chaparral, Cismontane woodland, Coastal dunes, Coastal scrub, Valley and foothill grassland; sandy/annual herb/ Mar–July(Aug)/0–4,590	Low potential to occur. California spineflower has not been documented within or near Chula Vista. California spineflower has a coastal distribution except for a few outliers in eastern San Diego County. California spineflower occurs in sandy soils which area not present onsite. The site consists of clay loam soils (SDNHM 2021; Calflora 2021; Reiser 2001; USDA Soils 2021; iNaturalist 2021).
Myosurus minimus ssp. *apus*	little mousetail	None/None/3.1/None	Valley and foothill grassland, Vernal pools (alkaline)/annual herb/Mar–June/66–2,095	Not expected to occur. No suitable vegetation present. Little mousetail occurs within vernal pools. Vernal pools are not present on-site. The closest collection is near the US/Mexico border (SDNHM 2021; Calflora 2021; Reiser 2001; USDA Soils 2021; iNaturalist 2021).
Navarretia fossalis	spreading navarretia	FT/None/1B.1/ None	Chenopod scrub, Marshes and swamps (assorted shallow freshwater), Playas, Vernal pools/annual herb/ Apr–June/98–2,145	Not expected to occur. No suitable vegetation present. Spreading navarretia occurs within vernal pools. Vernal pools are not present on-site. No collections or observations have been made within or directly surrounding Chula Vista, California (SDNHM 2021; Calflora 2021; Reiser 2001; USDA Soils 2021; iNaturalist 2021).
Navarretia prostrata	prostrate vernal pool navarretia	None/None/1B.2/None	Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools; Mesic/annual herb/ Apr–July/10–3,965	Not expected to occur. Prostrate vernal pool navarretia occurs within vernal pools, seeps, or wet meadows. Habitat for this species doesn't occur on-site. In addition, prostrate vernal pool navarretia has been documented north of the city of San Diego, California and is not located within Chula Vista or surrounding areas (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Nemacaulis denudata var. *denudata*	coast woolly-heads	None/None/1B.2/None	Coastal dunes/annual herb/Apr–Sep/0–330	Not expected to occur. No suitable vegetation present. Coast woolly heads occur on beach sand, on beach dunes. The distribution for coast woolly heads is along the coastline where beach sand is present. Soils on-site are not suitable for coast woolly heads (SDNHM 2021; Calflora 2021; Reiser 2001; USDA 2021; iNaturalist 2021).
Nemacaulis denudata var. *gracilis*	slender cottonheads	None/None/2B.2/None	Coastal dunes, Desert dunes, Sonoran desert scrub/annual herb/(Mar)Apr–May/-,165–1,310	Not expected to occur. No suitable vegetation present. No collections have been made within or near Chula Vista, California. Soils on-site are not sandy enough to support this species. The soils onsite consist of clay (SDNHM 2021; Calflora 2021; Reiser 2001; USDA 2021; iNaturalist 2021).
Ophioglossum californicum	California adder's-tongue	None/None/4.2/None	Chaparral, Valley and foothill grassland, Vernal pools (margins); mesic/perennial rhizomatous herb/ (Dec)Jan–June/197–1,720	Low potential to occur. California adder's tongue is a rare plant typically found in early February in areas with high concentrations of cryptogamic crusts that hold moisture. Although numerous crusts occur onsite, the majority are not holding moisture. The nearest collections for California adder's tongue are in Bonita, California (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Orcuttia californica	California Orcutt grass	FE/SE/1B.1/None	Vernal pools/annual herb/ Apr–Aug/49–2,165	Not expected to occur. No suitable vegetation present. California Orcutt grass occurs in vernal pools which are not present on-site. No collections for California Orcutt grass have been made in Chula Vista or within the immediate vicinity (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Ornithostaphylos oppositifolia	Baja California birdbush	None/SE/2B.1/None	Chaparral/perennial evergreen shrub/Jan–Apr/180–2,620	Not expected to occur. No suitable vegetation present. Baja California birdbush has only been documented within the US on the US/Mexico border. It has not been documented north of the TJ river valley. In addition, Baja California birdbush is a large shrub that would have easily been identified during vegetation mapping if present onsite (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Pentachaeta aurea ssp. *aurea*	golden-rayed pentachaeta	None/None/4.2/None	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Riparian woodland, Valley and foothill grassland/annual herb/ Mar–July/262–6,065	Not expected to occur. The site is outside of the species' known elevation range. No collections or observations have been made for golden-rayed pentacheata anywhere near the site. A reference check was performed for golden-rayed pentachaeta in both May and July of 2021 for another project and it was in full bloom. Golden-rayed pentachaeta was not observed during July wildlife surveys onsite. It would have been observed onsite if present. The closest collections are near Mt. Laguna far east of the site (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Pickeringia montana var. *tomentosa*	woolly chaparral-pea	None/None/4.3/None	Chaparral; Gabbroic, granitic, clay/evergreen shrub/ May–Aug/0–5,575	Not expected to occur. No suitable vegetation present. Gabbroic and or granitic soils are typically present when woolly chaparral pea is observed. The site doesn't have gabbroic or granitic soils. In addition, most collections and observations are on Otay mountain wilderness (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Piperia cooperi	chaparral rein orchid	None/None/4.2/None	Chaparral, Cismontane woodland, Valley and foothill grassland/perennial herb/ Mar–June/49–5,200	Not expected to occur. No suitable vegetation present. Chaparral rein orchid is a very sensitive species that has a required mycorrhizal association. A collection from 1882 was taken near National City, California. This is the closest record to Chula Vista, California (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Quercus dumosa	Nuttall's scrub oak	None/None/1B.1/None	Closed-cone coniferous forest, Chaparral, Coastal scrub; sandy, clay loam/perennial evergreen shrub/Feb–Apr(May–Aug)/ 49–1,310	Not expected to occur. Nuttall's scrub oak would have been observed during vegetation mapping. No scrub oak species were observed. In addition, no collections have been made within Chula Vista or surrounding areas for Nuttall's scrub oak (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Ribes viburnifolium	Santa Catalina Island currant	None/None/1B.2/None	Chaparral, Cismontane woodland/perennial evergreen shrub/Feb–Apr/98–1,145	Not expected to occur. No suitable vegetation present. The only collections in San Diego county are in the TJ river preserve near the US/Mexico border (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Romneya coulteri	Coulter's matilija poppy	None/None/4.2/None	Chaparral, Coastal scrub; Often in burns/perennial rhizomatous herb/Mar–July(Aug)/66–3,935	Low potential to occur. Collections have been made within Bonita, California for Coulter's matilija poppy. Coulter's matilija poppy would have likely been observed during vegetation mapping as it is a perennial rhizomatous species that can easily be identified year-round (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Rosa minutifolia	small-leaved rose	None/SE/2B.1/None	Chaparral, Coastal scrub/perennial deciduous shrub/Jan–June/ 492–525	Not expected to occur. The site is outside of the species' known elevation range. Few small populations of small-leaved rose occur in San Diego county and they are near Otay Mesa and are south of Otay river. Small-leaved rose would have been observed during vegetation mapping (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Salvia munzii	Munz's sage	None/None/2B.2/None	Chaparral, Coastal scrub/perennial evergreen shrub/Feb–Apr/ 377–3,490	Not expected to occur. The site is outside of the species' known elevation range. The majority of collections are within Otay mountain open space preserve (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Senecio aphanactis	chaparral ragwort	None/None/2B.2/None	Chaparral, Cismontane woodland, Coastal scrub; sometimes alkaline/annual herb/ Jan–Apr(May)/49–2,620	Low potential to occur. Chaparral ragwort has been collected on the edge of Otay mountain. No collections or observations have been made within or near Chula Vista, California (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Sphaerocarpos drewiae	bottle liverwort	None/None/1B.1/None	Chaparral, Coastal scrub; openings, soil/ephemeral liverwort/N.A./295–1,965	Not expected to occur. The site is outside of the species' known elevation range.
Stemodia durantifolia	purple stemodia	None/None/2B.1/None	Sonoran desert scrub (often mesic, sandy)/perennial herb/(Jan)Apr, June, Aug, Sep,Oct, Dec/591–985	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Purple stemodia occurs in cobbly washes and basically blooms year-round. Purple stemoidia would have been observed while doing the jurisdictional delineation if it was present. Collections have been made within Otay Valley regional park right next to the site (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Stipa diegoensis	San Diego County needle grass	None/None/4.2/None	Chaparral, Coastal scrub; rocky, often mesic/perennial herb/ Feb–June/33–2,620	Low potential to occur. 100% of the site was surveyed in April and May 2022 and this plant was absent.
Streptanthus bernardinus	Laguna Mountains jewelflower	None/None/4.3/None	Chaparral, Lower montane coniferous forest/perennial herb/May–Aug/2,195–8,200	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. The closest collection is near Otay Lake. No collections have been made within or near Chula Vista, California (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Stylocline citroleum	oil neststraw	None/None/1B.1/None	Chenopod scrub, Coastal scrub, Valley and foothill grassland; clay/annual herb/Mar–Apr/ 164–1,310	Not expected to occur. No collections have been made within or near Chula Vista, California (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Suaeda esteroa	estuary seablite	None/None/1B.2/None	Marshes and swamps (coastal salt)/perennial herb/ (May)July–Oct(Jan)/0–15	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Estuary seablite only occurs in coastal salt marsh which is not present on-site (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Suaeda taxifolia	woolly seablite	None/None/4.2/None	Coastal bluff scrub, Coastal dunes, Marshes and swamps (margins of coastal salt)/perennial evergreen shrub/Jan–Dec/0–165	Not expected to occur. No suitable vegetation present. Woolly seablite has not been observed or collected within or near Chula Vista, California. The distribution for Woolly seablite is along the coastline. Woolly seablite needs some degree of moisture to persist and is more likely in coastal saltmarsh (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).

Scientific Name	Common Name	Status (Federal/State/CRPR)	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/541–3,280	Not expected to occur. The site is outside of the species' known elevation range. Parry's tetracoccus can easily be identified year-round. It would have been observed during vegetation mapping if present. In addition, collections of this species are north of Jamul, California (SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021).
Tortula californica	California screw-moss	None/None/1B.2/None	Chenopod scrub, Valley and foothill grassland; sandy, soil/moss/N.A./33–4,790	Not expected to occur. No suitable vegetation present.

Source: SDNHM 2021; Calflora 2021; Reiser 2001; iNaturalist 2021; USDA Soils 2021
Notes: CSS = coastal sage scrub
Status Designations
Covered: species covered under the Chula Vista MSCP
FE: Federally listed as endangered
SE: State listed as endangered
SR: State listed as rare
CRPR (California Rare Plant Rank):
CRPR 1A: Plants presumed extirpated in California and either rare or extinct elsewhere
CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
CRPR 2A: Plants presumed extirpated in California, but common elsewhere
CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
CRPR 3: Plants about which more information is needed – a review list
CRPR 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: moderately threatened in California (20%–80% of 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)

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Appendix E

Special-Status Wildlife Species with Low to No Potential to Occur in the Study area

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Amphibians				
Anaxyrus californicus	arroyo toad	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. There is no connection to known locations of this species and the site is surrounded by development. Nearest CNDDB occurrence, collected in 1997, is 8 miles northeast of the project site. (CDFW 2021)
Spea hammondii	western spadefoot	None/SSC/None	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	Low potential to occur on-site. Nearest CNDDB occurrence record, collected in 2003, is 1 mile south of the project site in vernal pools located in the hills north and south of Highway 905 (CDFW 2021). Three tributaries occur onsite. The western tributary receives runoff from the adjacent developments creating a perennial source of water. This drainage outlets into the Otay River beneath Main Street which provides potential connectivity. However, no areas for pooling/ponding were observed within the western tributary north of Main Street. This tributary is extremely narrow and has very limited flow. In addition, access to this tributary is challenged due to fencing, gates and highly developed access. The middle tributaries is extremely disturbed. These tributaries are dry for the majority of the season. The middle drainage is covered in plastic trash and consists of hundreds of tires. The plastics run up to the bank in many areas. The eastern drainage is rocky and cobbly, lacking the gravel and sand required by this species. Gravely and sandy soils are critical spadefoot habitat (Calherps 2022). Suitable soils are not present as they are inaccessible to

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				potential spadefoot. Pooling of water is also unlikely due to the enormous amount of trash. No pools or areas of ponding were present. In addition, fencing, gates and highly developed access challenge spadefoot from accessing the eastern tributary onsite. Western spadefoot can typically be observed from October to May (Calherps 2022). Ponding was present at the outlet of the western tributary on the south side of Main Street. Where not abutting the slope to the road, the ponded water is surrounded by dense vegetation. Spadefoot prefer open areas (Calherps). Further, the spadefoot records within the Otay River are limited to more than 4 miles upstream or outside of the Otay River altogether. Therefore, there is low potential for this species to occur within the riprap modification areas. Finally, surveys were conducted onsite in July, October, and March and no spadefoots were observed in any life stages.
Reptiles				
Anniella stebbinsi	southern California legless lizard	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	Low potential to occur on-site. Nearest CNDDB occurrence, collected in 2007, is 2 miles northwest of the project site. Coastal scrub present on-site but soils were clayey and rock, inappropriate for species.
Arizona elegans occidentalis	California glossy snake	None/SSC/None	Commonly occurs in desert regions throughout southern California. Prefers open sandy	Low potential to occur on-site. The nearest CNDDB occurrence is 1.9 miles west of the project site. Some suitable vegetation present.

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			areas with scattered brush. Also found in rocky areas.	
Chelonia mydas	green sea turtle	FT/None/None	Shallow waters of lagoons, bays, estuaries, mangroves, eelgrass, and seaweed beds	Not expected to occur. No suitable habitat present.
Plestiodon skiltonianus interparietalis	Coronado skink	None/WL/None	Woodlands, grasslands, pine forests, and chaparral; rocky areas near water	Low potential to occur. Coronado skink habitat includes grassland, woodlands, pine forest, chaparral, especially in open sunny area such as clearings and the edges of creeks and rivers (Calherps 2022). Rocky habitats near streams and areas with lots of vegetation near streams is another habitat type (Calherps 2022). Habitat onsite is not suitable for Coronado skink. The site is disturbed near the tributaries with homeless encampments, garbage and graded dirt roads. The site provides limited access for Coronado skink. Highways and development are directly adjacent to the site on all sides. In addition, no Coronado skink were observed during wildlife surveys even though rocky areas were thoroughly studied, and areas of any leaf litter were also examined. The nearest CNDDB record of occurrence, collected in 2004, is 5 miles southwest of the project site. There are no recent records (CNDDB, iNaturalist 2021).
Salvadora hexalepis virgultea	coast patch-nosed snake	None/SSC/ None	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites	Low potential to occur. The nearest CNDDB record of occurrence, collected in 2004, is 7 miles east of the project site. Suitable vegetation and small mammal burrows present; however, there are no recent records near the site (CNDDB, iNaturalist 2021).
Thamnophis hammondii	two-striped gartersnake	None/SSC/ None	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Low potential to occur on-site. The nearest CNDDB record of occurrence, collected in 2001, is 4.2 miles northeast of the project site. Marginal

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				habitat and vegetation present around aquatic features on-site. Two-striped gartersnake is typically associated with streams, creeks and or pools (Calherps 2022). Typically, two striped gartersnakes will eat fish, fish eggs, toads, small frogs and leeches (Calherps 2022). No prey is present onsite for two-striped gartersnake. The western drainage has perennial water, but it is quite narrow and shallow and the isolated ponded water at the outlet on the south side of Main Street is isolated, small and unlikely to support habitat for this species. In addition, surveys were conducted onsite in July, October, and March and two-striped gartersnake was not observed. Weather conditions and survey timing would have been ideal to observe this species.
Birds				
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/SSC, ST/ Covered	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberrry; forages in grasslands, woodland, and agriculture	Not expected to occur. The nearest CNDDB record of occurrence, collected in 1936, is 1.3 miles northwest of the project site. No suitable vegetation present for nesting or forage.
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl	BCC/SSC/Covered	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Low potential to occur. The nearest CNDDB record of occurrence, collected in 2005, is 2.2 miles southeast of the project site. The vegetation on site is dense and the topography is steep in most areas.
Buteo swainsoni (nesting)	Swainson's hawk	None/ST/Covered	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 nearest CNDDB record of occurrence, collected in 1889, is 6 miles north of the project site. No suitable vegetation is present on-site for nesting or foraging.

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Circus hudsonius (nesting)	northern harrier	BCC/SSC/Covered	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 on-site. Known as the marsh hawk, northern harrier requires dense marsh vegetation for nesting (Unit et al. 2004). Northern harrier nesting is within dense marsh vegetation that allows eggs to be hidden on the ground. The site lacks any kind of nesting habitat. Therefore, nesting onsite is not expected to occur. The nearest CNDDB record of occurrence, collected in 2014, is 3.5 miles southeast of the project site. Moderate potential to forage on site. This species was observed flying over the site during the 2007 surveys (Merkel 2007). Suitable scrub vegetation is present on-site which may provide some foraging habitat, though there is no nesting habitat on site due to the dense scrub and steep topography.
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT/SE/None	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. The nearest CNDDB record of occurrence, collected in 1915, is 3.6 miles north of the project site. Riparian vegetation on-site and off-site is of marginal quality and mostly consists of tamarisk and is found in small dense patches with little room for an open understory. There are no recent records in the Otay River for this species.
Coturnicops noveboracensis	yellow rail	BCC/SSC/None	Nesting requires wet marsh/sedge meadows or coastal marshes with wet soil and shallow, standing water	Not expected to occur. There are no CNDDB occurrences for this species within 10 miles of the project site. No suitable vegetation present.
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	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. The nearest CNDDB record of occurrence, collected in 1999, is 8.2 miles north of the project site. Riparian vegetation on-site and off-site is of marginal quality and mostly consists of tamarisk and is found in small dense patches with little room for an open understory.

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				There are no recent records in the Otay River for this species.
Eremophila alpestris actia	California horned lark	None/WL/None	This subspecies of horned lark occurs on the state's southern and central coastal slope and in the San Joaquin Valley. Nests and forages in grasslands, disturbed lands, agriculture, and beaches.	Not expected to occur. The nearest CNDDB record of occurrence, collected in 2016, is 2.2 miles southeast of the project site. California horned lark is a year-round species that would have been observed during wildlife surveys from July 1, 2021 – October 25, 2021. None were observed.
Falco peregrinus anatum (nesting)	American peregrine falcon	FD/FP, SCD/ Covered	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	Not expected to nest on site. The nearest CNDDB record of occurrence, collected in 1990, is 7 miles northwest of the project site. There is no nesting habitat on site. There is low potential for this species to forage on site based on limited habitat. Occurrence on-site would be limited to transient foragers.
Laterallus jamaicensis coturniculus	California black rail	None/FP, ST/None	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations	Not expected to occur. The nearest CNDDB record of occurrence, collected in 1966, is 6.2 miles west of the project site. No suitable vegetation present.
Pandion haliaetus (nesting)	osprey	None/WL/None	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast	Low potential to nest or forage. The nearest CNDDB record of occurrence, collected in 2019, is 5.2 miles west of the project site. Suitable foraging and nesting habitat is not present on-site.
Passerculus sandwichensis beldingi	Belding's savannah sparrow	BCC/SE/Covered	Nests and forages in coastal saltmarsh dominated by pickleweed (Salicornia spp.)	Not expected to occur. The nearest CNDDB record of occurrence, collected in 2001, is 4.5 miles west of the project site. No suitable vegetation present.
Pelecanus occidentalis californicus (nesting	California brown pelican	FPD/FP, SCD/ Covered	Forages in warm coastal marine and estuarine environments; in	Not expected to occur. No CNDDB records within 10 miles of the project site. No suitable vegetation present.

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
colonies and communal roosts)			California, nests on dry, rocky offshore islands	
Rallus obsoletus levipes	Ridgway's rail	FE/FP, SE/Covered	Coastal wetlands, brackish areas, coastal saline emergent wetlands	Not expected to occur. The nearest CNDDB record of occurrence, collected in 1985, is 4.3 miles west of the project site. No suitable vegetation present on site or off site.
Sternula antillarum browni (nesting colony)	California least tern	FE/FP, SE/Covered	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats	Not expected to occur. The nearest CNDDB record of occurrence, collected in 1977, is 5.2 miles west of the project site. No suitable vegetation present.
Fishes				
Oncorhynchus mykiss irideus pop. 10	southern steelhead - southern California DPS	FE/None/None	Clean, clear, cool, well-oxygenated streams; needs relatively deep pools in migration and gravelly substrate to spawn	Not expected to occur. The nearest CNDDB record of occurrence, collected in 1927, is 4.3 miles southwest of the project site. No suitable habitat present.
Mammals				
Antrozous pallidus	pallid bat	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	Low potential occur on-site. The nearest CNDDB record of occurrence, collected in 1946, is 4.3 miles southwest of the project site. Limited roosting opportunity on-site.
Choeronycteris mexicana	Mexican long-tongued bat	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. The nearest CNDDB record of occurrence, collected in 1986, is 5 miles west of the project site. No suitable vegetation present.
Corynorhinus townsendii	Townsend's big-eared bat	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,	Low potential occur on-site. The nearest CNDDB record of occurrence, collected in 2005, is 7.3 miles east of the project site. Some marginally suitable vegetation present.

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			man-made structures, and tunnels	
Dasypterus xanthinus	western yellow bat	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 CNDDB records within 10 miles of the project site. Only marginally suitable vegetation present.
Nyctinomops femorosaccus	pocketed free-tailed bat	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	Low potential occur on-site. The nearest CNDDB record of occurrence, collected in 1987, is 4.1 miles northwest of the project site. No suitable vegetation present.
Nyctinomops macrotis	big free-tailed bat	None/SSC/None	Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water	Low potential occur on-site. The nearest CNDDB record of occurrence, collected in 2003, is 9.4 miles northeast of the project site. No suitable vegetation present.
Perognathus longimembris pacificus	Pacific pocket mouse	FE/SSC/None	fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium	Not expected to occur. The only location where this subspecies occurs in San Diego County is at Camp Pendleton and Santa Margarita (Tremor et al. 2017).
Taxidea taxus	American badger	None/SSC/Covered	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Low potential to occur. The nearest CNDDB record of occurrence, collected in 2002, is 5.5 miles southwest of the project site. The site is densely vegetated with steep topography and surrounded by development. Further, there are no records of this species nearby (Tremor et al.).
Invertebrates				
Bombus crotchii	Crotch bumble bee	None/None/None	Open grassland and scrub communities supporting suitable floral resources.	Low potential occur on-site. The nearest CNDDB record of occurrence, collected in 1924, is 3.7 miles east of the project site. Crotch's bumble bee can be a floral generalist but are most attracted to *Ceanothus* species and *Arctostaphylos* species

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				(Frankie et al. 2014). These species are not present onsite. No suitable floral resources on-site.
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/None/Covered	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. The nearest CNDDB record of occurrence, collected in 2010, is 0.4 miles south of the project site. There are no vernal pools on site.
Danaus plexippus pop. 1	monarch	FC/None/None	Wind-protected tree groves with nectar sources and nearby water sources	Low potential to occur. The nearest CNDDB record of occurrence, collected in 2014, is 5.9 miles northwest of the project site. Limited suitable vegetation present. No nearby orchards or other agricultural facilities, though some water sources found on-site and nearby. No milkweed (Asclepias spp.) was observed during the 2007 rare plant survey and has not been detected in 2021.
Euphydryas editha quino	quino checkerspot butterfly	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)	Low potential to occur. This species was not observed during focused surveys in 2007 (Merkel 2007). The nearest CNDDB record of occurrence, collected in 1998, is 2.8 miles east of the project site. Suitable coastal scrub vegetation present although the vegetation is dense; host plants were detected during the 2007 surveys (Merkel 2007). The project site is located in a Development Area that does not require protocol surveys (City of Chula Vista 2003). There is no suitable habitat in the offsite riprap modification areas.
Lycaena hermes	Hermes copper	FT/None/None	Mixed woodlands, chaparral, and coastal scrub	Not expected to occur. The nearest CNDDB record of occurrence, collected in 2004, is 7.3 miles northeast of the project site. The site does not contain suitable host and nectar plants (*Rhamnus crocea* within 15 feet of *Eriogonum fasciculatum*).
Streptocephalus woottoni	Riverside fairy shrimp	FE/None/ Covered	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. The nearest CNDDB record of occurrence, collected in 2010, is 0.8 miles

Scientific Name	Common Name	Status (Federal/ State/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				south of the project site. There are no vernal pools on-site or off-site.

Source: CDFW 2021; City of Chula Vista 2003; Merkel 2007; iNaturalist 2021; Tremor et al. 2017
Notes: CNDBB = California Natural Diversity Database; MSCP = Multiple Species Conservation Program; FE: Federally listed as endangered; FT: Federally listed as threatened; FC: Federal candidate for listing; FD: Federally delisted due to recovery; BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern; SSC: California Species of Special Concern; FP: California fully protected species; WL: California Watch List species; SE: State listed as endangered; ST: State listed threatened; SCD: State candidate for delisting; Covered: covered species under the MSCP

Appendix F

Habitat Loss and Incidental Take Ordinance Findings

The purpose of the Habitat Loss and Incidental Take (HLIT) regulations is to protect and conserve native habitat within the City of Chula Vista and the viability of the species supported by those habitats. HLIT regulations are intended to implement the City of Chula Vista Multiple Species Conservation Program (MSCP) Subarea Plan (City of Chula Vista 2003) and ensure that development occurs in a manner that protects the overall quality of the habitat resources, encourages a sensitive form of development, and retains biodiversity and interconnected habitats. HLIT regulations also intend to protect public health, safety, and welfare (Chula Vista Municipal Code [CVMC] 17.35 et seq.).

Projects within the City of Chula Vista's jurisdiction are required to comply with the City of Chula Vista's MSCP Subarea Plan. This includes obtaining a HLIT permit pursuant to the HLIT Ordinance. The Nirvana Project is subject to this ordinance because, as stated in Section 5.2.2 Habitat Loss and Incidental Take Ordinance (City of Chula Vista 2003), the Subarea Plan requires issuance of an HLIT permit for "all development within the City's jurisdiction which is not located within the Development Areas of Covered Projects prior to issuance of any land development permit". The HLIT regulations apply to the earliest decision on any entitlement related to a Project Area located within the following mapped areas identified in the Chula Vista MSCP Subarea Plan (unless exempt as noted): (1) 100% Conservation Areas, (2) 75-100% Conservation Areas, and (3) Development Areas outside of Covered Projects.

The following are exempt from the requirements of the HLIT Ordinance:

1. Development of a Project Area that is one acre or less in size and located entirely in a mapped Development Area outside of Covered Projects.
2. Development of a Project Area which is located entirely within the mapped Development Area outside Covered Projects, and where it has been demonstrated to the satisfaction of the Director of Planning and Building, or his/her designee, that no Sensitive Biological Resources exist on the Project Area.
3. Development that is limited to interior modifications or repairs and any exterior repairs, alterations or maintenance that does not increase the footprint of an existing building or accessory structure, which will not encroach into identified Sensitive Biological Resources during or after construction.
4. Any project within the Development Area of a Covered Project.
5. Any project that has an effective incidental take permit from the Wildlife Agencies.
6. Continuance of Agricultural Operations.

Proposed Project

The proposed project is in a Development Area within the City's jurisdiction (outside the Preserve) and is not categorized as a "covered project". The off-site riprap modification is located within a 100% Conservation Area. Exemption status for the proposed project does not apply. The Proposed Project is not located within lands designated as the Minor or Major Amendment Areas. As such, a Subarea Plan Amendment is not required.

The HLIT Ordinance requires biological evaluation of all resources on site for project's within Development Areas outside of covered projects and 100% Conservation Areas that contain sensitive biological resources.

Pursuant to the City's HLIT Ordinance, Section 17.35.080 – Required Findings for Issuance of an HLIT Permit, written findings need to be prepared and submitted to the City for review and approval prior to issuance of any

land development permits, including clearing and grubbing or grading permits. Table F-1, Table F-2, and Table F-3 summarize the project's conformity to the Required Findings, General MSCP Development Regulations, and Specific MSCP Land Use and Development Regulations for the HLIT Ordinance.

Table F-.1 Required Findings for Issuance of an HLIT Permit (Chula Vista Municipal Code 17.35.080)

Required Findings for Issuance of an HLIT Permit (Section 17.35.080):	Analysis	Consistency
The proposed development in the Project Area and associated mitigation are consistent with the Chula Vista MSCP Subarea Plan as adopted on May 13, 2003, and as may be amended from time to time, the MSCP Implementation Guidelines, and the development standards set forth in Section 17.35.100 of the Municipal Code.	Section 5.2.2 HLIT Ordinance of the Subarea Plan (City of Chula Vista 2003) requires issuance of an HLIT permit for "all development within the City's jurisdiction which is not located within the Development Areas of Covered Projects prior to issuance of any land development permit." As such, the entire Project site would require issuance of an HLIT permit. The Project would impact sensitive biological resources within the on-site maritime succulent scrub, unvegetated stream, and tamarisk scrub vegetation shown on Figure 6. Mitigation for these impacts has been established in accordance with the ratios in the Subarea Plan. Mitigation Measures have been incorporated into the project to compensate for direct and indirect impacts to sensitive vegetation communities (i.e., maritime succulent scrub). Mitigation for impacts to these habitat types are described in Mitigation Measures MM-1 and MM-2. In addition, the project will be required to apply for and obtain all necessary regulatory agency permits as described in Mitigation Measure MM-6. Other Mitigation Measures that apply include clearing and grubbing or grading measures and migratory and nesting bird measures. Mitigation for these impacts will be in accordance with the City of Chula Vista MSCP Subarea Plan (HLIT). Prior to issuance of any land development permits, the applicant shall mitigate for direct impacts pursuant to Section 5.2.2 of the City's MSCP Subarea Plan (City of Chula Vista 2003). In compliance with the City's Subarea Plan, the applicant shall secure mitigation credits within a City/Wildlife Agency-approved Conservation Bank or other approved location offering such credits consistent with	Consistent

Table F-.1 Required Findings for Issuance of an HLIT Permit (Chula Vista Municipal Code 17.35.080)

Required Findings for Issuance of an HLIT Permit (Section 17.35.080):	Analysis	Consistency
	the ratios specified in Table 13 which are in accordance with the ratios set forth in the Subarea Plan.	
The nature and extent of mitigation required as a condition of the permit is reasonably related to and calculated to alleviate negative impacts created in the Project Area.	Appropriate mitigation measures, consistent with the MSCP, have been proposed and will be implemented for this project and are provided within the Biological Resources Technical Report.	Consistent
Narrow Endemic Findings	One Narrow Endemic species has been documented within the on-site impact area: San Diego ambrosia. Section 5.4.2 of the Biological Resources Technical Report provides the Equivalency Analysis for Narrow Endemic Species.	Consistent
Wetland Findings	Wetlands impacts are anticipated as a result of the proposed project. See descriptions below.	
Prior to the issuance of a Land Development Permit or Clearing and Grubbing Permit, the project proponent will be required to obtain any applicable state and federal permits, with copies provided to the Director of Planning and Building or his/her designee.	The project site will incorporate the removal of vegetation identified as Wetland and Tier 1 and IV on Table 5-3 of the Chula Vista MSCP Subarea Plan (City of Chula Vista 2003). The wetland and Tier 1 areas require a permit issued pursuant to Section 17.35 of the Municipal Code (the HLIT Ordinance). The HLIT Ordinance includes a provision for issuance of a Clearing and Grubbing Permit that allows removal of vegetation, including removal of root systems, which is not in association with other Land Development Work. Wetland delineations have been conducted for the project and jurisdictional waters have been identified within the impact area. Further consultation with CDFG, USACE, and RWQCB will be conducted to verify the extent of jurisdiction for each agency. Upon this determination, the necessary permits will need to be obtained from the agencies and copies provided to the City prior to grading in order to address this finding in accordance with Mitigation Measure MM-6.	Consistent
Impacts to wetlands have been avoided and/or minimized to the maximum extent practicable, consistent with the City of Chula Vista MSCP Subarea Plan Section 5.2.4.	Based on the topography and underlying soils, the entire site (on-site) must be graded in order to meet safety and building requirements. The eastern-most channel was avoided based on design changes	Consistent

Table F-.1 Required Findings for Issuance of an HLIT Permit (Chula Vista Municipal Code 17.35.080)

Required Findings for Issuance of an HLIT Permit (Section 17.35.080):	Analysis	Consistency
	using a grid reinforced buttress that allowed the grading to be pulled back. The two existing channels on the west side of the site and in the middle of the site that flow from north to south will be replaced with two new underground, closed storm drain systems that will connect the existing outfalls of the existing storm drain systems at the north to the existing headwalls/storm drain systems on the south side of the property along the north side of Main Street's public right-of-way. Unavoidable impacts to wetlands will be mitigated as described in Mitigation Measure MM-6. Prior to issuance of any land development permits, the applicant shall mitigate for direct impacts pursuant to Section 5.2.2 of the City's MSCP Subarea Plan (City of Chula Vista 2003). In compliance with the City's Subarea Plan, the applicant shall secure mitigation/creation credits within a City/Wildlife Agency-approved Conservation Bank or other approved location offering such credits consistent with the wetland ratios specified in Table 13.	
Unavoidable impacts to wetlands have been mitigated pursuant to Section 17.35.110.	As described in Section 4.3.1.1 HLIT Ordinance, project components will incur unavoidable impacts to wetlands. These impacts are determined to be unavoidable and necessary to eliminate the potential for flooding within the project site MM-6 describes mitigation to unavoidable impacts to wetland resources.	Consistent

Table F-2. General MSCP Development Regulations (CVMC 17.35.090)

General MSCP Development Requirements (Section 17.35.090)	Analysis	Consistency
Overall development within the Project Area including public facilities and circulation shall be located to minimize impacts to Sensitive Biological Resources in accordance with this chapter of the Chula Vista MSCP Subarea Plan and the MSCP Implementation Guidelines.	Based on the topography and underlying soils, the entire site (on-site) must be graded in order to meet safety and building requirements. The eastern-most channel was avoided based on design changes using a grid reinforced buttress that allowed the grading to be pulled back. As described in Section 5.1.9.3 HLIT Ordinance, compliance with several standard measures	Consistent

Table F-2. General MSCP Development Regulations (CVMC 17.35.090)

General MSCP Development Requirements (Section 17.35.090)	Analysis	Consistency
	will be required to address habitat loss. Impacts to maritime succulent scrub (Tier I) vegetation communities and wetland habitats are considered significant under the City's HLIT Ordinance and require mitigation (Subarea Plan Tables 5-3 and 5-6; City of Chula Vista 2003). Impacts to vegetation communities within the project site are provided in MM-1 and MM-2. Mitigation will be in accordance with the HLIT Ordinance as described in Table 13. One Narrow Endemic Species for Chula Vista Subarea (Table 5-4) has been documented within project site. Prior to issuance of any land development permits, the applicant shall mitigate for direct impacts pursuant to Section 5.2.2 of the City's MSCP Subarea Plan. In compliance with the City's Subarea Plan, the applicant shall secure mitigation/creation credits within a City/Wildlife Agency-approved Conservation Bank or other approved location offering such credits consistent with the upland and wetland ratios specified in Table 13 (City of Chula Vista 2003).	
Pursuant to Chapter 15.04 of the Chula Vista Municipal Code, no Land Development or Clearing and Grubbing Permit that allows clearing, grubbing, or grading of Natural Vegetation shall be issued on any portion of a Project Area where impacts are proposed to Wetlands or Listed Non-covered Species until all applicable federal and state permits have been issued.	The impact area associated with the project would affect two unvegetated stream channels under the jurisdiction of the USACE, RWQCB and the CDFW, as well as riparian habitat/wetlands under the jurisdiction of CDFW and the City. The applicant for City entitlements would be required to obtain a 404 permit from the USACE, a 401 permit from the RWQCB, and Section 1600 agreements from the CDFW. There are no impacts to Listed Non-Covered species.	Consistent
Impacts to Wetlands shall be avoided to the maximum extent practicable. Where impacts to Wetlands are not avoided, impacts shall be minimized and mitigated pursuant to Section 17.35.110 of the Municipal Code.	Based on the topography and underlying soils, the entire site (on-site) must be graded in order to meet safety and building requirements. The eastern-most channel was avoided based on design changes using a grid reinforced buttress that allowed the grading to be pulled back. Unavoidable impacts to wetlands will be mitigated as described in Mitigation Measure MM-6. Prior to issuance of any land development permits, the applicant shall mitigate for direct impacts pursuant to Section 5.2.2 of the City's MSCP Subarea Plan (City	Consistent

Table F-2. General MSCP Development Regulations (CVMC 17.35.090)

General MSCP Development Requirements (Section 17.35.090)	Analysis	Consistency
	2003). In compliance with the City's Subarea Plan, the applicant shall secure mitigation credits within a City/Wildlife Agency-approved Conservation Bank or other approved location offering such credits consistent with the wetland ratios specified in Table 13. As described in Section 4.3.1.1 HLIT Ordinance, the project will incur unavoidable impacts to wetlands. These impacts are determined to be unavoidable and necessary to eliminate the potential for flooding within the Project site. Mitigation Measure MM-6 describe mitigation to unavoidable impacts to wetland resources.	
No temporary disturbance or storage of material or equipment is permitted in Sensitive Biological Resources unless the disturbance or storage occurs within an area approved by the City for development or unless it can be demonstrated that the disturbance or storage will not cause permanent habitat loss and the land will be revegetated and restored in accordance with the MSCP Implementation Guidelines.	The project does not propose any temporary disturbance or storage of material or equipment in Sensitive Biological Resource Areas.	Consistent
Grading during wildlife breeding seasons shall be avoided or modified consistent with the requirements of the Chula Vista MSCP Subarea Plan and in accordance with the MSCP Implementation Guidelines.	To avoid any direct impacts associated with construction activities, Mitigation Measure MM-5 is proposed to encourage construction outside of the breeding season (February 15 through September 14). If construction does occur during the breeding season, specific actions would be taken to avoid impacts consistent with the requirements of the Chula Vista MSCP Subarea Plan and in accordance with the MSCP Implementation Guidelines.	Consistent
All fuel modification brush management zones required as a result of new development and as required by the City Fire Marshal shall be located outside the Preserve.	All fuel modification shall be incorporated into development plans and shall not include any areas within the Preserve.	Consistent

Table F-3. Specific MSCP Land Use and Development Regulations (CVMC 17.35.100)

Specific MSCP Land Use and Development Requirements (Section 17.35.100)	Analysis	Consistency
Land uses and development are permitted within the 100 percent conservation areas consistent with the Chula Vista MSCP subarea plan and Section 17.35.100 (A).	Riprap modification is proposed within a 100% Conservation Area. This activity is considered a Conditionally Compatible Use defined under Section 17.35.100 (A)(2). No clearing and	Consistent

Table F-3. Specific MSCP Land Use and Development Regulations (CVMC 17.35.100)

Specific MSCP Land Use and Development Requirements (Section 17.35.100)	Analysis	Consistency
	grubbing or placement of rock, sand, gravel or other material would occur prior to issuance of a land development permit consistent with Section 17.35.100 (A)(3). Consistent with Section 17.35.100 (A)(4)(a), (c), (d), and (e), the facilities necessary to support the proposed project were sited in primarily disturbed habitat adjacent to Main Street with equipment limited to working from the road. The riprap will be placed at the existing headwall where flows outlet on the south side of Main Street. Because the proposed work is required for energy dissipation associated with an estimated increase in flow within the existing channels, the flexibility to site the riprap placement is limited. The least impactful approach is to place riprap at each headwall as shown on Figure 7B. The work area is limited to the areas needed to prepare the areas and install the riprap; equipment will work from the road in order to further reduce impacts from access. Rare plant surveys were completed in April and May 2022 and no rare plants, including Narrow Endemic Species, were present within the 100% Conservation Area. Section 5.4.2 of the Biological Resources Technical Report provides the Equivalency Analysis for Narrow Endemic Species to demonstrate consistency with Section 17.35.100 (A)(4)(b). Consistent with Section 17.35.100 (A)(4)(f), prior to issuance of any land development permits, the applicant shall mitigate for direct impacts pursuant to Section 5.2.2 of the City's MSCP Subarea Plan (City 2003). In compliance with the City's Subarea Plan, the applicant shall secure mitigation credits within a City/Wildlife Agency-approved Conservation Bank or other approved location offering such credits consistent with the wetland ratios specified in Table 13. Section 17.35.100 (A)(4)(g) does not apply because the riprap modification areas do not contain suitable quino checkerspot butterfly habitat.	

Table F-3. Specific MSCP Land Use and Development Regulations (CVMC 17.35.100)

Specific MSCP Land Use and Development Requirements (Section 17.35.100)	Analysis	Consistency
Land uses and development are permitted within the 75 to 100 percent conservation areas consistent with the Chula Vista MSCP subarea plan and Section 17.35.100 (B).	The project site is not located within a 75 to 100 percent conservation area; therefore, this subsection 17.35.100 (B) does not apply.	N/A
Land uses and development are permitted within development areas outside of covered projects consistent with the Chula Vista MSCP subarea plan and Section 17.35.100 (C).	See below.	Consistent
Permitted land uses include those uses permitted in the underlying zone.	The project would be consistent with existing zoning.	Consistent
Encroachment into natural vegetation is not limited except as may be provided by CVMC 17.35.090(A)(2) and/or (A)(3).	The impact area associated with the project would affect two unvegetated stream channels under the jurisdiction of the USACE, RWQCB and the CDFW, as well as riparian habitat/wetlands under the jurisdiction of CDFW and the City. The applicant for City entitlements would be required to obtain a 404 permit from the USACE, a 401 permit from the RWQCB, and Section 1600 agreements from the CDFW. Based on the topography and underlying soils, the entire site (on-site) must be graded in order to meet safety and building requirements. The eastern-most channel was avoided based on design changes using a grid reinforced buttress that allowed the grading to be pulled back. Unavoidable impacts to wetlands will be mitigated as described in Mitigation Measure MM-6. Prior to issuance of any land development permits, the applicant shall mitigate for direct impacts pursuant to Section 5.2.2 of the City's MSCP Subarea Plan (City 2003). In compliance with the City's Subarea Plan, the applicant shall secure mitigation/creation credits within a City/Wildlife Agency-approved Conservation Bank or other approved location offering such credits consistent with the wetland ratios specified in Table 13. As described in Section 4.3.1.1 HLIT Ordinance, the project will incur unavoidable impacts to wetlands. These impacts are determined to be unavoidable and necessary to eliminate the potential for flooding within the Project site. Mitigation Measure MM-6 describe mitigation to unavoidable impacts to wetland resources.	Consistent
Development shall avoid impacts to covered narrow endemic species to the maximum	One narrow endemic species (San Diego ambrosia) has been documented within the on-	Consistent

Table F-3. Specific MSCP Land Use and Development Regulations (CVMC 17.35.100)

Specific MSCP Land Use and Development Requirements (Section 17.35.100)	Analysis	Consistency
extent practicable. A list of the covered narrow endemic species is included in the Chula Vista MSCP subarea plan and the MSCP implementation guidelines. Measures for protection of narrow endemic species shall be required such as management, enhancement, restoration and/or transplantation in accordance with the MSCP implementation guidelines.	site impact area. Section 5.4.2 of the Biological Resources Technical Report provides the Equivalency Analysis for Narrow Endemic Species.	

Mitigation

The mitigation measures included in Table F-1, Table F-2, and Table F-3 are from the Biological Technical Report for Nirvana Project and address the proposed project's significant effects on special-status species and vegetation. These mitigation measures are provided below for reference. With implementation of the proposed mitigation, the identified impacts will be reduced to less than significant and maintain the project's conformity to the Required Findings and General MSCP Development Regulations for the HLIT Ordinance.

MM-1 Compensatory Mitigation: Per the HLIT ordinance, 14.00 acres of impacts to sensitive uplands, jurisdictional resources, and City wetlands shall be mitigated at the required mitigation ratios (Table 13). All impacts to wetlands will be mitigated at a 1:1 ratio, upland impacts may be mitigated at a 1:1 or 2:1 ratio. Prior to issuance of any land development permits (including clearing, grubbing and/or grading permits), the Permittee/Owner shall finalize the mitigation option(s) with concurrence from the City of Chula Vista. Mitigation would be provided through one of the following options and the ratio would be determined by the location of the proposed mitigation site.

Mitigation Bank. Mitigation would occur through the purchasing of credits at a City-approved mitigation bank in order to achieve the required Tier I and wetland mitigation per the mitigation ratios in Table 5-3 of the Subarea Plan.

Habitat Preservation. Prior to the issuance of any grading permit, the applicant shall provide evidence to the City of Chula Vista Planning Division that City-approved Tier I and wetland habitat are provided as mitigation through compensatory preservation per the mitigation ratios in Table 5-3 of the Subarea Plan. The habitat preservation mitigation site shall (1) be protected by a conservation easement or other City-approved mechanism that provides preservation in perpetuity, (2) have a permanent responsible party clearly designated, and (3) be managed in accordance with a Habitat Management Plan (or similar) in perpetuity. The Habitat Management Plan (or similar) shall also include Property Analysis Report (PAR) analysis to identify yearly maintenance and monitoring costs pursuant to meeting those performance criteria, as well as identify an initial management fund endowment to provide for management in perpetuity. Prior to

grading permit issuance, the applicant shall provide proof that such funds have been provided to the permanent responsible party.

Habitat Restoration. Prior to the issuance of any grading permit, the applicant shall provide evidence to the City of Chula Vista Planning Division that Tier I and wetland habitat type is being restored and/or enhanced per the mitigation ratios in Table 5-3 of the Subarea Plan. In addition, the applicant shall provide a performance bond to the City prior to the issuance of a grading permit to ensure the completion of the restoration and funds for enhancement are provided. The habitat restoration mitigation site shall (1) be protected by a conservation easement or other City-approved mechanism that provides preservation in perpetuity, (2) have a permanent responsible party clearly designated, and (3) be managed in accordance with a Habitat Management Plan (or similar) in perpetuity. If mitigation credits are not purchased, the Applicant shall prepare a Habitat Mitigation and Monitoring Plan to the satisfaction of the City. The Habitat Mitigation and Monitoring Plan shall include, at a minimum, an implementation strategy; appropriate seed mixtures and planting method; irrigation; quantitative and qualitative success criteria; maintenance, monitoring, and reporting program; estimated completion time; contingency measures; and identify a long-term funding source. The Project Applicant shall also be required to implement the Habitat Mitigation and Monitoring Plan subject to the oversight and approval of the Development Services Director (or their designee).

Special-Status Plants. If special-status plants require salvage, relocation and/or re-seeding at the mitigation site, the Resource Salvage Plan shall be written by a City-approved biologist to the satisfaction of the Development Services Director (or their designee). Impacts to Covered Narrow Endemic plants require mitigation at a 1:1 to 3:1 ratio. The Resource Salvage Plan shall, at a minimum, evaluate options for plant salvage (during appropriate bloom periods for identification of special-status plants) and relocation, native plant mulching, selective soil salvaging, application of plant materials on manufactured slopes, and application/relocation of resources within the mitigation site. The Resource Salvage Plan shall include incorporation of relocation and reseeding efforts for Narrow Endemic plants to achieve a 2:1 mitigation ratio, as well as San Diego barrel cactus and non-covered plant species at a 1:1 mitigation ratio that are considered special status according to the California Environmental Quality Act and would be impacted with project implementation. Relocation efforts may include seed collection and/or transplantation to the mitigation site and will be based on the most reliable methods of successful relocation to achieve a functionally equivalent or better Preserve design. Compensatory mitigation may also include restoration of the mitigation site with supplemental seeds or live plants from native seedbanks/plant nurseries. The Resource Salvage Plan shall also contain a recommendation for method of salvage and relocation/application based on feasibility of implementation and likelihood of success. The Resource Salvage Plan shall include, at a minimum, a discussion of the compensatory mitigation required for the Covered Narrow Endemic plants and a discussion of the appropriate mitigation ratio, an implementation plan, maintenance and monitoring program, estimated completion time, and any relevant contingency measures. The Resource Salvage Plan shall also be subject to the oversight of the Development Services Director (or their designee).

MM-2 Prior to issuance of any land development permits (including clearing, grubbing and/or grading permits), the Permittee/Owner will be required to obtain a HLIT Permit pursuant to Section 17.35

of the Chula Vista Municipal Code for impacts to MSCP Tier I habitat and wetland resources and Narrow Endemic Species.

MM-3 Prior to issuance of land development permits, including clearing, grubbing, grading and/or construction permits, the Permittee/Owner shall install temporary construction fencing in accordance with Chula Vista Municipal Code (CVMC) 17.35.030 to avoid any unexpected accidental impacts (i.e., encroachment) into sensitive vegetation and/or jurisdictional waters. Prominently colored, well installed fencing and signage shall be in place to demarcate all approved access paths and construction work areas wherever the limits of grading are adjacent to sensitive vegetation communities or other biological resources, as identified by the qualified monitoring biologist. The limits of work, including the designated temporary off-site construction access, will be delineated with temporary construction fencing as appropriate, which will be installed prior to initiation of work activities.

Fencing shall remain in place during all construction activities. All temporary fencing shall be shown on grading plans for areas adjacent to the preserve and for all off-site facilities constructed within the preserve. Prior to release of grading and/or improvement bonds, a qualified biologist shall provide evidence that work was conducted as authorized under the approved land development permit and associated plans.

A pre-construction meeting should be held between all contractors and the qualified project biologist and during this meeting, the biologist will educate the contractors on sensitive habitat and project avoidance measures. All project personnel shall provide written acknowledgement of their receiving avoidance training. This training shall include information on the location of the approved access paths and work areas, the necessity of preventing damage and impacts to sensitive habitat; and the discussion of work practices that will accomplish such. Lastly, the project biologist will be on site to monitor all project activities within natural habitats.

If unauthorized impacts occur outside of the approved project boundary, the contractor shall notify the City Resident Engineer and project biologist immediately. The project biologist shall evaluate the additional impacts to determine the size of the impact and the vegetation communities, land covers and/or jurisdictional resources impacted. The footprint of the impact shall be recorded with a GPS and the project biologist will report the impact(s) to City Staff as well as to the appropriate permitting agencies (where appropriate) for approval of the impact record and to establish any necessary follow-up mitigation measures. These measures may include development of an in-place Revegetation Plan for the identified impacts, including a 120-day plant establishment period and subsequent 25-month maintenance and monitoring period to ensure success of the revegetation effort.

Any unauthorized impacts to jurisdictional waters/wetlands would require reporting to the USACE, CDFW, RWQCB, and the City as well as development of a Waters/Wetlands Restoration Plan to restore pre-impact conditions as directed by the agencies. The Revegetation Plan and/or Waters/Wetlands Restoration Plan shall include a description of the suitability of the restoration area, planting and irrigation plan, maintenance and monitoring requirements, and performance standards that ensures that the intended restoration is achieved. The plan(s) and associated monitoring reports shall be submitted to City staff.

MM-4 Prior to issuance of land development permits, including clearing, grubbing, grading, and/or construction permits, the Permittee/Owner shall provide written confirmation that a City-approved biological monitor has been retained and shall be on site during clearing, grubbing, and/or grading activities. The biological monitor shall attend all preconstruction meetings and be present during the removal of any vegetation to ensure that the approved limits of disturbance are not exceeded and provide periodic monitoring of the impact area including, but not limited to, trenches, stockpiles, storage areas and protective fencing. The biological monitor shall be authorized to halt all associated project activities that may be in violation of the City's MSCP Subarea Plan and/or permits issued by any other agencies having jurisdictional authority over the project.

Before construction activities occur in areas containing sensitive biological resources, all workers shall be educated by a City-approved biologist to recognize and avoid those areas that have been marked as sensitive biological resources.

MM-5 To avoid any direct impacts to nesting birds, construction activities should occur outside of the breeding season (February 15 to September 14). If construction activity is scheduled during the general bird breeding season, a qualified biologist shall conduct a pre-construction survey to determine the presence or absence of nesting bird species within the proposed work areas. The pre-construction survey shall be conducted within 4 calendar days prior to the start of construction activities. The applicant shall submit the results of the pre-construction survey to City Staff for review and approval prior to initiating any construction activities. If nesting birds are detected, a letter report or mitigation plan in conformance with the applicable local, State, and Federal Law (i.e., appropriate follow up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report shall also describe any species-specific measures to comply with the MSCP's conditions of coverage:

- Active Cooper's hawk nest requires a 300-foot avoidance area.
- No clearing of occupied coastal cactus wren habitat will occur between February 15 and September 14.
- No clearing of occupied coastal California gnatcatcher habitat will occur between March 1 and August 15.
- No clearing of occupied least Bell's vireo habitat will occur between March 16 and September 14. If an occupied least Bell's vireo nest is identified in a pre-construction survey, noise reduction techniques, such as temporary noise walls or berms, shall be incorporated into the construction plans to reduce noise levels below 60 LEQ (equivalent continuous sound level).

The report or mitigation plan shall be submitted to the City for review and approval and implemented to the satisfaction of the City. The project Biologist shall verify and approve that all measures identified in the report or mitigation plan are in place prior to and/or during construction.

If nesting birds are not detected during the pre-construction survey, no further mitigation is required. Implementation of pre-construction surveys for nesting birds, and any required follow up protection measures, will reduce the potential impact levels to below significant.

MM-6 Prior to issuance of land development permits, including clearing, grubbing, grading and/ or construction permits that impact jurisdictional waters, the Permittee/Owner shall notify the resource agencies and obtain all necessary permits from the USACE, RWQCB, and CDFW. All terms and conditions of required permits shall be implemented.

The Applicant shall secure wetland creation mitigation credits within a City-approved Conservation Bank in accordance with the terms and conditions of the Subarea Plan and all required permits. Verification of mitigation credit purchase by the Applicant to the City and resource agencies is required prior to issuance of any land development permits.

Prior to issuance of land development permits, including clearing, grubbing, and grading permits for areas that impact jurisdictional waters, the Permittee/Owner shall provide evidence that all required regulatory permits, such as those required under Section 404 of the federal Clean Water Act, Section 1600 of the California Fish and Game Code, and the Porter Cologne Water Quality Act, have been obtained.

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Appendix G

Merkel & Associates Biological Impact Analysis Report for the Chula Vista Street Western Parcel Project

BIOLOGICAL IMPACT ANALYSIS REPORT
FOR THE
CHULA VISTA MAIN STREET WEST PARCEL PROJECT
CHULA VISTA, CALIFORNIA

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October 8, 2007

Antonette T. Gutierrez Project Manager/Senior Biologist

Keith W. Merkel, Principal Consultant

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CHULA VISTA MAIN STREET WEST PARCEL PROJECT

Merkel & Associates, Inc.
October 8, 2007

SUMMARY

Merkel & Associates, Inc. (M&A) has prepared this biological impact analysis report for the Chula Vista Main Street West Parcel, at the request of Mr. Kevin O'Neill, of O'Neill Construction. The purpose of this report is to document the existing biological conditions within the project study area; identify potential impacts to biological resources that could result from implementation of the proposed project; and recommend measures to avoid, minimize, and/or mitigate significant impacts consistent with the California Environmental Quality Act (CEQA) and the City of Chula Vista (City) Multiple Species Conservation Program (MSCP) Subarea Plan.

In support of project analysis and report preparation, M&A conducted general biological surveys, a jurisdictional wetland delineation, focused rare plant surveys, quino checkerspot butterfly (*Euphydryas editha quino*) protocol surveys and coastal California gnatcatcher (*Polioptila californica californica*) protocol surveys.

The project site lies within the MSCP and is designated as a Development Area in the City MSCP Subarea Plan. Main Street abuts and parallels the south edge of the site and separates the site from the adjacent Otay Valley Preserve (Preserve), located to the south of the study area. Intact good quality native habitats, encompass the property and lands to the east. Industrial buildings are situated west of the study area, while the Otay Landfill exists north of the study area.

The proposed project involves industrial development of the Chula Vista Main Street West Parcel, and the possible purchase of the adjacent East Parcel for an unknown future land use.

Biological surveys of the Chula Vista Main Street West Parcel Project site revealed moderate quality native vegetation with occational disturbances including illegal dumping of trash and off-road vehicle use. Moderate to low quality drainages supporting riparian scrub occur along the western property boundary and approximately in the center of the property. Native vegetation communities include maritime succulent scrub, southern willow scrub, and mule fat scrub. Non-native vegetation communities include tamarisk scrub, non-native grassland, and non-native vegetation. Additional communities within the parcel include disturbed and urban/developed areas. Sensitive floral and faunal species were observed throughout the study area, and included California adolphia (*Adolphia californica*), San Diego bur-sage (*Ambrosia chenopodiifolia*), seaside calandrinia (*Calandrinia maritima*), San Diego barrel cactus (*Ferocactus viridescens*), California desert thorn (*Lycium californicum*), Palmer's grapplinghook (*Harpagonella palmeri*), Robinson's pepper grass (*Lepidium virginicum* var. *robinsonii*), and San Diego County viguiera (*Viguiera laciniata*), orange-throated whiptail (*Cnemidophorus hyperythrus*), northern harrier (*Circus cyaneus*), California thrasher

(*Toxostoma redivivum*), and coastal California gnatcatcher. During protocol surveys for the coastal California gnatcatcher, 2 distinct coastal California gnatcatchers pairs were found utilizing the on-site maritime succulent scrub. Observations of fledglings in the central portion of the site confirm successful breeding occurred on-site during 2007. Protocol surveys for the quino checkerspot butterfly yielded no individuals.

Since the project site is designated as a Development Area outside of Covered projects, on-site impacts are subject to the Habitat Loss and Incidental Take Ordinance (HLIT). HLIT does not limit encroachment into upland Tier I, II, and III habitats and has set forth mitigation standards for these habitats, as defined in the City MSCP Subarea Plan. Under the HLIT Ordinance the City encourages mitigation to be conducted within the Preserve. Acceptable mitigation includes the use of conservation banks approved by the Wildlife Agencies within the City MSCP Planning Area boundaries or direct purchase of land within the Preserve.

The current project design would result in direct and indirect impacts to sensitve habitats and sensitive species on-site and adjacent to the site. On-site maritime succulent scrub and non-native grassland would be directly impacted by the project. Direct impacts to on-site riparian scrub designated as jurisdictional wetlands, would also occur. The project would directly impact covered MSCP flora and fauna species including coastal barrel cactus, orange-throated whiptail, and coastal California gnatcatcher. Additional direct impacts would occur to the following sensitive species: California adolphia, San Diego bur-sage, seaside calandrinia, Palmer's grapplinghook, Robinson's pepper grass, San Diego County viguiera, and California thrasher. Raptor foraging habitat would be directly impacted by the project, and could affect MSCP covered raptor species, including the northern harrier detected on-site and Copper's hawk (*Accipiter cooperii*) detected off-site.

Habitat-based mitigation is required, specifically preservation of Tier I maritime succulent scrub and Tier III non-native grassland habitats within the City's Preserve lands through acquisition of mitigation bank credits or direct purchase of land at a ratio of 1:1 and 0.5:1, respectively. If mitigation takes place outside of the Preserve the required ratio for mitigation of maritime succulent scrub is 2:1 and for non-native grassland the mitigation ratio is 1:1. City concurrence would be required to demonstrate that the proposed mitigation would reduce impacts to a level below significant. This habitat-based mitigation would reduce habitat impacts to less than significant. Management directives, as identified in the City MSCP Subarea Plan, would be required for MSCP covered species found on-site and include coastal barrel cactus, orange-throated whiptail, northern harrier, and coastal California gnatcatcher.

Based on the formal wetland delineation, the on-site drainages qualify as wetlands in areas where riparian scrub occurs and as non-wetland water of the U.S., or streambed under federal, state, or local jurisdiction. The study area wetlands are associated with and connected to the Otay River Valley. Pursuant to the City Subarea Plan, wetlands protection will be provided through individual project entitlement reviews and the associated CEQA process, and required federal and state agency permits. The process will provide evaluation of wetlands avoidance and minimization and will ensure a no-net-loss of wetlands functions and values.

INTRODUCTION

PURPOSE OF THE REPORT

Merkel & Associates, Inc. (M&A) performed biological investigations for the Chula Vista Main Street West Parcel Project, at the request of Mr. Kevin O'Neill of O'Neill Construction. The purpose of this report is to document the existing biological conditions within the project study area; identify potential impacts to biological resources that could result from implementation of the proposed project; and recommend measures to avoid, minimize, and/or mitigate significant impacts consistent with the California Environmental Quality Act (CEQA) and the City of Chula Vista (City) Multiple Species Conservation Program (MSCP) Subarea Plan.

PROJECT LOCATION AND DESCRIPTION

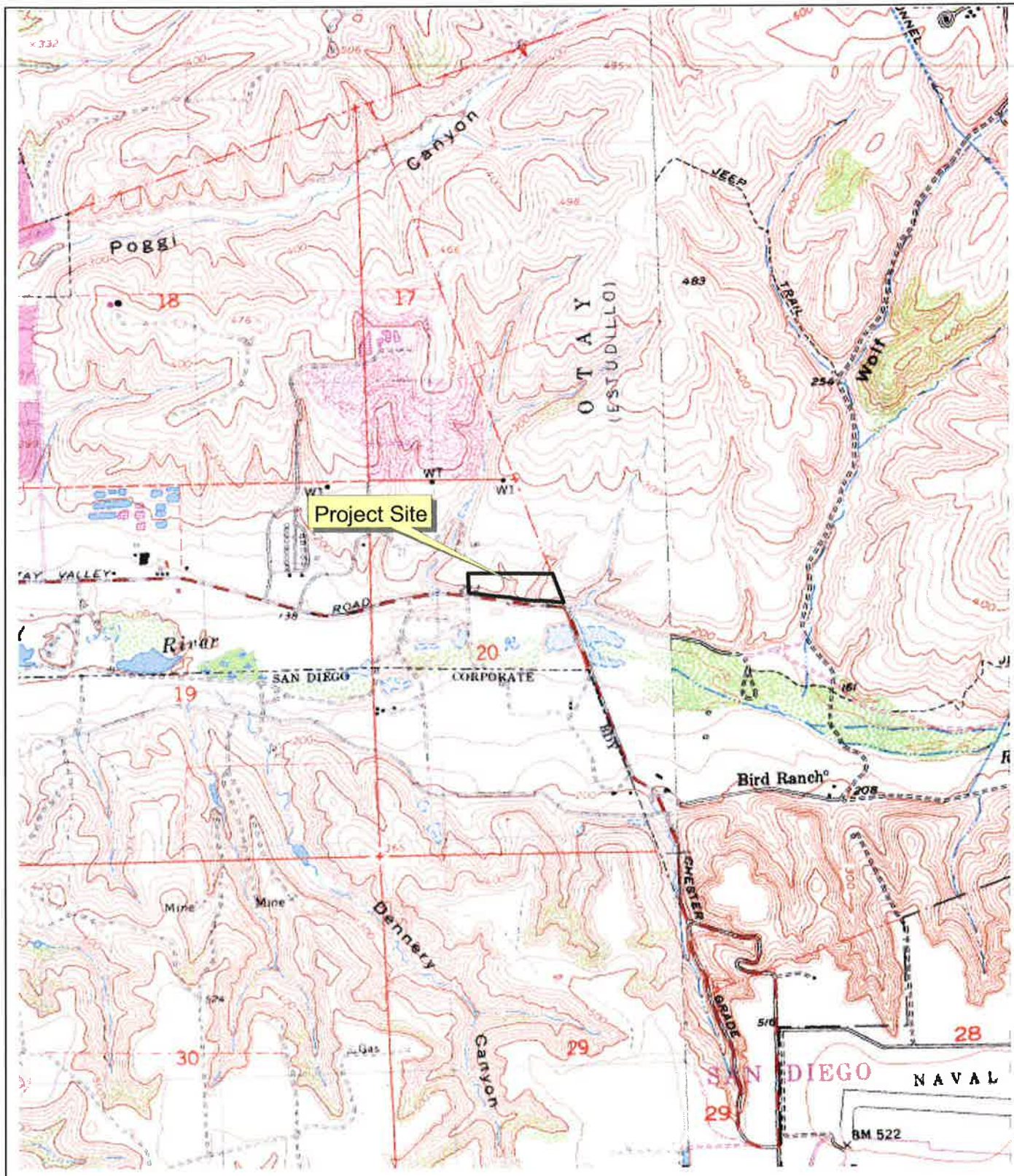
Project Location

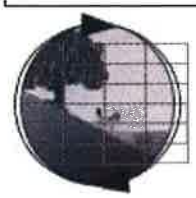
The Chula Vista Main Street West Parcel Project (Assessors Parcel Number 644050-06-00) site is located east of Interstate 805, north of Otay River Valley. Access to the site is via Main Street. The project site lies within Section 20, Township 18 South, Range 1 West of the U.S. Geological Survey Imperial Beach, California Quadrangle (Figure 1).

Project Description

The Chula Vista Main Street West parcel is currently undeveloped and is zoned for industrial land use. The project proposes to construct 418,178 square feet of multiple buildings on separate pads, on the 9.6-acre site; however, at this time, the locations of these buildings and their proposed use has not been determined (Kevin O'Niell 2007, pers. com.). Possible land uses allowed in this industrial zone include manufacturing, assembling, research, storage, trucking yards, terminals, and distributing operations. The pads would be graded to the level of "finished lot" above the steeply sloping bluffs adjacent to Main Street, and would include the extension of the drainage pipe at the south-eastern portion of the property, which flows south under Main Street into the Otay River Valley, as well as the undergrounding of this drainage its entire length (approximately 75 feet) to the northern boundary of the property. The proposed site entrance would be from Main Street, which would necessitate a retaining wall along the slope below the building pads. All wet and dry utilities would be placed underneath a proposed private access road from Nirvana Avenue along the top of the property, parallel to Main Street. Off-site improvements would be limited to the proposed private access road entrance at Nirvana Avenue, and also may include the undergrounding of the electrical lines presently running the length of the property along Main Street.

No fuel modification zone is currently proposed for the Chula Vista Main Street West Parcel Project. Main Street would serve as the main firebreak between the proposed development and the Otay River Valley open space corridor to the south; however, the City fire marshal may require fire clearing along the eastern boundary of the property, depending on what land use is ultimately proposed for the adjacent East Parcel. The City requires brush management to be undertaken in areas where urban development interfaces with open space, in order to reduce fire loads and potential fire hazards. Zone 1 brush management is required in areas within 30 feet of existing structures; the vegetation must be reduced to 18 inches in height and irrigated. Zone 2 brush management is required 50 feet beyond Zone 1 and the vegetation must be reduced to 2-4 feet in height with hand-clearing of dead





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Chula Vista/Main St.

Project Vicinity Map

Source: USGS 7.5' Imperial Beach, CA Quadrangle

Figure 1

underbrush. Zone 3 brush management may be enforced at the discretion of the Fire Marshal if a severe fire hazards exists, and consists of the clearing of dead underbrush and thinning of canopies of tall plants or trees within 50 feet beyond Zone 2.

METHODS

M&A biologists conducted general biological surveys, a wetland delineation, rare plant surveys, and focused surveys for coastal California gnatcatcher *(Polioptila californica californicd)* and quino checkerspot butterfly *(Euphydryas editha quino)* between March 28 and June 28, 2007 (Table 1). U.S. Fish and Wildlife Service (USFWS) protocol surveys for the quino checkerspot butterfly were conducted by permitted biologists, Melissa A. Booker, Kyle Ince, and Stephen R. Rink, as authorized under Endangered Species Act (ESA) Section 10(a)(1)(A) permit #797999-19. No authorized assistants surveyed for the quino checkerspot butterfly. USFWS protocol surveys for the coastal California gnatcatcher were conducted by permitted biologists, Melissa A. Booker, Antonette T. Gutierrez, and Bonnie L. Peterson, as authorized under ESA Section 10(a)(1)(A) permit #797999-19. Authorized assistant surveyor Gina M. Krantz, aided in protocol surveys for the coastal California gnatcatcher. Kyle L. Ince conducted rare plant surveys at variable months to accomadate for early and late emergence of rare plants known to occur in the area. The general biological survey consisted of mapping on-site vegetation, evaluating the overall habitat quality, and taking a formal inventory of detectable floral and faunal species on-site or in the vicinity. The entire site was surveyed on-foot. Vegetation communities were plotted in the field using an aerial photograph of the site, and sensitive resources were recorded using a differential Global Positioning System (GPS) unit. Plant identifications were either resolved in the field or later determined through verification of voucher specimens. Wildlife species were determined through direct observation (aided by binoculars), identification of songs, call notes, or alarm calls, or through indirect sign (burrows, tracks, scat, etc.).

Table 1. Survey Information

Date	Time	Weather Conditions	Biologist(s)	Survey
28 March 2007	1235–1625	Weather: 0%-0% cc Wind: 2-3 BS Temperature: 72°-67° F	Antonette T. Gutierrez	Quino Checkerspot Butterfly Habitat Assessment
28 March 2007	1235–1625	Weather: 0%-0% cc Wind: 2-3 BS Temperature: 72°-67° F	Melissa A. Booker	Quino Checkerspot Butterfly Protocol Survey #1
April 2, 2007	1230-1430	Weather: 50% cc Wind: NR Temperature: 75° F	Stephen R. Rink	Quino Checkerspot Butterfly Protocol Survey #2
April 11, 2007	0925-1225	Weather: 20%-0% cc Wind: 2-3 BS Temperature: 72°-71° F	Melissa A. Booker	Quino Checkerspot Butterfly Protocol Survey #3
April 17, 2007	1315-1550	Weather: 20%-10% cc/haze Wind: 2-3 BS Temperature: 72°-70° F	Melissa A. Booker	Quino Checkerspot Butterfly Protocol Survey #4
27 April 2007	0815-1145	Weather: NR Wind: 3 BS Temperature: 65° F	Kyle L. Ince	Quino Checkerspot Butterfly Protocol Survey #5
2 May 2007	1500-1800	Weather: partly cloudy Wind: 2 BS	Kyle L. Ince	Quino Checkerspot Butterfly

Date	Time	Weather Conditions	Biologist(s)	Survey
		Temperature: 70° F		Protocol Survey #6
29 March 2007	1100-1530	Weather: 0-0% cc Wind: 0-3 BS Temperature: 70°-72°F	Kyle L. Ince	Rare Plant Focused Survey #1
4 June 2007	1230–1600	Weather: 0% cc Wind: 2-3 BS Temperature: 68°F	Kyle L. Ince	Rare Plant Focused Survey #2
5 May 2007	1015–1600	Weather: 0-0% cc Wind: 1-2 BS Temperature: 70°-75°F	Kyle L. Ince and Antonette T. Gutierrez	Jurisdictional Wetland Delineation
13 May 2007	0900–1200	Weather: 5-5% cc Wind: 2-3 BS Temperature: 68°-74°F	Antonette T. Gutierrez	Coastal California Gnatcatcher Protocol Survey #1
21 May 2007	0740–1050	Weather: 100-100% cc Wind: 1-3 BS Temperature: 56°-60°F	Bonnie L. Peterson and Gina M. Krantz	Coastal California Gnatcatcher Protocol Survey #2
31 May 2007	0900–1130	Weather: 100-5% cc Wind: 2-3 BS Temperature: 58°-65°F	Melissa A. Booker, Gina M. Krantz	Coastal California Gnatcatcher Protocol Survey #3
28 June 2007	0730–1040	Weather: 100-0% cc Wind: 0-2 BS Temperature: 68°-76°F	Antonette T. Gutierrez	Ground Truthing Survey

cc = cloud cover; BS = Beaufort scale; NR = Not Recorded; F = Fahrenheit

A jurisdictional wetland delineation was performed using the routine on-site determination methods noted in the 1987 *U.S. Army Corps of Engineers'* (ACOE) *Wetland Delineation Manual* (Environmental Laboratory 1987) and the 2006 *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2006). In addition, the delineation was expanded to identify wetlands/non-wetland waters of the US and streambeds under federal and state jurisdiction, respectively. The delineation also addressed the City's Wetlands Protection Program, based on the 2003 City MSCP Subarea Plan. Evidence supporting jurisdictional determinations was recorded on wetland field data forms and depicted in photographs of the data points. Wetland habitats and jurisdictional waterways were recorded using a Trimble® geoexplorer GPS unit (with sub-meter accuracy) and/or were plotted on an aerial map (with topographical overlay) of the study area.

The presence or absence of 3 parameters was assessed to determine if an area was a jurisdictional wetland: 1) hydrophytic vegetation, 2) wetland hydrology, and 3) hydric soils. These parameters are discussed additionally below.

Hydrophytic vegetation is defined as "the community of macrophytes that occurs in areas where inundation and soil saturation is either permanent, or of sufficient frequency and duration to exert a controlling influence on the plant species present" (ACOE 2006). Hydrophytic vegetation is present when vegetation communities are dominated by a preponderance (>50%) of species classified as obligate wetland plants (OBL) (estimated probability of occurring in wetlands, >99%), facultative wetland plants (FACW) (estimated probability of occurring in wetlands, 67% to 99%), or facultative plants (FAC) (estimated probability of occurring in wetlands, 33% to 67%) based on the National List of Plant Species that Occur in Wetlands (USFWS 1988). Dominant vegetation by stratum was noted on the Arid West Region data form at each datapoint and classified according to the

designations described above or as "no indicator" (NI) or upland (UPL) (referred to hereafter as Dominance Test).

Soils were examined by digging test pits at each datapoint (n=3) and evaluating excavated soils to determine the profile description. In addition, soils were sampled at 4 additional soils sample locations (soil samples A-D). Hydric soil indicators are present when soils "have formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (US Department of Agriculture Natural Resources Conservation Service 2007). Hydric soil presence/absence was assessed using the chroma index from the Munsell Soil Color Charts (Munsell Color 2000) and the presence or absence of additional hydric soil indicators as described in the 2006 *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2006).

Wetland hydrology indicators were used in combination with indicators of hydric soil and hydrophytic vegetation to determine whether an area is a wetland under the ACOE Manual (ACOE 2006). Wetland hydrology is indicated by the presence of surficial characteristics or sub-surficial hydric characteristics, which may include observation of surface water or saturated soils, evidence of recent inundation, evidence of recent soil saturation, or evidence from other site conditions or data. In addition, area topography, recent aerial photographs, and historic aerial photographs were utilized to assess the presence of hydrology.

Where hydric soil and hydrology indicators are present, but an area fails to meet the hydrophytic vegetation Dominance Test, a Plot-based Prevalence Index is undertaken pursuant to the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.* If the area in question fails the Prevalence Index, Morphological Adaptations are assessed, as indicated within the aforementioned manual. This level of analysis was not necessary on this study site as hydric soils were absent.

The extent of jurisdictional boundaries was determined according to the ACOE, California Department of Fish and Game (CDFG), and City's definitions of wetlands and non-wetland waters of the U.S./streambed.

Under Section 404 of the Clean Water Act (CWA), the ACOE has regulatory authority over the discharge of dredged or fill materials into waters of the U.S. (33 U.S.C. 1344). The term "waters of the U.S." is defined in 33 CFR Part 328.3(a) as: (1) all navigable waters (including all waters subject to the ebb and flow of the tide); (2) all interstate waters and wetlands; (3) all other waters such as intrastate lakes, rivers, streams, (including intermittent streams), mudflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; (4) all impoundments of water mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned above.

Wetlands are defined in 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support ... a prevalence of vegetation typically adapted for life in saturated soil conditions." Therefore, all 3 parameters (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology) must be present to classify an area as an ACOE jurisdictional wetland.

In the absence of wetlands and non-tidal waters, the limits of ACOE jurisdiction in drainages and streams extend to the ordinary high water mark (OHWM), which is defined in 33 CFR 328.3(e) as, "that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

The CDFG has regulatory authority over actions that would "divert, obstruct or change the natural flow or bed, channel or bank of any river, stream or lake designated by the Department," pursuant to Section 1602 of the Fish and Game Code (Division 2, Chapter 6). The breath of jurisdiction under the CDFG differs from the ACOE in that a "streambed" is not limited to the OHWM, but rather encompasses the entire width of the streambed, from bank to bank, regardless of the water level. In addition, jurisdictional wetlands under the CDFG require that only one wetland parameter be present, but the wetlands must be associated, within or adjacent to, a streambed. Furthermore, CDFG regulatory authority under section 1600 et seq. of the Fish and Game Code extends not only to the bed and bank of streams or lakes, but also to adjacent riparian habitats that are supported by a river, stream, or lake, regardless of the riparian area's federal wetland status. These areas are considered "adjacent riparian habitat". For practical purposes of defining adjacent riparian habitats, these habitats include the extent of the canopy for all vegetation that is rooted within jurisdictional streambeds, as well as all adjacent hydrophytic vegetation. In some instances, small disjunctions between the stream course and adjacent riparian stands may occur where prior disturbance has occurred to fragment the riparian corridor. Adjacent riparian habitat does not include isolated trees or groves, or other wetland vegetation types in absence of the presence of proximate streambeds or lakes.

The City MSCP Subarea Plan defines wetlands as "those lands which contain naturally occurring wetland communities listed on Table 5-6 of the Chula Vista MSCP Subarea Plan and further described in Appendix B" of the same plan. Wetlands also include areas lacking wetland communities due to non-permitted filling of previously existing wetlands (City of Chula Vista 2003).

SURVEY LIMITATIONS

Biological inventories are generally subject to various survey limitations. Depending on the season and time of day during which field surveys are conducted, some species may not be detected due to temporal species variability. In addition, annual variations in temperature, rainfall, and food abundance can alter the presence/absence status or detectability of species within a site. In the case of this work, 2007 was a drought year, which may have affected the emergence of certain plant species and the abundance of faunal species, particularly invertebrates. To compensate for these survey limitations, literature and database (California Natural Diversity Data Base [CNDDB] and USFWS) reviews were conducted. The results of these reviews, combined with knowledge of species-based habitat requirements and known ranges, were used to predict presence/absence for sensitive species that may not have been detected due to survey limitations.

SCIENTIFIC NOMENCLATURE

Scientific nomenclature used in this report is from the following references: vegetation communities, Holland (1986) and Oberbauer (2005); flora, Rebman and Simpson (2006); butterflies, Klein/San Diego Natural History Museum (2002); amphibians and reptiles, Crother *et al.* (2001 and 2003);

birds, American Ornithologists' Union (1998 and 2006); and mammals, San Diego Natural History Museum/(species level) Wilson and Reeder (1993) and (sub-species level) Hall (1981).

RESULTS

CITY OF CHULA VISTA MSCP SITE STATUS

The Chula Vista Main Street West project site is designated as a Development Area outside of Covered projects under the MSCP Subarea Plan thus, on-site impacts are subject to the Habitat Loss and Incidental Take Ordinance (HLIT).

The site is adjacent to the Otay River 100% conservation area-Habitat Preserve (Preserve), but is separated from the Preserve by Main Street (Figure 2). The site is not located within a Biological Resource Core Area (BRCA) or Linkage within the Subarea Plan.

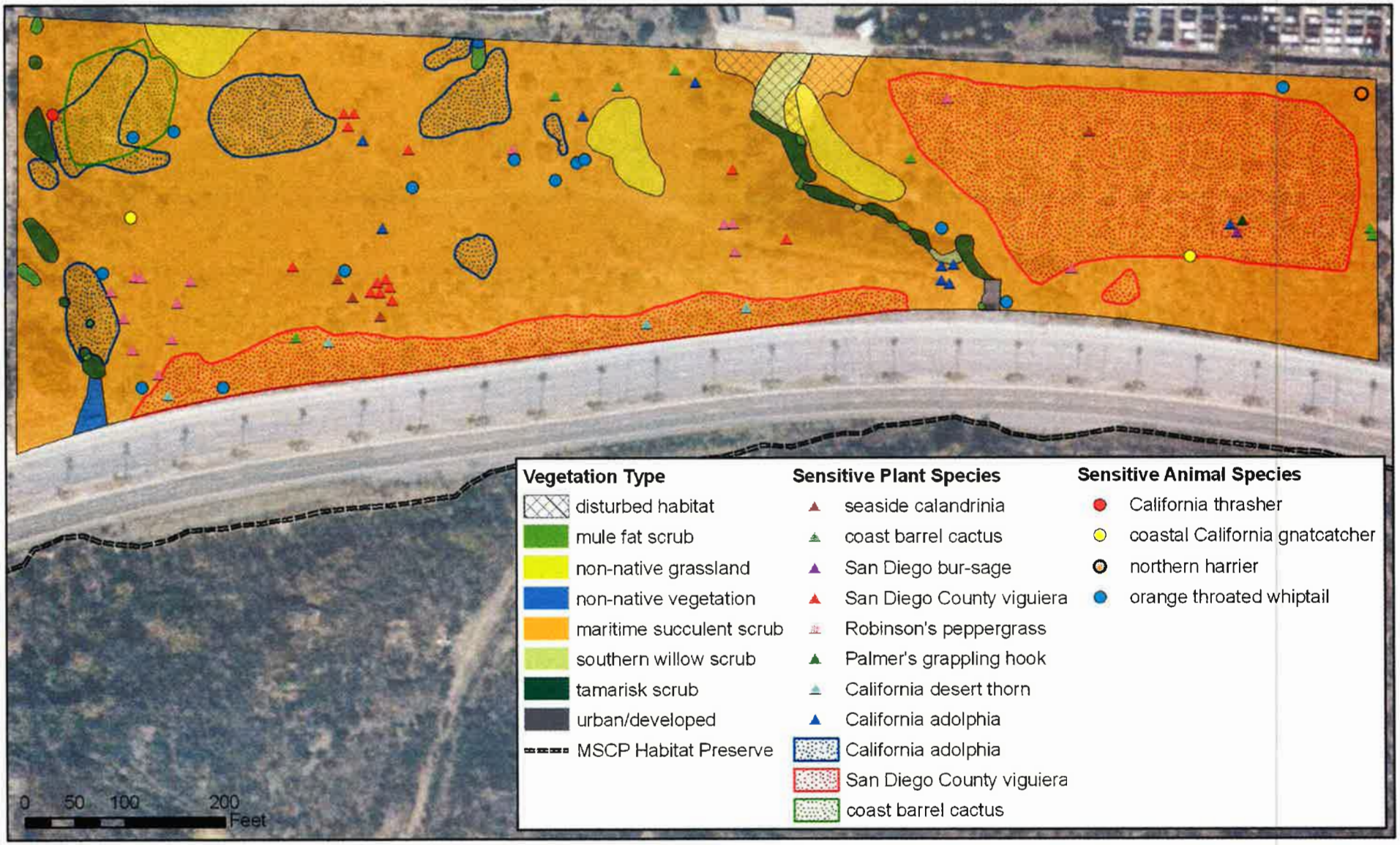
GENERAL PHYSIOGRAPHY

The project site is topographically characterized as relatively flat terrain, with steeply sloping bluffs on the southern boundary (adjacent to Main street), and 2 steeply cut drainages, one along the western property boundary and one centrally located wihin the parcel. On-site topography ranges from an approximate low elevation of 160 feet above mean sea level (amsl) to an approximate high elevation of 240 feet amsl. Underlying surficial geology is mapped as Pleistocene Marine and Marine Terrace Deposits (Strand 1962), and general on-site soils include the Diablo-Olivenhain complex and Terrace Escarpments. The Diablo Series consists of well-drained, moderately deep to deep clays derived from soft, calcareous sandstone and shale, while Terrace Escarpments consist of steep to very steep escarpments and escarpment-like landscapes (Bowman et al. 1973).

BIOLOGICAL RESOURCES

Botanical Resources – Flora

Eight vegetation communities were mapped for the Chula Vista Main Street West Parcel study area: maritime succulent scrub, southern willow scrub, mule fat scrub, tamarisk scrub, non-native grassland, non-native vegetation, disturbed habitat, and urban/developed (Table 2; Figure 2). Each community is discussed within this section, including dominant flora species (where appropriate), location, and general conditions. Appendix 1 lists all floral species observed within the study area.



Biological Resources

Chula Vista Main Street West Project

Figure 2

Table 2. Acreage and Tier Summary of Vegetation Communities within the Study Area

Vegetation Community	Wetland/Tier Category	Acreage (acre)
Maritime Succulent Scrub (Holland Code 32400)	Tier I	8.92
Southern Willow Scrub (Holland Code 63320)	Wetland	0.06
Mule Fat Scrub (Holland Code 63310)	Wetland	0.02
Tamarisk Scrub (Holland/Oberbauer Code 63810)	Wetland	0.13
Non-Native Grassland (Holland/Oberbauer Code 42200)	Tier III	0.29
Non-Native Vegetation (Oberbauer Code 11000)	Tier IV	0.03
Disturbed Habitat (Oberbauer Code 11300)	Tier IV	0.15
Urban/Developed (Oberbauer Code 12000)	Tier IV	0.01
TOTAL		**9.61**

Maritime Succulent Scrub (Holland Code 32400)

Maritime succulent scrub is the dominant vegetation type throughout the project site. This parcel contains intact contiguous maritime succulent scrub, characterizing moderate to good quality habitat and is dominated by jojoba (*Simmondsia chinensis*), coast cholla (*Cylindropuntia prolifera*), bladderpod (*Isomeris arborea*), coast California buckwheat (*Eriogonum fasciculatum fasciculatum*), San Diego county viguiera (*Viguiera laciniata*), California adolphia (*Adolphia californica*), and California encelia (*Encelia californica*). Other plants present within this habitat type include species such as coast prickly-pear (*Opuntia littoralis*), California sagebrush (*Artemisia californica*), and San Diego barrel cactus (*Ferocactus viridescens*). Moderate quality maritime succulent scrub occurs in the areas where there has been disturbance from illegal trash dumping and paths created throughout the habitat by foot traffic.

Southern Willow Scrub Scrub (Holland Code 63320)

Southern willow scrub is found in 2 locations along the central drainage and is dominated by lanced-leaf willow (Salix lasiolepis) with a sparse understory of Italian ryegrass (Lolium multiflorum) and Mediterranean beard grass (Polypogon monspeliensis). This habitat abuts the tamarisk scrub creating a contigous tree canopy in the central drainage. This habitat is not well represented on-site due to the stand-alone willow trees and sparse vegetation in the understory.

Mule Fat Scrub (Holland Code 63310)

Patches of mule fat scrub are found throughout the on-site drainages and contain bare ground, cobble rock, or sparse vegetation in the understory. The mule fat scrub habitat has low plant diversity and is dominated by mule fat (Baccharis salicifolia). In the central drainage, mule fat scrub blends into tamarisk scrub and maintains a connection with the overall drainage.

Tamarisk Scrub (Holland/Oberbauer Code 63810)

On-site tamarisk scrub is dominated by four-petal European tamarisk (*Tamarix parviflora*). Patches of mature tamarisk trees are found in the on-site drainages. In the western drainage, the trees are mostly disjunct and only a small portion represents a contigous tree canopy. There is little to no understory in this scrub. In the central drainage four-petal European tamarisk is the dominant tree and connects the entire drainage with a tall canopy. There are limited understory plants found in this

habitat including southern cattail (*Typha domingensis*), Mediterranean beard grass, and Italian ryegrass.

Non-Native Grassland (Holland/Oberbauer Code 42200)

Non-native grassland occurs in the northern most portions of the site and along the eastern edge of the central drainage. On-site non-native grassland supports mostly invasive weedy spieces including slender wild oat (*Avena barbata*), black mustard (*Brassica nigra*), short-pod mustard (*Hirschfeldia incana*), Italian ryegrass, ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and red brome (*Bromus madritensis* ssp. *rubens*). This habitat occurs along the northern boundary of the site connecting with disturbed developed lands from the adjacent off-site property. Additionally, on-site non-native grassland is associated with a disturbed portion of the wetland. The on-site non-native grasslands are disjunct and very disturbed from illegal dumping of trash and from foot traffic.

Non-Native Vegetation (Oberbauer Code 11000)

Non-native vegetation occurs in the southwestern boundary of the project site. The plant species in this community are weedy species located within riprap that supports the waterway leading off-site to the south. Species dominating this community included ripgut grass, slender wild oat, red brome, and Australian saltbush (*Atriplex semibaccata*). The non-native vegetation is surrounded by upland maritime succulent scrub habitat and connects to tamarisk scrub to the north.

Disturbed Habitat (Oberbauer Code 11300)

The disturbed habitat on-site is located in the central-northern portion of the site within and adjacent to the central drainage. The disturbed area is connected to the off-site property and is currently filled with dirt and concrete slabes of riprap. Additionally, an aluminum 3-foot wide pipe juts into the on-site drainage and connects underground off-site to the north. Clearing, grading, and filling of this area occurred by the adjacent property owner sometime between June 2004 and March 29, 2005 (pers.com Mr. O'Neill, letter dated March 29, 2005). Previous biological studies (M&A June 2004) and recent aerial photographs (2004) show this area supported maritime succulent scrub habitat east and west of the drainage and a large stand of intact southern willow scrub within the drainage. Currently, the slopes are mostly denude of vegetation with a mosaic of non-native tumbleweed (*Amaranthus albus*) and weak-leaf bur ragweed (*Ambrosia confertiflora*) is filling the cracks of the concrete riprap.

Urban/Developed (Oberbauer Code 12000)

Two concrete culverts spanning 9 feet wide exist at the bases of the on-site drainages. The culverts are bordered by a chain-linked fence. Pipes in the culverts span south under Main Street and connect to the Otay River Valley watershed, off-site

JURISDICTIONAL WETLANDS, NON-WETLAND WATERS OF THE U.S., AND STREAMBEDS

The 2 on-site drainages were examined for evidence of hydrophytic vegetation dominance, the presence or absence of hydric soils, and any evidence of hydrology. Three jurisdictional wetland habitat types and non-wetland waters of the U.S./streambed were identified on the property. The results are detailed below in Table 3 and shown in Figure 3; data point and photo point locations are provided within Appendices 2 and 3.

Wetland Resources

Chula Vista Main Street West Project

Figure 3

Merkel & Associates, Inc.

Table 3. Summary of Jurisdictional Wetlands and Non-wetland Waters/Streambed

Jurisdictional Wetlands/ Non-Wetland Resources	Total Jurisdictional Acreage (ACOE/CDFG/City)
Southern Willow Scrub	0.06
Mule Fat Scrub	0.02
Tamarisk Scrub	0.13
Non-Wetland Waters of the U.S./Streambed	0.37
Total:	

Wetland Communities

All on-site wetland communities are represented as riparian scrub. Riparian scrub is a generic classification, which includes various woody species that are not always associated with wetland habitats, but are considered such due to their proximity to drainages. The following text describes the four riparian scrub habitats found on-site.

Southern Willow Scrub (Riparian Scrub)

Southern willow scrub is a jurisdictional wetland habitat that is currently not well represent on-site (Data Point 3, Figure 3). Southern willow scrub is found in 2 locations along the central drainage and is dominated by stand-alone FACW lanced-leaf willow trees. The sparse understory of Italian ryegrass and Mediterranean beard grass represented 35% of the absult plant cover for this data point.

Soils indicators were assumed due to dominance of FACW plant species. Hydrology was evident by the presence of saturation and drift deposits. Since all 3 parameters were found within the southern willow scrub data point, this habitat is jurisdictional under ACOE, the CDFG, and the City.

Previously, the upper northern reaches of this drainage represented an intact contiguous canopy of good quality southern willow scrub. Due to unauthorized activities by the adjacent landowner (letter dated March 29, 2005), this part of the wetland consists of total removal of the vegetation, replaced by fill material in the form of soil and concrete riprap over hydric soils, and a constructed drainage system to include a 2.5-foot pipe (Data Point 4 and Photo Point 4). Previously this atypical area would have been jurisdictional under the ACOE, the CDFG, and the City. Aerial photographs (2004) and biological mapping from a previous report (M&A 2004) show and delineate repectively, the southern willow scrub habitat. Drainge patterns, topography, and connectivity to down stream wetlands indicate hydrology. An abrupt boundary along with the southern willow scrub vegetation presumes hydric soils existed at this location prior to the unauthorized activities.

Mule Fat Scrub (Riparian Scrub)

Mule fat scrub is a jurisdictional wetland habitat found sporadically throughout the on-site drainages. The mule fat scrub community is dominated almost exclusively by mule fat (FACW) but had some incursions of the OBL plant southern cattail. The associated understory was comprised of Mediterranean beard grass (FACW) and the upland species Italian ryegrass at Data Point 1. In all other locations where mule fat scrub occurred the understory was similar or represented bareground or cobble.

Soil indicators were not identified but were assumed due to the dominance of FACW and OBL plant species. Hydrology was observed in the form of drift deposits and the presence of saturation in the first 12-inches of the Data Point 1; therefore, the jurisdiction for the mule fat scrub habitat falls under that of the ACOE, the CDFG and the City.

Tamarisk Scrub (Riparian Scrub)

The tamarisk scrub community is made up primarily of tamarisk trees (FAC). The shrub stratum supports the OBL plant southern cattail. The understory contains wetland FACW species Mediterranean beard grass and the upland weedy species Italian ryegrass (Data Point 2).

Soil indicators within the tamarisk scrub community at Data Point 2 were abscent but due to the dominance of OBL and FACW plant species soils were assumed. Soil saturation and drift lines were observed at the surface as hydrologic indicators. Soil saturation showed glistening epipedons. The tamarisk scrub at this data point and in the upper reaches of the drainages is therefore jurisdictional under the ACOE, the CDFG, and the City.

Non-Wetland Waters of the U.S/Streambeds

Several areas throughout the on-site western drainage were devoid of hydrophytic vegetation. These non-wetland waters of the U.S./streambeds consisted of incised, ephemeral channels varing in width from 10-30 feet. Drainage patterns in these locations indicate hydrology. The study area drainages have connectivity associated with the Otay River Valley. These drainages are jurisdictional under the ACOE as non-wetland waters of the U.S., and the CDFG as streambeds.

Functions and Values

The jurisdictional waterways are tributaries comprised of steep, channelized drainages that originate from the upper northern edges of the site, connecting with the Otay River Valley watershed and eventually reach south San Diego Bay. The orgin of the drainages stem from the adjacent developed property and characterizes intermittent run-off from the industrial buildings. Seasonally, these drainages support natural rain flow along with urban run-off from the north.

Overall, the wetlands and drainage systems within the Chula Vista Main Street West Parcel are considered to have moderate to low biological, physical, and chemical functions and values. The reduced functions and values are mostly attributed to the fragmented wetland vegetation and rapid run-off and scour that occurs seasonally through the narrow drainages. While the sporadic wetland vegetation hosts a limited number of riparian associated species, encroaching exotic vegetation restricts the amount of valuable wildlife habitat, particularly in the central drainage. High velocity flows combined with low flood flow retention result in scoured and eroded areas with little potential of hosting and sustaining large quantities of high quality wildlife habitats. Low natural streambed stabilization and high velocity flows have required the installation of rock rip rap in the central drainage to dissipate erosive forces undermining the streambed and banks. Additionally, the southernmost portion of on-site drainages transition into concrete culverts, resulting in minimal to no groundwater recharge, sediment retention, toxicant retention, and nutrient transformation.

The jurisdictional wetlands and waterways on-site represent low quality habitats. The on-site wetlands generally consist of fragmented mule fat scrub and larger, more contiguous areas of tamarisk scrub. This area also supports stand alone willow trees found in southern willow scrub. These types of wetland habitats provide a multi-layer canopy, which can support many common riparian birds such as song sparrow (*Melospiza melodia*), blue grosbeak (*Passerina caerulea*), lesser

goldfinch (*Carduelis psaltria*), and the common yellowthroat (*Geothlypis trichas*). Sensitive bird species, like the least Bell's vireo also have a limited potential to utilize portions of the site. The abundance of leaf litter beneath the larger stands of trees could provide breeding habitat for various amphibian species including the California treefrog (*Pseudacris cadaverina*) and the western toad (*Bufo boreas*).

ZOOLOGICAL RESOURCES - FAUNA

All faunal species observed or detected on-site are listed in Appendix 4.

Butterflies

Butterflies observed during the habitat assessment work or quino checkerspot butterfly surveys included: anise swallowtail (*Papilio zelicaon*), Pacific (=Sara) orangetip (*Anthocharis sara*), cabbage white (*Pieris rapae*), checkered (=common) white (*Pontia protodice*), western pigmy-blue (*Brephidium exile*), Behr's metalmark (*Apodemia virgulti*), west coast lady (*Vanessa anabella*), and funereal duskywing (*Erynnis funeralis*).

Amphibians

No amphibians were found within the study area during surveys.

Reptiles

Orange-throated whiptail (*Aspidoscelis hyperythra*) was observed in abundance, throughout the site (Figure 2). Western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), and southern alligator lizard (*Elgaria mulitcarinata*) were also noted. Southern pacific rattlesnake (*Crotalus viridis helleri*) was observed in the central portion of the site in the maritime succulent scrub. A dead gophersnake (*Pituophis catenifer*) was found in the maritime succulent scrub in the eastern portion of the site; however, it is expected that this species commonly occurs on-site.

Birds

Avian species observed flying throughout the site included the following: northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), western gull (*Larus occidentalis*), white-throated swift (*Aeronautes saxatalis*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), northern-rough winged swallow (*Stelgidopteryx serripennis*), cliff swallow (*Petrochelidon pyrrhonota*), barn swallow (*Hirundo rustica*), brown-headed cowbird (*Molothrus ater*), and red-winged blackbird (*Agelaius phoeniceus*). Avian species commonly recorded utilizing the on-site maritime succulent scrub include Anna's hummingbird (*Calypte anna*), common bushtit (*Psaltriparus minimus*), Bewick's wren (*Thryomanes bewickii*), house wren (*Troglodytes aedon*), California gnatcatcher (*Polioptila californica*), wrentit (*Chamaea fasciata*), California thrasher (*Toxostoma redivivum*), spotted towhee (*Pipilo maculates*), California towhee (*Pipilo crissalis*), house finch (*Carpodacus mexicanus*), lesser goldfinch, and American goldfinch (*Carduelis tristis*). American kestrel, mourning dove (*Zenaida macroura*), black phoebe (*Sayornis nigricans*), Cassin's kingbird (*Tyrannus vociferans*), and western kingbird (*Tyrannus verticalis*) were often perched along the boundaries of the site, on telephone wires or poles, chain link fence, or barbed wire fence. Common yellowthroat, song sparrow, and blue grosbeak were found utilizing four-petal European tamarisk trees within the on-site drainages.

Mammals

Mammalian species detected on-site consisted of a California ground squirrel (*Spermophilus beecheyi*), desert cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), a dead Virginia opossum (*Didelphis virginiana*), evidence of Botta's pocket gopher (*Thomomys bottae*), and the skull of bobcat (*Lynx rufus*).

Rare, Threatened, Endangered, Endemic and/or Sensitive Species or MSCP covered Species

Floral and faunal species listed as endangered or threatened under the federal ESA and California Endangered Species Act (CESA), species designated as California Special Concern species or Fully Protected species by the CDFG or as Special Animals in the CNDDB and those species found on the City's sensitive species list are addressed herein as sensitive.

Sensitive floral species identified during the rare plant and general biological surveys are mapped on Figure 2, discussed in Table 3, and listed as follows: California adolphia, San Diego bur-sage (*Ambrosia chenopodiifolia*), California desert thorn (*Lycium californicum*), seaside calandrinia (*Calandrinia maritima*), San Diego barrel cactus, Palmer's grapplinghook (*Harpagonella palmeri*), Robinson's pepper grass (*Lepidium virginicum* var. *robinsonii*), and San Diego County viguiera. Rare plants known from the area with potential to occur within the vicinity or on-site are addressed within Table 3. Of the sensitive plant species occurring on-site, none are MSCP narrow endemic species and only San Diego barrel cactus is covered under the Citys' Subarea Plan and the MSCP.

Four sensitive fauna species were detected on-site and included orange-throated whiptail, coastal California gnatcatcher, northern harrier, and California thrasher. Federal, State, and MSCP sensitivity status of these species, along with on-site status and associated habitats, are included in Table 4. On-site locations of these species are mapped in Figure 2. Sensitive species not detected, but with the potential to occur on-site, according to the MSCP and CNDDB, are also included in Table 4.

Protocol and focused surveys for the quino checkerspot butterfly (quino) were negative. Likely due to the drought, it does not appear that 2007 was a productive year for quino, but some larvae and adults were spotted within nearby reference sites and the protocol surveys are, thus, expected to be valid. For details regarding the methodology of the quino protocol surveys, see Appendix 5.

Orange-throated whiptails were observed throughout the maritime succulent scrub habitat and were typically observed on the sides of the existing dirt trails. Adult orange-throated whiptails are associated with coast California buckwheat and California sagebrush (dominant components of the on-site maritime succulent scrub), which typically exhibits a particular amount of inter-shrub spacing allowing for foraging and thermoregulatory (maintaining a particular body temperature) behavior (McGurty, 1981), as required by this species.

Table 4. Summary of Threatened, Endangered, and/or Sensitive Species, and MSCP-Covered Species Present or with Potential for Occurrence within the Study Area

Scientific Name	Common Name	Habitat	Sensitivity Listings1	City of Chula Vista MSCP Subarea and MSCP Plan Status	Occurrence Potential Within Study Area
PLANTS					
Acanthomintha ilicifolia	San Diego thorn mint	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/clay; elevation 10-935 meters; annual herb; blooms April to June	ESA: FT CESA: SE CNPS List: 1B County List: A	MSCP Narrow Endemic, Covered	Not Expected; No vernal pools on-site.
Achnatherum diegoense	San Diego county needlegrass	Chaparral, coastal scrub; clay soils in grassy areas; rocky, often mesic; elevation 10-700 meters; perennial herb; blooms February-June	CNPS List: 4 County List: D	Not covered	Not Expected; Not detected in rocky areas on-site during surveys.
Adolphia californica	California adolphia	Chaparral, coastal scrub, valley and foothill grassland/clay; elevation 45-300 meters. Shrub (deciduous), blooms December-May	CNPS List: 2 County List: B	Not covered	Present: Large groups of plants exist throughout the site.
Ambrosia pumila	San Diego ambrosia	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/often in distributed areas; elevation 20-415 meters. Perennial herb (rhizomatous), blooms May-September	ESA: FE CNPS List: 1B County List: A	MSCP Narrow Endemic, Covered	Not Expected; Not detected during floral surveys.
Atriplex pacifica	south coast saltscale	Coastal bluff scrub, coastal scrub playas; elevation 0-100 meters. Annual herb, blooms March-October	CNPS List: 1B County List: A	Not Covered	Low Potential; No plants were found on-site. One plant occurs in the adjacent property.
Brodiaea orcuttii	Orcutt's brodiaea	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools/mesic, clay, sometimes serpentinite; elevation 30-1615 meters. Perennial herb (bulbiferous), blooms May-July	CNPS List: 1B County List: A	Covered	Low Potential; Not detected during spring floral surveys; suitable soils on-site, but vernally moist conditions absent.

Scientific Name	Common Name	Habitat	Sensitivity Listings1	City of Chula Vista MSCP Subarea and MSCP Plan Status	Occurrence Potential Within Study Area
Calandrinia maritima	seaside calandrinia	Coastal bluff scrub, coastal scrub, valley and foothill grassland/sandy; elevation 5-300 meters.	CNPS List: 4 County List: D	Not Covered	Present: Three small patches exist at the top of the bluff in the southwestern part of the site. An additional patch occurs centrally in the northeastern part of the site.
Ambrosia chenopodiifolia	San Diego bursage	Coastal scrub; elevation 55-155 meters. Shrub, blooms April-June	CNPS List: 2 County List: B	Not Covered	Present; Occurs in small numbers in the eastern portion of the site.
Convolvulus simulans	small-flowered morning glory	Chaparral (openings), coastal scrub, valley and foothill grassland/clay, serpentinite seeps; elevation 30-700 meters. Annual herb, blooms March-July	CNPS List: 4 County List: D	Not Covered	Not Expected; Not observed during spring floral surveys.
Cylindropuntia (=Opuntia) californica var. californica	snake cholla	Chaparral, coastal scrub; elevation 30-150 meters. Shrub (stem succulent), blooms April-May	CNPS List: 1B County List: A	MSCP Narrow Endemic, Covered	Absent; Obvious species not detected during surveys.
Deinandra (=Hemizonia) conjugens	Otay tarplant	Coastal scrub, valley and foothill grassland/clay; elevation 25-300 meters. Annual herb, blooms May-June	ESA: FT CESA: SE CNPS List: 1B County List: A	MSCP Narrow Endemic, Covered	Moderate to High; Known to occur in the area. Site supports adequate habitat, but was not observed during floral surveys.

Scientific Name	Common Name	Habitat	Sensitivity Listings1	City of Chula Vista MSCP Subarea and MSCP Plan Status	Occurrence Potential Within Study Area
Dudleya variegata	Variegated Dudleya	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools/clay; elevation 3-550 meters.	CNPS List: 3 County List: C	MSCP Narrow Endemic, Covered	Low Potential; Site supports limited habitat on the bluff edges.
Ericameria palmeri ssp. palmeri	Palmer's goldenbush/ Palmer's ericameria	Chaparral, coastal scrub/mesic; elevation 30-600 meters. Shrub (evergreen), blooms July-November	CNPS List: 2 County List: B	MSCP Narrow Endemic, Covered	Moderate to High Potential; Suitable habitat on-site, but was not detected during floral surveys.
Eryngium aristulatum var. parishii	San Diego button celery	Coastal scrub, valley and foothill grassland, vernal pools/mesic; elevation 20-620 meters. Annual/perennial herbs, blooms April-June	ESA: FE CESA: SE CNPS List: 1B County List: A	Covered	Absent; Occurs in vernal pools; no vernal pools occur on-site.
Ferocactus viridescens	coast barrel cactus	Native, annual, stem succulent; optimal habitat for this cactus appears to be sage scrub hillsides; often at the crest of slopes and growing among cobbles; occasionally is found on the periphery of vernal pools and mima mound topography; blooming period May-Jun.	CNPS List: 2 CNDDB: SP MSCP: CS MHCP: CS Cnty of SD List: B	Covered	Present; Occurs throughout the site with a denser population in the northwestern portion of the site.
Harpagonella palmeri	Palmer's grapplinghook	Chaparral, coastal scrub, valley and foothill grassland/clay; elevation 20-830 meters. Annual herb, blooms March-May	CNPS List: 4 County List: D	Not Covered	Present; Occurs in one location on site in the southeastern part of the site.
Holocarpha virgata ssp. elongata	graceful tarplant	Cismontane woodland, coastal scrub, valley and foothill grassland; elevation 60-1100 meters. Annual herb, blooms July-November	CNPS List: 4 County List: D	Not covered	Low Potential; No evidence of previous years growth on-site and surveys conducted during the blooming period were negative.

Scientific Name	Common Name	Habitat	Sensitivity Listings1	City of Chula Vista MSCP Subarea and MSCP Plan Status	Occurrence Potential Within Study Area
Isocoma menziesii var. menziesii	spreading goldenbush	Chaparral, coastal scrub (sand, often in disturbed areas); elevation 10-135 meters. Shrub, blooms April-November	CNPS List: 1B County List: A	Not Covered	Moderate to High Potential; Found in the adjacent property but was not found during on-site during focused plant surveys.
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	Chaparral, coastal scrub; elevation 1-500 meters. Annual herb, blooms January-July	CNPS List: 1B County List: A	Not Covered	Present; Several contigous patches are found throughout the site.
Lycium californicum	California desert-thorn/ California box thorn	Coastal bluff scrub, coastal scrub; elevation 5-150 meters	CNPS List: 4 County List: D	Not Covered	Present; Found in the western portion of the site on top of the bluff and in areas along the bluff.
Muilla clevelandii	San Diego goldenstar	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/clay; elevation 50-465 meters. Perennial herb (bulbiferous), blooms May	CNPS List: 1B County List: A	Covered	Not Expected; Found only in clay soils. Not detected during floral surveys.
Viguiera laciniata	San Diego County Viguiera	Chaparral, coastal scrub; elevation 60-750 meters.	CNPS List: 4 County List: D	Not Covered	Present; This plant is a dominate plant found throughout most of the site with coverage at the top of the bluffs in the western portion of the site and the entire southwest bluff.
INVERTEBRATES					

Scientific Name	Common Name	Habitat	Sensitivity Listings1	City of Chula Vista MSCP Subarea and MSCP Plan Status	Occurrence Potential Within Study Area
Danaus plexippus	Monarch butterfly	Roosts are located in wind-protected tree groves [eucalyptus (Eucalyptus spp.), Monterey pine (Pinus radiata) and cypress (cypress spp.)] with nectar and water sources nearby	Other: Special Animal County Group: 2	Not Covered	Not Expected; No primary host plant detected on-site; not observed during butterfly surveys.
Euphydryas editha quino	Quino checkerspot butterfly	Open grassland and openings within shrub habitats that support Dwarf Plantain (Plantago erecta)	ESA: FE Other: Special Animal County Group: 1	MSCP Narrow Endemic Species, Not Covered	Absent; Protocol survey results negative.
AMPHIBIANS					
Spea (=Scaphiopus) hammondii	western spadefoot	Prefers sandy or gravelly soil in grasslands, sage scrub, open chaparral, and pine-oak woodlands; grasslands with shallow temporary pools are optimal	DFG: CSC Other: Special Animal County Group: 2	Not Covered	Moderate Potential; Known from Otay Mesa area; can persist in low numbers in the on-site scrub and utilize on-site drainages.
REPTILES					
Anniella pulchra pulchra	silvery legless lizard	Shows a preference for areas of leaf litter and loose soil along washes, beach sand dunes, open scrub and woodland, and sandy benches along alluvial fans	DFG: CSC Other: Special Animal County Group: 2	Not covered	Not Expected; Suitable habitat not found on-site.
Aspidoscelis (=Cnemidophorus) hyperythra beldingi	orange-throated whiptail	Sage scrub (and chaparral), prefers sandy areas with patches of brush and rocks; may be associated with buckwheat and black sage	DFG: CSC Other: Special Animal County Group: 2	Covered	Present; Several individuals found throughout the entire site.
Coleonyx variegatus abbotti	San Diego banded gecko	Areas of rock outcrop within sage scrub and chaparral	Other: Special Animal County Group: 1	Not covered	Not Expected; No areas of substantial rock outcrop within on-site scrub habitats.

Scientific Name	Common Name	Habitat	Sensitivity Listings1	City of Chula Vista MSCP Subarea and MSCP Plan Status	Occurrence Potential Within Study Area
Eumeces skiltonianus interparietalis	Coronado skink	Variety of habitats including grasslands, sage scrub, and various woodlands including oak, pine, juniper, and riparian	DFG: CSC Other: Special Animal County Group: 2	Not covered	High potential; Known from the area and capable of using on-site habitats.
Phrynosoma coronatum blainvillii	San Diego horned lizard	Chaparral, sage scrub, oak woodlands, and grasslands; sometimes occurs along seldom used dirt roads where native ant species are prevalent	DFG: CSC Other: Special Animal County Group: 2	Covered	Low Potential; Some evidence of native ant species on-site but no horned lizard or horned lizard sign observed on-site.
BIRDS					
**Accipiter cooperii*	Cooper's hawk	Oak, riparian deciduous or other woodland habitats usually near water	DFG: CSC Other: Special Animal County Group: 1	Covered	High Potential; Know to occur on the adjacent property. Likely uses site for foraging.
Ammodramus savannarum	grasshopper sparrow	Occurs in native grassland or mixed grassland/sage scrub	Other: Special Animal County Group: 1	Not covered	Not Expected; No suitable grasslands on-site.
**Aquila chrysaetos*	golden eagle	Nests in cliffs (or trees), found in generally mountainous or hilly terrain; forages in grasslands, deserts, and shrubby habitats	DFG: CSC, FP Other: Special Animal County Group: 1	MSCP Narrow Endemic Species, Covered	Moderate Potential; Species known to forage near Brown Field, but prey base on site is low. No nesting habitat.
**Ardea herodias*	great blue heron	Rookerys located in tall trees near water	Other: Special Animal County Group: 2	Not covered	Absent; Species not nesting in on-site trees.
**Asio flammeus*	short-eared owl	Located in open areas with few trees such as annual and perennial grasslands, dunes, irrigated lands, and fresh and saltwater wetlands in low elevations	DFG: CSC Other: Special Animal County Group: 2	Not covered	Not Expected; Not reported from this area (Unitt 2004); typically only occurs in south San Diego Bay and Tijuana Estuary area of San Diego.

Scientific Name	Common Name	Habitat	Sensitivity Listings1	City of Chula Vista MSCP Subarea and MSCP Plan Status	Occurrence Potential Within Study Area
Athene cunicularia	burrowing owl	Occurs in open dry grasslands, agricultural, rangelands and desert habitats. Inhabits grass, forb and shrub stages of pinyon and ponderosa pine habitats as well as airports, golf courses, and vacant urban lots	DFG: CSC Other: Special Animal County Group: 1	MSCP Narrow Endemic, Covered	Absent/Low Winter Potential; No open areas and very insufficient amount of grassland habitat on-site. Most on-site burrows are located along the steep drainage banks.
**Buteo regalis*	ferruginous hawk	Dry, open habitats, typically grasslands	DFG: CSC Other: Special Animal County Group: 1	Covered	Low Potential; Reported from the area in low numbers during migration (Unitt 2004), but no grassland on-site.
Cathartes aura	turkey vulture	Open habitats with protected large trees, snags, rock outcrops, or cliffs for nesting	County Group: 1	Not covered	Low Potential; On-site habitat not suitable for this species but, may pass through site in route to the Otay Landfill.
**Circus cyaneus*	northern harrier	Occurs in grassland, agricultural fields, fresh and saltwater mashes and desert sinks	DFG: CSC Other: Special Animal County Group: 1	Covered	Present; Observed flying.
**Elanus leucurus*	white-tailed kite	Grasslands, agricultural fields, and open habitats with areas of dense deciduous trees for nesting	DFG: FP County Group: 1	Not covered	Moderate Potential; May pass through site in route to the nearby Otay River Valley habitats.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	Rocky hillsides supporting sparse, low scrub or chaparral, sometimes mixed with grasses.	DFG: CSC Other: Special Animal County Group: 1	Covered	Moderate to High Potential; Site supports suitable habitat, but was not detected during surveys in 2007.

Scientific Name	Common Name	Habitat	Sensitivity Listings1	City of Chula Vista MSCP Subarea and MSCP Plan Status	Occurrence Potential Within Study Area
Polioptila californica californica	coastal California gnatcatcher	Various successional stages of sage scrub	ESA: FT DFG: CSC Other: Special Animal County Group: 1	Covered	Present; Two pairs detected during protocol sureys. Breeding success noted during 2007 surveys.
Campylorhynchus brunneicapillus couesi	coastal cactus wren	Coastal Sage Scrub and Maritime Succulent Scrub.	DFG: CSC Other: Special Animal County Group: 1	Covered	Moderat Potential; Suitable habitat exists on-site, but this species not detected on-site during 2007 surveys.
Eremophila alpestris (actia)	(California) horned lark	Grasslands, disturbed areas and open habitats with sparse, low vegetation	DFG: CSC Other: Special Animal County Group: 2	Not covered	Not Expected; Small Amount of grasslands on-site to support this species; limited open habitat.
**Falco columbarius*	merlin	Located around agricultural fields, grasslands, and mudflats. Winter visitor to the San Diego County area	DFG: CSC Other: Special Animal County Group: 2	Not covered	Low Potential as winter visitor or migrant only; A rare winter visitor in San Diego, but recorded from the area in low numbers during migration or winter (Unitt 2004).
**Falco mexicanus*	prairie falcon	Open grassland, agricultural fields and desert scrub	DFG: CSC Other: Special Animal County Group: 1	Not covered	Low Potential; May pass through during migration or winter but not known or expected during the breeding season (Unitt 2004).
**Lanius ludovicianus*	loggerhead shrike	Found within grassland or open habitats with bare ground and sparse shrub and/or tree cover for nesting and perching	DFG: CSC Other: Special Animal County Group: 1	Not covered	Low Potential; Known to occur in the area, but no grassland habitat to support foraging for this species.

Scientific Name	Common Name	Habitat	Sensitivity Listings1	City of Chula Vista MSCP Subarea and MSCP Plan Status	Occurrence Potential Within Study Area
**Larus californicus*	California gull	Occurs in open ocean, beaches, bays, estuaries, lagoons, as well as garbage dumps, agricultural fields, and freshwater ponds and lakes	DFG: CSC Other: Special Animal County Group: 2	Not covered	Low Potential; On-site habitat not suitable for this species but, may pass through site in route to the Otay Landfill.
Vireo bellii pusillus	least Bell's vireo	Structurally diverse riparian habitat.	ESA: FE CESA: SE Other: Special Animal County Group: 1	Covered	Low to Moderate Potential Sparse riparian habitat within the on-site drainages, but this species was detected in the Otay River Valley habitat adjacent to the site during 2007 surveys.
MAMMALS					
Antrozous pallidus	pallid bat	Utilizes open forest and grassland habitats for feeding and multiple habitats for roosting	DFG: CSC Other: Special Animal County Group: 2	Not covered	Moderate Potential; Species occurs in low numbers within the Otay River watershed. Bats may be attracted on-site seasonally, when water flows, attracting food sources.
Chaetodipus californicus femoralis	Dulzura (California) pocket mouse	Found in areas of fine sandy ground, (chaparral/coastal sage scrub)	DFG: CSC Other: Special Animal County Group: 2	Not covered	Absent; On-site habitat not suitable for this species.
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	Found in coastal sage scrub	DFG: CSC Other: Special Animal County Group: 2	Not covered	Moderate Potential; On-site habitat suitable for this species.

Scientific Name	Common Name	Habitat	Sensitivity Listings1	City of Chula Vista MSCP Subarea and MSCP Plan Status	Occurrence Potential Within Study Area
Corynorhinus townsendii	Townsend's western big-eared bat	Cave rooster, feeds in forest/woodland habitats or along habitat edges within 15 km of roost site	DFG: CSC Other: Special Animal County Group: B	Not covered	Absent; On-site habitat not suitable for this species. Not detected within the MSCP (USGS 2005).
Eumops perotis	western mastiff bat	Extensive open areas with abundant roost locations in rock outcrops, (found where oaks and chaparral occur)	DFG: CSC Other: Special Animal County Group: 2	Not covered	Moderate Potential; Species occurs within the Otay River watershed. No suitable habitat on-site and limited seasonal water.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	Relatively open chaparral and sage scrub and grasslands	DFG: CSC Other: Special Animal County Group: 2	Not covered	Absent; Numerous field visits did not record this species, even during peak activity time surveys.
Myotis yumanensis	Yuma myotis	Utilizes multiple habitats (primarily woodlands and forests) but forages over water	Other: Special Animal County Group: 2	Not covered	Moderate Potential; Species occurs within the Otay River watershed. Bats may be attracted to the on-site drainages seasonally when water flows, attracting food sources.
Nyctinomops femorosaccus	pocketed free-tailed bat	Cliff rooster, feeds in multiple habitats	DFG: CSC Other: Special Animal County Group: 2	Not covered	Moderate Potential; Species occurs within the Otay River watershed. Bats may be attracted to the on-site drainages seasonally when water flows, attracting food sources.

Scientific Name	Common Name	Habitat	Sensitivity Listings1	City of Chula Vista MSCP Subarea and MSCP Plan Status	Occurrence Potential Within Study Area
Nyctinomops macrotis	big free-tailed bat	Cliff rooster, prefers rugged, rocky canyons, feeds in multiple habitats including over water	DFG: CSC Other: Special Animal County Group: 2	Not covered	Absent; On-site habitat not suitable for this species (not rugged, rocky, limited seasonal water). This species is localized.
Odocoileus hemionus fuliginata	southern mule deer	Chaparral and open forest habitats with abundant edge and interspersed riparian habitat	County Group: 2	Not covered	Absent; On-site habitat not suitable for this species, insufficient cover within the vicinity.
Onychomys torridus ramona	southern grasshopper mouse	Typically within (native) grasslands or sage scrub, where friable soils occur on relatively flat terrain with high densities of shrubs and mixed grasses	DFG: CSC Other: Special Animal County Group: 2	Not covered	Low Potential; Suitable habitat exists on site but limited native grasses and this species' susceptibility to fragmentation create low potential.
Taxidea taxus	American badger	Grasslands and open scrub habitats	DFG: CSC Other: Special Animal County Group: 2	Not covered	Low Potential; Very little grassland habitat on-site.

[1]**Sensitivity Listings**

Endangered Species Act (ESA) Listing Codes: FE = Federally-listed as Endangered; FT = Federally-listed as Threatened;

California Endangered Species Act (CESA) Listing Codes: SE = State-listed as Endangered

California Department of Fish and Game (DFG) Listing Codes: CSC = California special concern species; FP = California fully protected species

California Native Plant Society (CNPS) Listing Codes: List of Species Designation: 1A = Plants presumed extinct in California; 1B = Plants rare, threatened, or endangered in California and elsewhere; 2 = 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)

Other Listing Codes: Special Plants/Animals = A general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status; these taxa fall into one of the above categories and/or one or more of the following categories: 1) Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the CEQA Guidelines; 2) A Bureau of Land Management (BLM), USFWS, or U.S. Forest Service (USFS) Sensitive Species; 3) Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or have a critical, vulnerable stage in their life cycle that warrants monitoring, but not currently threatened with extirpation; 4) Populations in California that may be on the periphery of a taxon's range, but are threatened with extirpation in California; 5) Taxa closely associated with a habitat that is declining in California at an alarming rate (*e.g.*,

wetlands, riparian, old growth forests, desert aquatic systems, native grasslands, valley shrubland habitats, vernal pools, etc.); and 6) Taxa designated as a special status, sensitive, or declining species by other state or federal agencies, or non-governmental organization (NGO)
County of San Diego Listing Codes: Plants; List A = Plants rare, threatened or endangered in California and elsewhere; List B = Plants rare, threatened or endangered in California but more common elsewhere; List C = Plants which may be quite rare, but need more information to determine their true rarity status; List D = Plants of limited distribution and are uncommon, but not presently rare or endangered; Animals; Group 1 = Animals rare, threatened or endangered in California and elsewhere; Group 2 = Animals rare, threatened or endangered in California but more common elsewhere
*Sensitivity status applies to nesting/wintering sites only (or burrow sites for the burrowing owl)
Sensitivity Listing References: CDFG 2007 and CDFG 2006; County 2006

During protocol and focused surveys, 2 distinct coastal California gnatcatcher pairs were found utilizing the on-site maritime succulent scrub. One pair occupied the habitat east of the central drainage and the second pair was observed in the western portion of the site. The eastern pair was observed feeding 3 fledglings in late June 2007, providing evidence of successful breeding on-site. For details regarding the methodology of the gnatcatcher protocol surveys, see Appendix 6.

A California thrasher commonly called in the northwestern part of the site where the maritime succulent scrub meets the drainage. No thrasher fledglings were observed throughout the 2007 surveys; however, no specific surveys were performed to determine breeding status of this species. Additionally, due to the repeted presence of California thrasher it is likely that nesting was at least attempted.

A male northern harrier was repeatedly observed flying over the site, but there was no evidence of this species nesting on-site or within 100 feet of the site.

Sensitive Habitats

The biological resources on-site are dominated by species that are considered sensitive resources by Federal, State, and Local jurisdictions. Several sensitive flora and fauna species were observed/detected within maritime succulent scrub vegetation. According to the City MSCP Subarea Plan, on-site sensitive biological resources include lands containing natural vegetation and/or wetlands; and/or habitat occupied by covered species, other listed, non-covered species, and/or narrow endemic species. Thus, on-site sensitive biological resources include maritime succulent scrub, non-native grassland, southern willow scrub, mule fat scrub, and tamarisk scrub.

PROJECT EFFECTS/IMPACTS

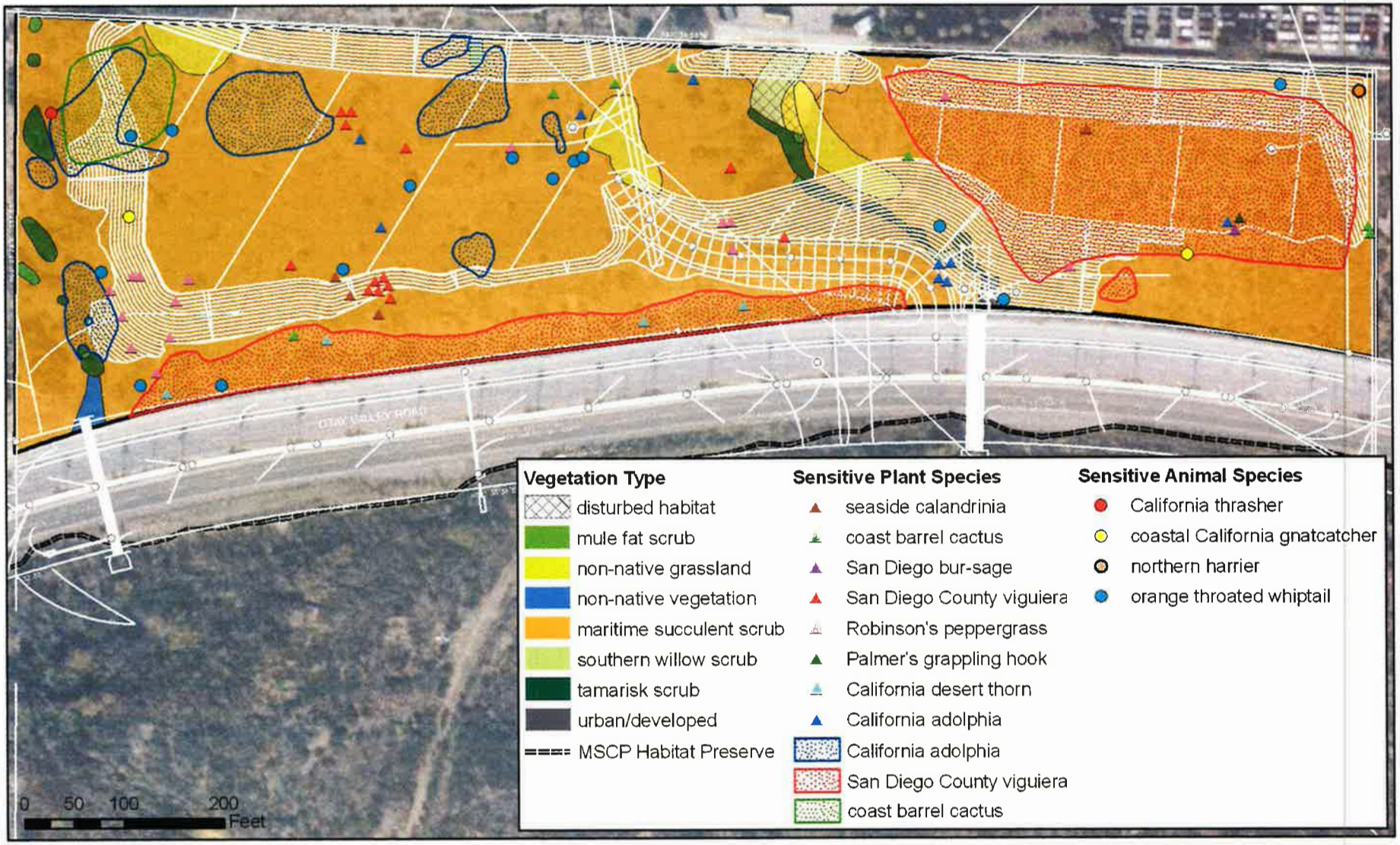
The following analysis identifies potential impacts to biological resources that could result from implementation of the proposed project, and addresses the significance of these impacts pursuant to CEQA and the City of Chula Vista MSCP Subarea Plan (February 2003) (Figure 4).

Project impacts are categorized pursuant to CEQA (as defined below) as direct, indirect, or cumulative impacts:

- CEQA Guidelines §15358 (a) (1) and (b) (Title 14, Chapter 3, Article 20) defines a "direct impact or primary effect" as "effects which are caused by the project and occur at the same time and place" and relate to a "physical change" in the environment.
- CEQA Guidelines §15358 (a) (2) and (b) (Title 14, Chapter 3, Article 20) defines an "indirect impact or secondary effect" as "effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable" and relate to a "physical change" in the environment.
- CEQA Guidelines §15355 (a) (Title 14, Chapter 3, Article 20) defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.

DIRECT IMPACTS

Direct impacts are defined under CEQA guidelines as "effects which are caused by the project and occur at the same time and place" and produce a temporary or permanent biologically significant, "physical change" in the environment (California Resources Agency 2005, §15358).



Biological Impacts

Chula Vista Main Street West Project

Figure 4

Merkel & Associates, Inc.

Proposed or potential project biological effects have been evaluated based on examination of the proposed plot plan within the context of documented and expected project site biological resources. Using ArcView®, project plans were overlaid with vegetation communities/habitats and sensitive biological resources to quantify biological impacts.

Impacts to sensitive wildlife species are based on an analysis of whether or not direct impacts would occur where the species was identified on-site and whether or not impacts are proposed within similar suitable and potentially occupied habitat within the study area. Impacts to sensitive wildlife species as a result of project implementation are anticipated due to the loss of suitable and, in some cases, occupied habitat.

Special Status Species

Per the current project design, permanent, direct impacts would occur to several sensitive species including approximately, 25 Palmer's grapplinghook plants, along with 3 patches of seaside calendrinia, and one patch of San Diego bur-sage. Extensive tracts of San Diego viguiera, California adolphia, Robinson's peppergrass, and coast barrel cactus would also incur permanent and direct impacts. Although designated as special status species, these species are quite common in the region (Reiser 2001) and the proposed on-site loss would not limit the species' range or long-term survival. Impacts would not be considered significant to these species.

The proposed project would result in permanent, direct impacts to the federally-listed, threatened coastal California gnatcatcher. Two pairs of gnatcatchers will be displaced due to almost the complete loss of their territories within the maritime succulent scrub habitat. These impacts would be significant under CEQA. The proposed project would result in temporary direct impacts to the federally-listed, threatened coastal California gnatcatcher occurring on the adjacent property to the east. Gnatcatchers located on the adjacent property will be temporarily affected by noise resulting from construction. Additionally, the loss of the on-site maritime succulent scrub will affect their available foraging habitat.

California thrasher would be limited by the extent of the proposed impacts to suitable habitat and the small size of their study area populations. This species does not ocurr on-site in significant numbers; however, most of its surrounding habitat will be cleared by the proposed project. It is likely this species would need to relocate in order to find suffienciet foraging grounds. Because this species was documented in only one location on site, the proposed losses would not affect regional long-term survival of the California thrasher.

Impacts to turkey vulture, white-tailed kite, ferruginous hawk, merlin, prarie falcon, loggerhead shrike, California gull, and rufous-crowned sparrow may occur through loss of suitable habitats; however, none of these species or their nests were observed on-site. Impacts to these widely distributed and relatively common species are not expected to occur from the proposed project. No implications from impacts to the survival of any of these are anticipated due to the lack of use of the study area by these species.

Orange-throated whiptail would lose most of its suitable on-site habitat through the loss of the maritime succulent scrub and non-native grassland. Since the on-site populations are expected to be small relative to the regional population, proposed impacts would not substantially reduce this species' range or affect its regional long-term survival, and impacts would not be significant.

Although there is potential for western spadefoot, Coronado skink, and San Diego horned lizard to occur on-site, these species were not detected and none of these species is expected to occur within the study area in numbers that would be substantial. The amount of study area habitat that is uniquely appropriate for the fore mentioned species would not be sufficient to sustain a significant population; therefore, no significant impacts are expected for these species.

Although the pallid bat, pocketed free tailed bat, Yuma myotis, and western mastiff bat, are known to occur in the Otay River Watershed, on-site foraging is likely to occur seasonally when water is flowing in the on-site drainages. None of these bat species are expected to roost on-site due to the lack of preferred roosting habitat. The loss of this relatively small (regionally) area of foraging is not expected to affect population viability for any of these species due to the close proximity of the Otay River and the available food resources found there.

Southern grasshopper mouse preferred habitat exists on-site; however, disturbance to the scrub habitat and the absence of native grasslands would limit this species presence on-site. Since this species would occur in low numbers and has a wide distribution, it is not expected that loss of this species, if it occurs on-site, would be significant. Similarly, the same rational applies to the Northwestern San Diego pocket mouse, since this species would occur at low densities and is relatively wide spread in its distribution, it is not expected that a loss of a portion of the study area population would be impactive to population viability.

Vegetation Communities

The project would permanently remove sensitive native and naturalized habitats, including, maritime succulent scrub, non-native grassland, southern willow scrub, mule fat scrub, and tamarisk scrub from the study area (Table 5.). These impacts would be significant and require habitat-based mitigation.

Table 5. Summary of Impacts to Habitat/Vegetation Communities

Vegetation Type	MSCP Tier Habitat Type	Existing Acreage	Impacted Acreage
Maritime Succulent Scrub	Tier I	8.92	6.54
Southern Willow Scrub	Wetland	0.06	0.06
Mule Fat Scrub	Wetland	0.02	0.01
Tamarisk Scrub	Wetland	0.13	0.07
Non-Native Grassland	Tier III	0.29	0.29
Non-Native Vegetation	Tier IV	0.03	0.00
Disturbed Habitat	Tier IV	0.15	0.15
Urban/Developed	Tier IV	0.01	0.01
Total:		**9.61**	**7.13**

Jurisdictional Wetlands and Waterways

The current project plans show permanent impacts to the central jurisdictional wetlands and riparian habitats as defined by the ACOE, the CDFG and the City (Table 6), and includes removal of vegetation; grading; obstruction or diversion of water flow; adverse change in velocity, siltation, volume of flow, or runoff rate; placement of fill; placement of structures; construction of a road crossing; placement of culverts and underground piping through disturbance of the substratum.

Table 6. Jurisdictional Wetlands Resources Direct Impacts

Wetland Vegetation Community	Existing Jurisdictional Acreage	Impact Acreage	Total
		ACOE/ CDFG/City	
Riparian Scrub	0.4	0.3	0.3
Total:	**0.4**		

The proposed project could result in direct impacts to the jurisdictional wetlands and waterways along the western boundary of the property during construction activities. These impacts would be significant, and would require implementation of avoidance measures to reduce impacts to a level below significance.

INDIRECT IMPACTS

Indirect impacts are defined under CEQA guidelines as "effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable" and produce a temporary or permanent biologically significant, "physical change" in the environment (California Resources Agency 2005, §15358).

You also need to address indirect impacts both on-site, to the western drainage, and off-site to the Otay River. Here is some example text for the on-site drainage: The proposed project could result in indirect impacts to the jurisdictional waterway along the eastern boundary of the property through runoff, etc. after project development. These impacts would be significant, and would require that the project design include an appropriate buffer to adequately ensure a no-net-loss of wetlands function and values.

Northern harrier and Cooper's hawk could be indirectly impacted by loss of foraging habitat. The project is expected to result in a loss of "functional foraging habitat for raptors" predominantly through the loss of non-native grassland and maritime succulent scrub. No suitable nesting habitat exists on site for these species.

Indirect impacts as a result from edge effects may occur to California desert thorn; however, this species occurs in such low numbers on-site that it woud not significantly impact the overall population.

South coast saltscale, Orcutt's brodiaea, and variegated dudleya are floral species not observed within the study area and with a low potential for occurrence within the study area. Otay tarplant, Palmer's goldenbush, and spreading goldenbush are known to occur in the adjacent property but were not detected during rareplant surveys. Based on the lack of detected presence during the focused rare plant surveys, no impacts are expected to occur to any of these species.

Least Bell's vireo was detected adjacent to the site in the Otay River Valley. Low quality but suitable habitat for this species occurs on site. Because the adjacent Otay River contains higher quality habitat where food and nesting sources are abundant, it is likely this species will persist adjacent to and not on the site. If this species were to occupy the site, impacts to suitable least Bell's

vireo habitat would be significant. Although this species was detected adjacent to the site, the location where the vireo was detected occurs across Main Street where ambient noise levels from street traffic are likely louder than what would be caused by project construction. No significant impacts to least Bell's vireo are anticipated.

Golden eagle was not detected on-site but, is known to forage to the south of the site near Brown Field. Based on the low prey base found on-site, it is not likely this species utilizes the site. No impacts are expected to occur to this species.

CUMMULATIVE IMPACTS

Cumulative impacts are defined under CEQA guidelines as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (California Resources Agency 2005, §15355).

The MSCP was designed to compensate for the loss of biological resources throughout the program's region; therefore, projects that conform to the MSCP, as specified in the City's Subarea Plan, would not result in cumulatively considerable impacts for those biological resources adequately covered by the program. The aforementioned direct and indirect impacts resulting from the proposed project should not be cumulatively considerable if the Project Mitigation Measures are implemented to ensure conformance with the City MSCP Subarea Plan.

MITIGATION MEASURE RECOMMENDATIONS AND DESIGN CONSIDERATIONS

VEGETATION COMMUNITIES

Mitigation of vegetation communities shall be within a habitat tier equal to or greater than the impact site and shall be mitigated pursuant to HLIT mitigation standards (Table 5-3 City of Chula Vista Subarea Plan 2003). Impacts to maritime succulent scrub can be mitigated through preservation of maritime succulent scrub within the City's Preserve lands through acquisition of mitigation bank credits at ratio of 1:1. If acquisition of mitigation bank credits were obtained outside of the Preserve through purchase of land or through other mitigation banks, a ratio of 2:1 would apply. Similarly, impacts to non-native grassland could be mitigated through acquisition of mitigation bank credits within the Preserve at a ratio of 0.5:1. If non-native grassland mitigation takes place ouside of the Preserve, a mitigation ratio of 1:1 applies. However, to ensure complete assembly of the Preserve as planned by the Subarea Plan, the City encourages all mitigation be conducted within the Preserve.

Table 7. Mitigation Ratios and Acreages

Habitat Type	Habitat Tier	Acres Impacted	Mitigation Ratio		Mitigation Acreage	
			Inside Preserve	Outside Preserve	Inside Preserve	Outside Preserve
Maritime Succulent Scrub	Tier I	6.54	1:1	2:1	6.54	13.08
Non-Native Grassland	Tier III	0.29	0.5:1	1:1	0.15	0.29
Total		**6.83**				

SENSITIVE SPECIES

The following management directives, as identified in the City MSCP Subarea Plan, should be followed for each of the following MSCP covered species found on-site:

San Diego Barrel Cactus
Include measures to protect this species from edge effects and unauthorized collection. Directives shall also include appropriate fire management/control practices to protect against a too frequent fire cycle.

Orange-throated Whiptail
Area-specific management directives must address edge effects.

Northern Harrier
Area-specific management directive must manage agricultural and disturbed lands (which become part of the preserve) within 4 miles of nesting habitat to provide foraging habitat. Management must include an impact avoidance area (900 feet maximum possible within the preserve) around active nests. Measures for maintaining winter foraging habitat in preserve areas in Proctor Valley, around Sweetwater Reservoir, San Miguel ranch, Otay ranch east of Wueste Road, Lake Hodges, and San Pasquel Valley must be included. The preserve management coordination group shall corrdinate efforts to manage for wintering northern harriers' foraging habitat within the MSCP preserve.

Coastal California Gnatcatcher
Area-specific management directives must include measures to reduce edge effects and minimize disturbance during the nesting period, fire protection measures to reduce the potential for habitat degradation due to unplanned fire, and management measures to maintain or improve habitat quality including vegetation structure. No clearing of occupied habitat shall occur from March 1 through August 15.

JURISDICTIONAL WETLANDS

Pursuant to the City MSCP Subarea Plan, wetlands protection will be provided through individual project entitlement reviews and the associated CEQA process. The process will provide evaluation of wetlands avoidance and minimization and will ensure compensatory mitigation within the City Subarea for unavoidable impacts to wetlands. For unavoidable impacts to wetlands, the City will apply a wetland mitigation ratio of 1:1 to 2:1 for riparian scrub. These ratios provide a standard for riparian scrub but may be adjusted depending on the functions and values of both the impacted wetlands as well as the wetlands mitigation proposed by the project. Any adjustments would be left to the discrecretion of the regulatory agencies and the City.

Impacts to jurisdictional wetlands and non-wetland waters of the U.S./streambed shall require the following permits by regulatory federal and state agencies: 1) ACOE, CWA, Section 404 permit for placement of dredged or fill material within waters of the U.S., 2) RWQCB, CWA, Section 401 state water quality certification/waiver for an action that may result in degradation of waters of the State, and 3) CDFG, California Fish and Game Code, Section 1602 agreement for alteration of a streambed. The mitigation can occur in the form of creation or creation combined with enhancement; however, the mitigation cannot result in a net-loss of wetland habitat or wetland functions and values. Therefore, a minimum 1:1 creation ratio must be applied toward any jurisdictional impacts.

To prevent impacts to sensitive habitats outside of the development footprint, the project boundary shall be delineated with orange construction fencing and silt fencing. The orange constructing fence will function as a clear visible delineation between the construction area and the open space area, while establishing a barrier discouraging wildlife and humans from entering the impact area. The silt fence will protect the open space land from project related erosion, siltation, or run-off. In addition, Best Management Practices (BMPs) shall be used to prevent erosion and siltation and ensure compliance with issued permits and map conditions.

The development of a conceptual mitigation, maintenance, and monitoring plan will be required for the wetland mitigation. This plan is a requirement of both the federal and state wetland permit applications. This plan should include details regarding grading, irrigation design, and planting specifications, as well as maintenance and monitoring procedures. The plan should also outline yearly success criteria and remedial measures should the mitigation effort fall short of the success criteria. Any wetland mitigation that cannot be achieved through on-site restoration and enhancement should be performed off-site, but preferably within the same local watershed; however, off-site mitigation would require higher mitigation ratios. Alternatively, the mitigation obligations may also be satisfied by participating in a fee-based mitigation program through a wetland mitigation bank. The proposed mitigation is subject to the resource agencies' review and discretion; thus, the mitigation obligations for the impacts to jurisdictional wetland habitats may change from what has been recommended here.

ADJACENT CONSERVATION LANDS

Because the site is located adjacent to a 100% conservation area the City will require the project proponet to address adjacency management issues to include the following:

a. Drainages

1. All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials, and other elements that might degrade or harm the natural environment or ecosystem processes within the Preserve.
2. Develop and implement urban runoff and drainage plans which will create the least impact practicable for all development adjacent to the Preserve. All development projects will be required to meet National pollution Discharge Elimination System Permit (NPDES) standards and incorporate Best Management Practices (BMP) as defined by the City's Standard Urban Storm Mitigation Plan (SUSMP).
3. Pursuant to the San Diego Regional Water Quality Control Board Municipal Permit (RWQCB), and the City Storm Water Management Standards Requirements Manual, which includes the SUSMP, all development and redevelopement located within or directly aadjacent to or discharging directly to an environmentally sensitive area (as defined by the Municipal Permit and the Local SUSMP) are required to implement site design, source control, and treatment control BMP's.

b. Toxic Substances

All agricultural uses, including animal-keeping activities, and recreational uses that use chemicals or general by-products such as manure, potentially toxic or impactive to wildlife, sensitive species, habitat, or water quality need to incorporate methods on their site to reduce impacts caused by the application and/or drainage of such materials into the Preserve. Methods shall be consistent with requirements of the RWQCB and NPDES standards.

c. Lighting

Lighting should be directed away from the Preserve wherever feasible and consistent with public safety. Development should provide adequate shielding with non-invasive plant materials (preferably native), berming, and/or other methods to protect the Preserve and sensitive species from night lighting. Consideration should be given to the use of low-pressure sodium lighting.

d. Noise

Use adjacent to the Preserve should be designed to minimize noise impacts. Berms or walls should be constructed adjacent to commericial areas and any other use that may introduce noises that could impact or interfere with wildlife utilization in the Preserve. Excessively noisy uses or activities adjacent to breeding areas, including temporary grading activities, must incorporate noise reduction measures or be curtailed during the breeding season of sensitive bird species, consistent with Table 3-5 of the MSCP Subregional Plan.

Where noise associated with clearing, grading or grubbing will negatively impact an occupied nest for least Bell's vireo during the breeding season (March 15 to September 15), noise levels should not exceed 60 LEQ.

Where noise associated with clearing, grading or grubbing will negatively impact an occupied nest for raptors between January 15 and July 31 or the coastal California gnatcatcher between February 15 and August 15 (during the breeding season), construction activities will be modified if necessary, to prevent noise from impacting the breeding success of the pair. If an occupied raptor or coastal Claifornia gnatcatcher nest is identified in a pre-construction survey, noise reduction techniques shall be incorporated into the construction plans.

e. Invasives

No invasive non-native plant species shall be introduced into areas immediately adjacent to the Preserve. All open space slopes immediately adjacent to the Preserve should be planted with native species that reflect the adjacent habitat. The plant list contained in the "Wildland/Urban Interface: Fuel Modifications Standards," must be reviewed and utilized to the maximum extent practicable when developing landscaping plans in areas adjacent to the Preserve.

f. Buffers

There are no buffer requirements outside of the Preserve; however, buffers for wetlands pursuant to Federal and or State permits, or by local agency CEQA mitigation conditions would apply.

CONCLUSIONS

The habitat based mitigation measures for maritime succulent scrub and non-native grasslands and management of the mitigation lands through the City's Perserve management plans or the development and application of a Resource Management Plan through lands outside of the Preserve should reduce habitat impacts to less than significant.

Significant impacts will directly occur to coastal California gnatcatcher through habitat loss and will be mitigated to a level below significance through in-kind, habitat-based mitigation and breeding avoidance measures.

Raptor foraging impacts shall be mitigated through habitat-based mitigation, specifically, preservation of non-native grasslands within the City's Preserve lands. Habitat-based mitigation for raptor foraging would reduce habitat impacts to less than significant.

Significant impacts to wetlands are anticipated under the proposed project. For the unavoidable impacts to the wetlands, federal and state permits will be required and the City will apply a wetland mitigation ratio of 1:1 to 2:1 for riparian scrub. Additionally, mitigation application of the project's Storm Water Management Plan and Storm Water Pollution Prevention Plan as well as construction BMP's should avoid any indirect impacts to both on-site and off-site jurisdictional wetlands and waterways.

Application of the Preserve adjacency measures listed in Section 5.4 would avoid impacts to adjacent open space lands.

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APPENDIX 1. JURISDICTIONAL WETLAND DELINEATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Chula Vista Main Street West City/County: Chula Vista, San Diego Sampling Date: 5/10/07

Applicant/Owner: Mr. Kevin O'Neil State: CA Sampling Point: DP1

Investigator(s): Antonette Gutierrez, Kyle Ince Section, Township, Range: 20, 18 South, 1 West

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope (%): 9-30%

Subregion (LRR): LRRC Lat: 32.5941833 Long: -117.0116055 Datum: NAD83

Soil Map Unit Name: Diablo-Olivenhain Complex NWI classification: Palustrine

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

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

Are Vegetation No, Soil No, or Hydrology No 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 X No _____
Hydric Soil Present?	Yes _____ No _____	
Wetland Hydrology Present?	Yes _____ No _____	

Remarks:

All 3 wetland perameters present in mule fat scrub habitat, jurisdictional under ACOE, CDFG, and City.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. Baccharis salicifolia	60	Yes	FACW
2. Typha domingensis	20	Yes	OBL
3.			
4.			
5.			
Total Cover:	80		
Herb Stratum			
1. Polypogon monspeliensis	40	Yes	FACW
2. Lolium multiflorum	40	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	80		
Woody Vine Stratum			
1. none			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No _____

Remarks:

MFS with freshwater mark components.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Chula Vista Main Street West City/County: Chula Vista, San Diego Sampling Date: 5/10/07

Applicant/Owner: Mr. Kevin O'Neil State: CA Sampling Point: DP2

Investigator(s): Antonette Gutierrez, Kyle Ince Section, Township, Range: 20, 18 South, 1 West

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope (%): 9-30%

Subregion (LRR): LRRC Lat: 32.5941833 Long: -117.0116055 Datum: NAD83

Soil Map Unit Name: Diablo-Olivenhain Complex NWI classification: Palustrine

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

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

Are Vegetation No, Soil No, or Hydrology No 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 X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

All three wetland parameters present in tamarisk scrub. Jurisdictional under ACOE, CDFG, and City.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix parviflora	100	Yes	FAC
2.			
3.			
4.			
Total Cover:	100		
Sapling/Shrub Stratum			
1. Typha domingensis	30	Yes	OBL
2.			
3.			
4.			
5.			
Total Cover:	30		
Herb Stratum			
1. Polypogon monspeliensis	5	Yes	FACW
2. Lolium multiflorum	5	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	10		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

Tamarisk scrub habitat.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Chula Vista Main Street West City/County: Chula Vista, San Diego Sampling Date: 5/10/07

Applicant/Owner: Mr. Kevin O'Neil State: CA Sampling Point: DP3

Investigator(s): Antonette Gutierrez, Kyle Ince Section, Township, Range: 20, 18 South, 1 West

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope (%): 9-30%

Subregion (LRR): LRRC Lat: 32.5943805 Long: -117.0119888 Datum: NAD83

Soil Map Unit Name: Diablo-Olivenhain Complex NWI classification: Palustrine

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

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

Are Vegetation No, Soil No, or Hydrology No 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 X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

All 3 wetland parameters present in southern willow scrub habitat. Jurisdictional under ACOE, CDFG, and City.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	100	Yes	FACW
2.			
3.			
4.			
Total Cover:	100		
Sapling/Shrub Stratum			
1. Tamarix parviflora	40	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	40		
Herb Stratum			
1. Lolium multiflorum	35	Yes	FACW
2. Polypogon monspeliensis	35	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	75		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

Southern willow scrub dominated by 1 large willow tree.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Chula Vista Main Street West City/County: Chula Vista, San Diego Sampling Date: 5/10/07

Applicant/Owner: Mr. Kevin O'Neil State: CA Sampling Point: DP4

Investigator(s): Antonette Gutierrez, Kyle Ince Section, Township, Range: 20, 18 South, 1 West

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope (%): 9-30%

Subregion (LRR): LRRC Lat: 32.5946444 Long: -117.0119222 Datum: NAD83

Soil Map Unit Name: Diablo-Olivenhain Complex NWI classification: Palustrine

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

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

Are Vegetation Yes, Soil Yes, or Hydrology Yes naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:
Unauthorized activities; total removal of native vegetation, placement of fill material in the form of soil and rip-rap over hydric soils, and construction of a drainage system (placement of a 2.5 foot drainage pipe). Unauthorized activities took place between September 2004 and March 2005.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No _____

Remarks:

All southern willow scrub habitat vegetation has been cleared. All vegetation has been covered by fill material including soil and rip-rap. Previous vegetation included southern willow scrub habitat dominated by OBL Lance-leaf willow (Salix lucida sp. lasiandra), and FACW mule fat (Baccharis salicifolia). Documented evidence includes recent aerial photographs and previous site inspections.

APPENDIX 2. WETLAND PHOTO POINTS

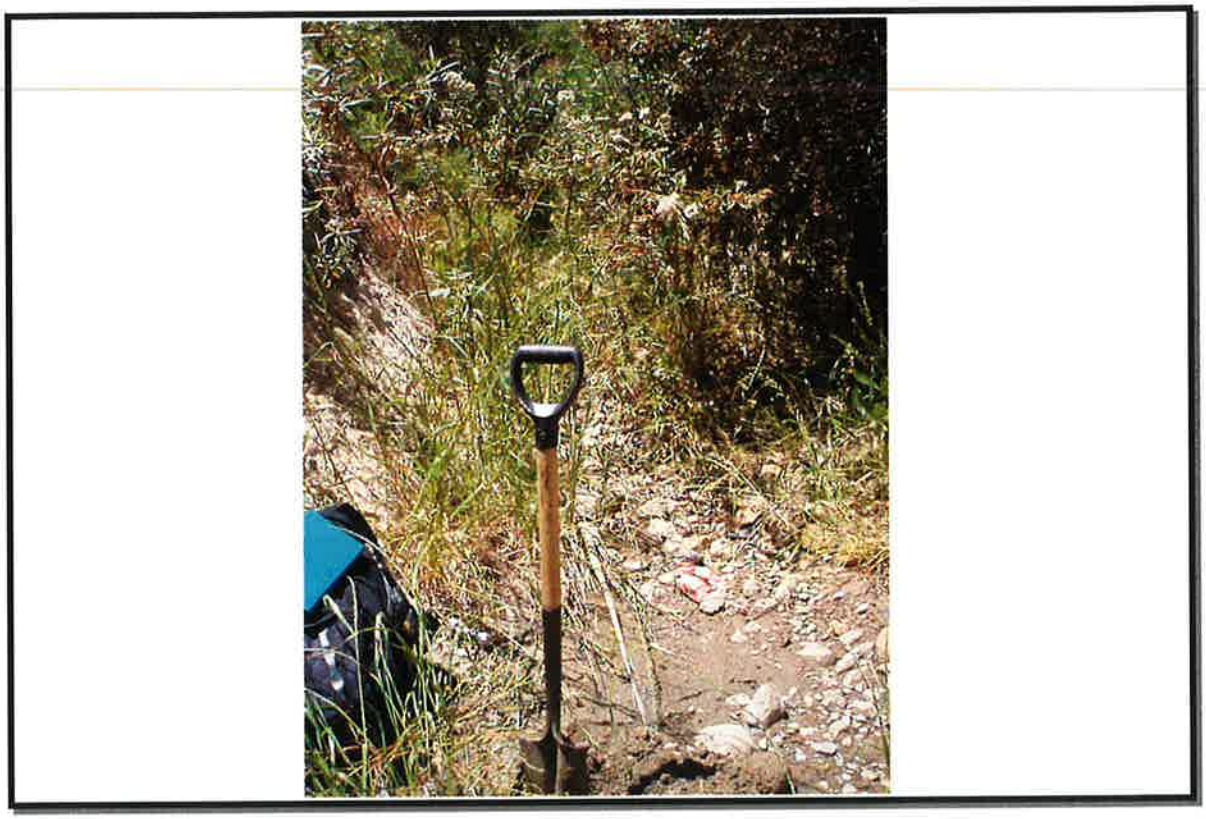

Photo Point 1. Mule fat scrub jurisdictional under ACOE, CDFG, and City.

Photo Point 2. Tamarisk scrub jurisdictional under ACOE, CDFG, and City.

Photo Point 3. Southern willow scrub habitat jurisdictional under ACOE, CDFG, and City.

Photo Point 4. Atypical situation. Altered wetland. Cleared southern willow scrub, currently riprap and non-native vegetation.

APPENDIX 3. FLORA SPECIES OBSERVED ON-SITE

Habitat Types:

MSS	=	Maritme Succulent Scrub
MFS	=	Mule Fat Scrub
SWS	=	Southern Willow Scrub
TS	=	Tamarisk Scrub
NNG	=	Non-native Grassland
NNV	=	Non-native Vegetation

* = Denotes non-native flora species.

Scientific Name	Common Name	Habitat
DYCOTYLEDONS		
Adoxaceae – Adoxa Family		
Sambucus mexicana C. Presl	blue elderberry	TS, MSS
Aizoaceae – Fig-Marigold Family		
**Mesembryanthemum crystallinum* L.	crystalline iceplant	NNV
Amaranthaceae - Amaranth Family		
**Atriplex semibaccata* R. Br.	Australian saltbush	NNG
**Salsola tragus* L.	Russian thistle, tumbleweed	NNV, MSS
Anacardiaceae - Sumac Family		
Malosma laurina (Nutt.) Abrams	laurel sumac	MSS
Rhus integrifolia (Nutt.) Brewer & S. Watson	lemonadeberry	MSS
Apiaceae - Carrot Family		
Apiastrum angustifolium Nutt.	mock parsley	MSS
**Daucus carota* L.	carrot, Queen Anne's lace	MSS
Apocynaceae - Dogbane Family		
Sarcostemma cynanchoides Decne ssp. *hartwegii* (Vail) R. Holm	climbing milkweed	MSS
Asteraceae - Sunflower Family		
Ambrosia chenopodiifolia (Benth.) Payne	San Diego bur-sage	MSS
Ambrosia confertiflora DC.	weak-leaf bur ragweed	MSS
Artemisia californica Less.	California sagebrush	MSS
Baccharis salicifolia (Ruíz Lopez & Pavón) Pers.	mule fat, seep-willow	MFS
**Centaurea melitensis* L.	tocalote	NNV,MSS
**Chrysanthemum coronarium* L.	garland, crown daisy	MSS,NNV
Deinandra fasciculata (DC.) E. Greene	fascicled tarplant	MSS
Encelia californica Nutt.	California encelia	MSS
Eriophyllum confertiflorum (DC.) A. Gray var. *confertiflorum*	long-stem golden-yarrow	MSS
**Hypochaeris glabra* L.	smooth cat's-ear	MSS
Isocoma menziesii (Hook. & Arn.) G. L. Nesom var. *menziesii*	spreading goldenbush	TS, MSS
**Lactuca serriola* L.	prickly lettuce	NNV, MSS
Lasthenia gracilis (DC.) E. Greene	common goldfields	MSS
Pseudognaphalium biolettii Anderb.	bicolor cudweed	MSS
Uropappus lindleyi (DC.) Nutt.	silver puffs	MSS
Viguiera laciniata A. Gray	San Diego County viguiera	MSS

Scientific Name	Common Name	Habitat
Boraginaceae - Borage Family		
Amsinckia menziesii var. *intermedia* J. F. Macbr.	large-flower fiddleneck	MSS
Cryptantha intermedia (A. Gray) E. Greene	nievitas cryptantha	MSS
Cryptantha micromeres (A. Gray) E. Greene	minute-flower cryptantha	MSS
Harpagonella palmeri A. Gray	Palmer's grappling hook	MSS
Plagiobothrys collinus (Philbr.) I.M. Johnston var. *californicus* (A. Gray) Higgins	California popcornflower	MSS
**Brassica nigra* (L.) Koch	black mustard	NNG,MSS
**Hirschfeldia incana* (L.)Lagr.-Fossat	short-pod mustard	NNG, MSS
Lepidium virginicum L. var. *robinsonii* (Thell.) C. Hitchc.	Robinson's peppergrass	MSS
Cactaceae - Cactus Family		
Cylindropuntia prolifera (Engelm.) F. M. Knuth	coast cholla	MSS
Ferocactus viridescens (Torrey & A. Gray) Britton & Rose var. *viridescens*	coast barrel cactus	MSS
Mammillaria dioica M. K. Brandegee	fish-hook cactus	MSS
Opuntia littoralis (Engelm.) Cockerell	coast prickly-pear	MSS
Capparaceae - Caper Family		
Isomeris arborea Nutt.	Bladderpod	MSS
Caryophyllaceae - Pink Family		
**Spergula arvensis* L.	stickwort, starwort	NNV,MSS
Convolvulaceae - Morning-Glory Family		
Calystegia macrostegia (E. Greene) Brummit ssp. *arida* (E. Greene) Brumm.	southern California morning-glory	MSS
Crassulaceae - Stonecrop Family		
Dudleya edulis (Nutt.) Moran	ladies-fingers	MSS
Dudleya pulverulenta (Nutt.) Britton & Rose	chalk dudleya/lettuce	MSS
Euphorbiaceae - Spurge Family		
Chamaesyce albomarginata (Torrey & Gray) Small	rattlesnake spurge, white-margin sandmat	MSS
Fabaceae - Pea Family		
Lotus scoparius (Nutt.) Ottley var. *brevialatus* Ottley	short-wing deerweed	MSS
Gentianaceae - Gentian Family		
Centaurium venustum (A. Gray) Robinson	canchalagua	MSS
Geraniaceae - Geranium Family		
**Erodium cicutarium* (L.) L'Hér.	red-stem filaree	NNV,MSS
Hydrophyllaceae - Waterleaf Family		
Emmenanthe penduliflora Benth. var. *penduliflora*	whispering bells	MSS

Scientific Name	Common Name	Habitat
Eucrypta chrysanthemifolia (Benth.) E. Greene var. *chrysanthemifolia*	common eucrypta	MSS
Phacelia cicutaria E. Greene var. *hispida* (A. Gray) J. Howell	caterpillar phacelia	MSS
Pholistoma racemosum (Nutt.) Constance	San Diego/Nuttall's fiesta flower	MSS
Lamiaceae - Mint Family		
Salvia apiana Jepson	white sage	MSS
Salvia columbariae Benth.	Chia	MSS
Papaveraceae - Poppy Family		
Eschscholzia californica Cham.	California poppy	MSS
Plantaginaceae - Plantain Family		
Antirrhinum nuttallianum Benth. ssp. *nuttallianum*	Nuttall's snapdragon	MSS
Plantago erecta E. Morris	dot-seed plantain	MSS
Polemoniaceae - Phlox Family		
Gilia angelensis V. Grant	grassland gilia	MSS
Linanthus dianthiflorus (Benth.) E. Greene	farinose ground pink	MSS
Polygonaceae - Buckwheat Family		
Chorizanthe fimbriata Nutt. var. *fimbriata*	fringed spineflower	MSS
Eriogonum fasciculatum Benth. var. *fasciculatum*	coast California buckwheat	MSS
Portulacaceae - Purslane Family		
Calandrinia maritima Nutt.	seaside calandrinia	MSS
Primulaceae - Primrose Family		
Dodecatheon clevelandii E. Greene ssp. *clevelandii*	padre's shooting star	MSS
Rhamnaceae - Buckthorn Family		
Adolphia californica S. Watson	California adolphia, spineshrub	MSS
Rubiaceae - Madder Family		
Galium aparine L.	goose grass, common bedstraw	MSS
Salicaceae - Willow Family		
Salix lasiolepis Benth.	arroyo willow	SWS
Simmondsiaceae - Jojoba Family		
Simmondsia chinensis (Link) C. Schneider	jojoba, goatnut	MSS
Solanaceae - Nightshade Family		
Datura wrightii Regel	western jimsonweed	MSS
Lycium andersonii A. Gray	waterjacket	MSS
Lycium californicum Nutt.	California desert thorn	MSS

Scientific Name	Common Name	Habitat
Nicotiana clevelandii A. Gray	Cleveland's tobacco	MSS
**Nicotiana glauca* Graham	tree tobacco	
**Tamaricaceae* - Tamarisk Family		
**Tamarix parviflora* DC.	small-flower/four-petal European tamarisk	TS
**Urticaceae* - Nettle Family		
**Urtica urens* L.	dwarf nettle	NNG
**Verbenaceae* – Vervain Family		
Verbena menthifolia Benth.	mint-leaf vervain	MSS
MONOCOTYLEDONS		
**Agavaceae* – Agave Family		
Hesperoyucca whipplei (Torrey) Trel.	chaparral candle	MSS
**Hyacinthaceae* – Hyacinth Family		
Chlorogalum parviflorum S. Watson	small-flower soap-plant	MSS
**Iridaceae* - Iris Family		
Sisyrinchium bellum S. Watson	blue-eyed grass	MSS
**Liliaceae* - Lily Family		
Calochortus splendens Benth.	splendid mariposa	MSS
Fritillaria biflora Lindley var. *biflora*	chocolate lily	MSS
**Poaceae* - Grass Family		
**Avena barbata* Link	slender wild oat	NNV, MSS
Bothriochloa barbinodis (Lagasca) Herter	cane bluestem	MSS
**Bromus diandrus* Roth	ripgut grass	NNV, NNG,MSS
**Bromus hordeaceus* L.	soft chess	NNV, NNG, MSS
**Bromus madritensis* L. ssp. *rubens* (L.) Husnot	red brome, foxtail chess	NNV, NNG, MSS
**Lolium multiflorum* Lam.	Italian ryegrass	NNV, NNG,MSS
Melica imperfecta Trin.	coast range melic	MSS
Muhlenbergia microsperma (DC.) Kunth	little-seed muhly	MSS
Nassella lepida (A. Hitchc.) Barkworth	foothill needlegrass	MSS
**Piptatherum miliaceum* (L.) Cosson	smilo grass	NNV, MSS
**Polypogon maritimus* Willd.	Mediterranean beard grass	SWS

Scientific Name	Common Name	Habitat
Themidaceae – Brodiaea Family		
Brodiaea crocea (Torrey) Coville var. *crocea*	common goldenstar	MSS
Dichelostemma capitatum Alph.Wood ssp. *capitatum*	blue dicks	MSS
Typhaceae - Cat-Tail Family		
Typha domingensis Pers.	southern cattail	SWS
LYCOPHYTES		
Selaginellaceae - Spike-Moss Family		
Selaginella cinerascens Maxon	ashy spike-moss, mesa spike-moss	MSS

APPENDIX 4. FAUNA SPECIES OBSERVED OR DETECTED ON-SITE

Habitat Types:

MSS	=	Maritme Succulent Scrub
MFS	=	Mule Fat Scrub
SWS	=	Southern Willow Scrub
TS	=	Tamarisk Scrub
NNG	=	Non-native Grassland
NNV	=	Non-native Vegetation

Abundance Codes:

A = Abundant: Almost always encountered in moderate to large numbers in suitable habitat and the indicated season.

C = Common: Usually encountered in proper habitat at the given season.

U = Uncommon: Infrequently detected in suitable habitat. May occur in small numbers or only locally in the given season.

R = Rare: Applies to species that are found in very low numbers.

'Numbers' indicate the number of individuals observed during the recent survey work.

Status Codes (birds only):

M = Migrant: Uses the site for brief periods of time, primarily during the spring and fall months.

R = Year-round resident: Probable breeder on-site or in the vicinity.

S = Spring/summer resident: Probable breeder on-site or in the vicinity unless combined with transient status.

T = Transient: Uses site irregularly in summer but unlikely to breed. Not a true migrant and actual status often poorly known.

W = Winter visitor: Does not breed locally.

V = Casual vagrant: Not expected; out of normal geographic or seasonal range and by definition rare.

* = denotes introduced species

Common Name	Scientific Name	Habitat	Abundance	Status
BUTTERFLIES				
Papilionidae (Swallowtails)				
anise swallowtail	*Papilio zelicaon*	MSS	C	
Pieridae (Whites and Sulfurs)				
Pacific (=Sara) orangetip	*Anthocharis sara*	MSS	C	
cabbage white	*Pieris rapae*	MSS, NNV	C	
checkered (=common) white	*Pontia protodice*	MSS	C	
Lycaenidae (Gossamer-wing Butterflies)				
western pigmy-blue	*Brephidium exile*	MSS, NNV	C	
Riodinidae (Metalmarks)				
Behr's metalmark	*Apodemia virgulti*	MSS	C	
Nymphalidae (Brush-footed Butterflies)				
west coast lady	*Vanessa anabella*	MSS	C	
Hesperiidae (Skippers)				
funereal duskywing	*Erynnis funeralis*	MSS	C	
REPTILES				
Phrynosomatidae				
western fence lizard	*Sceloporus occidentalis*	MSS, NNV	C	
side-blotched lizard	*Uta stansburiana*	MSS, NNV	C	
Teiidae (Whiptails and Relatives)				
orange-throated whiptail	*Aspidoscelis hyperythra*	MSS, NNV	A	
Anguidae (Alligator Lizards and Relatives)				
southern alligator lizard	*Elgaria multicarinata*	MSS, NNV	C	
Colubridae (Colubrids)				
gophersnake	*Pituophis catenifer*	MSS	C	
Viperidae (Vipers)				
Southern Pacific rattlesnake	*Crotalus viridis helleri*	MSS	C	
BIRDS				
Accipitridae (Hawks and Harriers)				
northern harrier	*Circus cyaneus*	MSS	U	M, R
Falconidae (Caracaras and Falcons)				

Common Name	Scientific Name	Habitat	Abundance	Status
American kestrel	*Falco sparverius*	flying	C	R
Laridae (Gulls and Terns)				
western gull	*Larus occidentalis*	flying	A	R, T
Columbidae (Pigeons and Doves)				
mourning dove	*Zenaida macroura*	MSS, NNV	C	R
Apodidae (Swifts)				
white-throated swift	*Aeronautes saxatalis*	flying	C	R
Trochilidae (Hummingbirds)				
Anna's hummingbird	*Calypte anna*	MSS	C	R
Tyrannidae (Tyrant Flycatchers)				
black phoebe	*Sayornis nigricans*	MSS, NNV	C	R
Cassin's kingbird	*Tyrannus vociferans*	MSS	C	R, M
western kingbird	*Tyrannus verticalis*	TS	C	M, S
Corvidae (Jays, Magpies, and Crows)				
American crow	*Corvus brachyrhynchos*	flying	A	R
common raven	*Corvus corax*	flying	C	R
Hirundinidae (Swallows)				
northern rough-winged swallow	*Stelgidopteryx serripennis*	flying	C	M, S
cliff swallow	*Petrochelidon pyrrhonota*	flying	C	M, S
barn swallow	*Hirundo rustica*	flying	U	M, W, S
Aegithalidae (Bushtit)				
bushtit	*Psaltriparus minimus*	MSS	C	R
Troglodytidae (Wrens)				
Bewick's wren	*Thryomanes bewickii*	MSS	C	R
house wren	*Troglodytes aedon*		C	M, W, S
Sylviidae (Old World Warblers and Gnatcatchers)				
California gnatcatcher	*Polioptila californica*	MSS	U	R
Timaliidae (Wrentit)				
wrentit	*Chamaea fasciata*	MSS	C	R
Mimidae (Mockingbirds and Thrashers)				
California thrasher	*Toxostoma redivivum*	MSS	C	R
Parulidae (Warblers)				
common yellowthroat	*Geothlypis trichas*	TS	C	M, R
Emberizidae (Sparrows, Blackbirds and Relatives)				

Common Name	Scientific Name	Habitat	Abundance	Status
spotted towhee	*Pipilo maculates*	MSS	C	R
California towhee	*Pipilo crissalis*	MSS	C	R
song sparrow	*Melospiza melodia*	TS	A	R
Cardinalidae (Grosbeaks, Buntings, and Relatives)				
blue grosbeak	*Passerina caerulea*	MSS	C	M, S
Icteridae (Blackbirds, Meadowlarks, Orioles, and Relatives)				
brown-headed cowbird	*Molothrus ater*	flying	C	S, M, W
Icteridae (Blackbirds, Meadowlarks, Orioles, and Relatives)				
red-winged blackbird	*Agelaius phoeniceus*	flying	C	R
Fringillidae (Finches)				
house finch	*Carpodacus mexicanus*	NNV, MSS	A	R
lesser goldfinch	*Carduelis psaltria*	MSS	C	M, R
American goldfinch	*Carduelis tristis*	MSS	C	M, R
MAMMALS				
Didelphidae (Opossums)				
Virginia opossum	*Didelphis virginiana*	NNV	C	
Geomyidae (Pocket Gophers)				
Botta's pocket gopher	*Thomomys bottae*	MSS, NNV	C	
Leporidae (Rabbits and Hares)				
desert cottontail	*Sylvilagus audubonii*	MSS, NNV	C	
Sciuridae (Squirrels, Chipmunks, and Marmots)				
California ground squirrel	*Spermophilus beecheyi*	MFS, MSS, NNV	C	
Canidae (Foxes, Wolves, and Relatives)				
coyote	*Canis latrans*	MSS	C	
Felidae (Cats)				
Bobcat (skull found on site)	*Lynx rufus*	NNV	U	

APPENDIX 5. 45-DAY LETTER REPORT OF FOCUSED QUINO CHECKERSPOT BUTTERFLY SURVEYS

Merkel & Associates, Inc.
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Tel: 858/560-5465 • Fax: 858/560-7779
e-mail: associates@merkelinc.com

June 14, 2007
M&A #07-050-01

Ms. Sandra Marquez
Recovery Permit Coordinator
U.S. Fish and Wildlife Service – Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, CA 92011

Re: 45-day Letter Report of Quino Checkerspot Butterfly (*Euphydryas editha quino*) Protocol Surveys for the Chula Vista Main Street Project, Located in the City of Chula Vista, San Diego County

Dear Ms. Marquez:

SUMMARY

Merkel & Associates, Inc. (M&A) conducted protocol surveys for the federally-listed, endangered quino checkerspot butterfly (*Euphydryas editha quino*) on the Chula Vista Main Street project site (Assessors Parcel Numbers 6444050-06-00 and 644050-08-00), as authorized under M&A's federal Endangered Species Act, Section 10(a)(1)(A) permit #797999-6. These surveys were conducted in accordance with the current U.S. Fish and Wildlife Service's *Quino Checkerspot Butterfly Survey Protocol Information* (USFWS 2002) and based on direction provided within the *2007 Season Quino Checkerspot Butterfly Carlsbad Fish and Wildlife Office Reference Site* (USFWS 2007). The project site contains approximately 22 acres of potential quino habitat. No quino checkerspot butterflies were detected on the project site during the protocol surveys. This letter report has been prepared and submitted to our client and USFWS in accordance with the requirements of M&A's 10a permit.

INTRODUCTION

Merkel & Associates, Inc. (M&A) conducted protocol surveys for the federally-listed, endangered quino checkerspot butterfly (*Euphydryas editha quino*) on the Chula Vista Main Street project site (Assessors Parcel Numbers 6444050-06-00 and 644050-08-00). The purpose of these surveys was to determine the presence/absence status of the quino checkerspot butterfly on the project site.

The approximate 22-acre project site is located within the U.S. Fish and Wildlife Service's (USFWS) recommended quino survey area 1 (USFWS 2006); in Sections 19 and 20, Township18 South, Range 1 West of the U.S. Geological Survey Imperial Beach, California Quadrangle (Latitude 117°01' N, Longitude 32° 59'W; Universal Transverse Mercator coordinates 499010.22 meters ^{E}, 3606354.83 meters ^{N}) (Figure 1).

METHODS

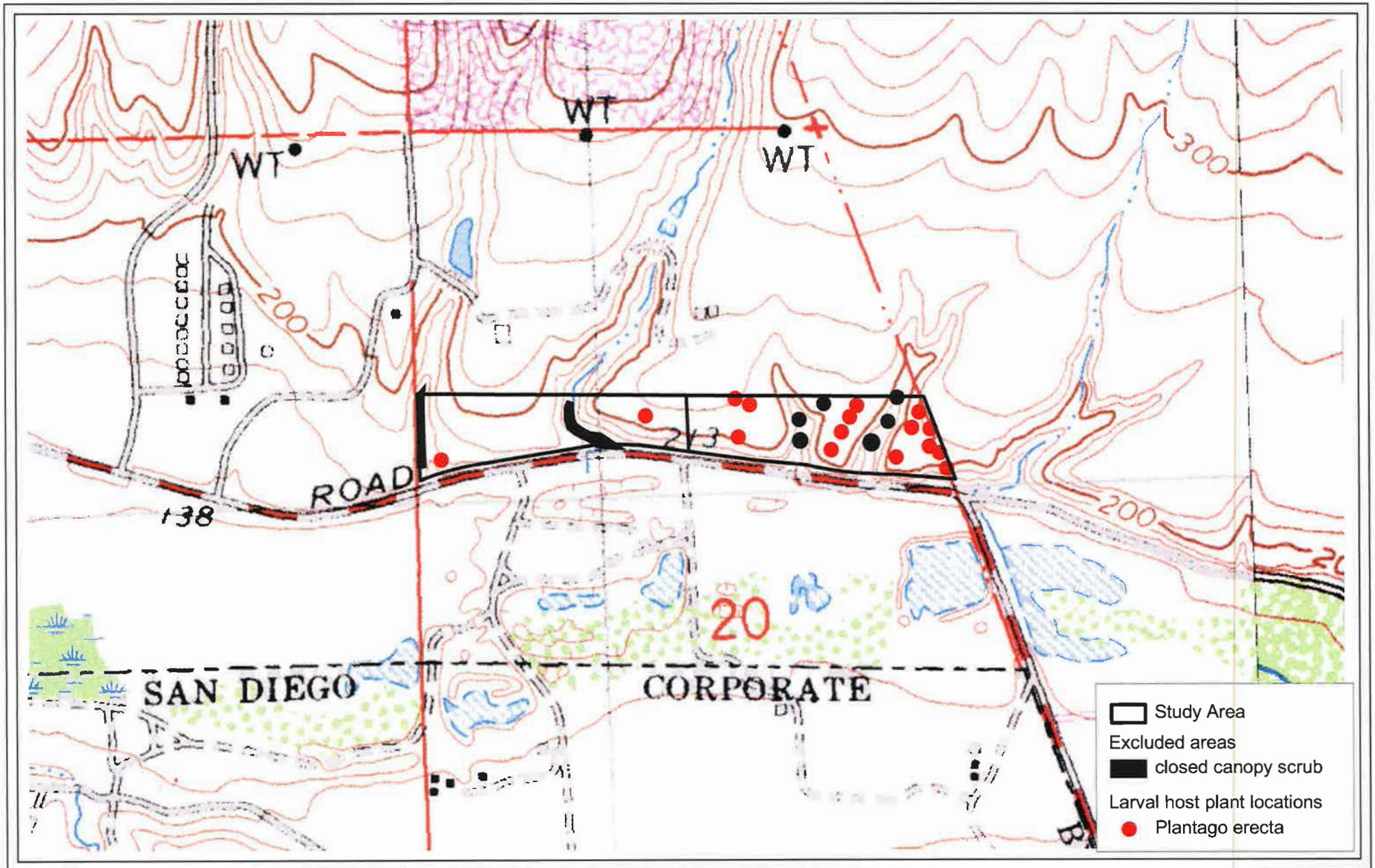
M&A biologist, Antonette Gutierrez, conducted the site assessment for the eastern parcel of the property on March 28, 2007. The western parcel was previously surveyed for the quino checkerspot butterfly in 2004 (M&A 2004), and larval host plant was known to occur on the site. Verification of larval host plant on the western parcel was determined during the first quino survey. M&A permitted biologists conducted protocol surveys for the quino checkerspot butterfly in the spring of 2007, as authorized under M&A's federal Endangered Species Act, Section 10(a)(1)(A) permit #797999-6 (Table 1).

Table 1. Summary of Survey Dates, Times, Conditions, and Biologists

Survey #	Dates	Time	Conditions (start-end)	Permitted Biologist	*Acres/ Day
1	3/28/07	12:35-16:25	Weather: 0%-0% cc Wind: 2-3 BS Temperature: 72°-67° F	Melissa Booker	22
2	4/2/07	12:30-14:30	Weather: 50% cc Wind: NR Temperature: 75° F	Steve Rink	22
3	4/11/07	09:25-12:25	Weather: 20%-0% cc Wind: 2-3 BS Temperature: 72°-71° F	Melissa Booker	22
4	4/17/07	13:15-15:50	Weather: 20%-10% cc/haze Wind: 2-3 BS Temperature: 72°-70° F	Melissa Booker	22
5	4/27/07	08:15-11:45	Weather: NR Wind: 3BS Temperature: 65° F	Kyle Ince	22
6	5/2/07	15:00-18:00	Weather: partly cloudy Wind: 2 BS Temperature: 70° F	Kyle Ince	22

cc=cloud cover; BS=Beaufort Scale; F = Fahrenheit NR=Not Recorded
*Acres of potentially suitable quino habitat

The surveys were conducted in accordance with the current USFWS *Quino Checkerspot Butterfly Survey Protocol Information* (USFWS 2002). All potentially suitable habitat areas on-site were mapped during the pre-survey habitat site assessment. The first protocol survey was initiated at the start of the quino flight season, as determined by guidance from USFWS monitored reference sites. Protocol surveys were conducted each week for a total of 6 consecutive weeks, beginning on March 28, 2007 and lasting until May 2, 2007. Quino survey times and dates varied according to weather and scheduling conditions, and individual permitted biologists used professional judgment to comply with USFWS quino protocol recommendations as closely as possible. Survey routes generally started in the western portion of the site following an existing dirt trail system that runs east west.



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Site Assessment and Host Plant Location Map

Chula Vista/Main St.

Figure 1

Merkel & Associates, Inc.

Slopes were examined using a north south route. The eastern portion of the site was also covered in a west to east route, and steep slopes were surveyed on a north to south pattern. Survey routes were also concentrated in areas where larval host plant was identified. A list of detected nectar resources and butterfly species was recorded in a field notebook, and the locations of potential quino larval host plants were noted on the field map.

Data collected from the surveys were digitized into ArcView Geographical Information System (GIS) Version 3.2a.

The scientific nomenclature used in this report is noted according to the following references: vegetation, Holland (1986); flora, Rebman and Simpson (2006); and butterflies, Klein/San Diego Natural History Museum (2002).

RESULTS

VEGETATION COMMUNITIES

Based on the initial habitat suitability assessment, the following on-site vegetation communities were determined to have potential as quino habitat: southern maritime succulent scrub, non-native grassland, and mule fat scrub. On-site areas excluded from the surveys were limited to: tamarisk scrub, mule fat scrub associated with tamarisk scrub, and southern willow scrub. Each of these communities is briefly described below.

Potential Quino Habitat

Southern Maritime Succulent Scrub Holland 32400

On-site Southern maritime succulent scrub was dominated by jojoba (*Simmondsia chinensis*), coast cholla (*Cylindropuntia prolifera*), bladderpod (*Isomeris arborea*), coast California buckwheat (*Eriogonum fasciculatum fasciculatum*) , and California encelia (*Encelia californica*).

Non-native Grassland Holland 42200

Species dominating the non-native grassland vegetation type included ripgut grass (*Bromus diandrus*), slender wild oat (*Avena barbata*), red brome (*Bromus rubens*), and soft chess (*Bromus hordeaceus*). Other species present within this habitat type include black mustard (*Brassica nigra*), short-pod mustard (*Hirschfeldia incana*), red-stem filaree (*Erodium cicutarium*), and garland (*Chrysanthemum coronarium*).

Mule Fat Scrub Holland 63310

Some patches of mule fat scrub found throughout the on-site drainages were not excluded because they have an upland vegetation understory and are surrounded by open tracts of non-native grassland. The mule fat scrub habitat has low plant diversity and is dominated by mule fat (*Baccharis salicifolia*).

Closed Canopy Scrub (Excluded Areas)

Tamarisk Scrub Holland 63810

Mature tamarisk trees are found in the drainages throughout both parcels and create an extensive tree canopy where they ocurr. On-site tamarisk scrub is dominated by four-petal European tamarisk (*Tamarix parviflora*).

Mule Fat Scrub Holland 63310

Small patches of mule fat scrub are found throughout the on-site drainages closely associated with the tamarisk scrub, creating a contiguous canopy cover and were, therefore, excluded from the survey area. The mule fat scrub habitat has minimal plant diversity and is dominated by mule fat.

Southern Willow Scrub Holland 63320

A small patch of southern willow scrub is present on the western portion of the property. Dominant species present within this vegetation type include arroyo willow (*Salix lasiolepis*) and mule fat.

PROTOCOL SURVEYS

No quino checkerspot butterflies were detected on the project site during the protocol surveys. Copies of the field notes from the permitted biologists who conducted the protocol surveys are provided in Appendix 1; a list of potential quino larval host plants and nectar resources noted within the recommended butterfly survey areas is provided as Appendix 2; and a list of the butterflies observed during the protocol surveys is provided as Appendix 3.

CONCLUSIONS

Pursuant to the reporting requirements contained within M&A's federal Endangered Species Act, Section 10(a)(1)(A) permit #797999-6, we have included this Conclusions section to address our recommendations for recovery of the species. I have no recommendations at this time.

If you have any questions concerning this report, please do not hesitate to contact me at (858) 560-5465 or agutierrez@merkelinc.com.

Sincerely,

Antonette Gutierrez
Senior Biologist/Project Manager

Keith W. Merkel
Principal Consultant

cc: Kevin O'Neill 621 Del mar Ave, Chula Vista, CA 91910

I hereby certify that the statements furnished herein and in the attached exhibits present the data and information as required pursuant to Recovery Permit TE-797999-6, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

1) Fieldwork Performed By:

Melissa Booker, Senior Biologist
10(a) Permit Number 797999-6

2) Fieldwork Performed By:

Steve Rink, Senior Biologist
10(a) Permit Number 797999-6

3) Fieldwork Performed By:

Kyle Ince, Senior Biologist
10(a) Permit Number 797999-6

4) Fieldwork Performed By:

Antonette Gutierrez, Senior Biologist

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APPENDIX 1. FIELD NOTES FOR FOCUSED QUINO CHECKERSPOT BUTTERFLY SURVEYS

APPENDIX 2. ON-SITE QUINO CHECKERSPOT BUTTERFLY LARVAL HOST PLANTS AND POTENTIAL NECTAR RESOURCES/FLOWERING FLORAL SPECIES

Quino Checkerspot Butterfly Larval Host Plants

Plantaginaceae - Plantain Family
Plantago erecta E. Morris dot-seed plantain

Potential Butterfly Nectar Resources/Flowering Floral Species

Aizoaceae – Fig-Marigold Family
**Mesembryanthemum crystallinum* L. crystalline iceplant

Apiaceae - Carrot Family
Apiastrum angustifolium Nutt. mock parsley
**Daucus carota* L. Queen Anne's lace

Asclepiadaceae - Milkweed Family
Sarcostemma cynanchoides Decne ssp. *hartwegii* (Vail)R. Holm climbing milkweed

Asteraceae - Sunflower Family
Ambrosia chenopodiifolia (Benth.)Payne San Diego bur-sage
Baccharis salicifolia (R. & P.)Pers. mule fat
**Chrysanthemum coronarium* L. garland
**Centaurea melitensis* L. tocalote
Encelia californica Nutt. California encelia
Eriophyllum confertiflorum (DC.)Gray var. *confertiflorum* golden-yarrow
Gnaphalium bicolor Bioletti bicolor cudweed
Holocarpha virgata (A. Gray)Keck. ssp. *elongata* Keck Graceful Tarplant
**Hypochoeris glabra* L. smooth cat's-ear
Lasthenia californica Lindley common goldfields
Uropappus lindleyi (DC.)Nutt. silver puffs
Viguiera laciniata Gray San Diego County viguiera

Boraginaceae - Borage Family
Amsinckia intermedia (Lehm.)Nelson & J.F. Macbr. fiddleneck
Cryptantha intermedia (Gray)Greene nievitas, cryptantha
Cryptantha micromeres (Gray)Greene minute-flower cryptantha
Plagiobothrys collinus (Philbr.)J.M. Johnston var. *californicus* (A. Gray) Higgings California popcornflower

Brassicaceae - Mustard Family
**Brassica nigra* (L.)Koch black mustard
**Hirschfeldia incana* (L.)Lagr.-Fossat short-pod mustard

Cactaceae - Cactus Family
Mammillaria dioica K. Bdg. fish-hook cactus

Capparaceae - Caper Family
Isomeris arborea Nutt. bladderpod

Caprifoliaceae - Honeysuckle Family	
Sambucus mexicana DC.	blue elderberry
Caryophyllaceae - Pink Family	
**Spergula arvensis* L.	stickwort starwort
Chenopodiaceae - Goosefoot Family	
**Atriplex semibaccata* R. Br.	Australian saltbush
**Salsola tragus* L.	Russian thistle
Euphorbiaceae - Spurge Family	
Chamaesyce albomarginata (Torrey & Gray)Small	rattlesnake spurge
Fabaceae - Pea Family	
Lotus scoparius ssp. *brevialatus* (Ottley)Munz	deerweed
Gentianaceae - Gentian Family	
Centaurium venustum (A. Gray) B. L. Rob.	canchalagua
Geraniaceae - Geranium Family	
**Erodium cicutarium* (L.)L'Hér. Ex Aition	red-stem filaree
Hydrophyllaceae - Waterleaf Family	
Emmenanthe penduliflora Benth.	whispering bells
Eucrypta chrysanthemifolia (Benth.)Greene var. *chrysanthemifolia*	eucrypta
Phacelia cicutaria Greene var. *hispida* Gray	caterpillar phacelia
Pholistoma racemosum (Nutt.)Constance	Nuttall's Fiesta Flower
Lamiaceae - Mint Family	
Salvia columbariae Benth.	chia
Nyctaginaceae - Four-O'Clock Family	
Mirabilis californica A. Gray	California wishbone plant
Papaveraceae - Poppy Family	
Eschscholzia californica Cham.	California poppy
Plantaginaceae - Plantain Family	
Plantago erecta E. Morris	dot-seed plantain
Polemoniaceae - Phlox Family	
Gilia angelensis V. E. Grant	grassland gilia
Linanthus dianthiflorus (Benth.)Greene	ground pink

Polygonaceae - Buckwheat Family	
Chorizanthe fimbriata Nutt. var. *fimbriata*	fringed spineflower
Eriogonum fasciculatum Benth. var. *fasciculatum*	coast California buckwheat
Primulaceae - Primrose Family	
Dodecatheon clevelandii Greene ssp. *clevelandii*	padre's shooting star
Rhamnaceae - Buckthorn Family	
Adolphia californica S. Watson	California adolphia
Rubiaceae - Madder Family	
Galium aparine L.	goose grass
Scrophulariaceae - Figwort Family	
Antirrhinum nuttallianum Benth. ssp.	Nuttall's snapdragon
Simmondsiaceae - Jojoba Family	
Simmondsia chinensis (Link)C.K. Schneid.	jojoba
Solanaceae - Nightshade Family	
Datura wrightii Regel	western jimsonweed
Lycium andersonii A. Gray	waterjacket
Lycium californicum Nutt.	California desert thorn
Nicotiana clevelandii A. Gray	toast tobacco
Verbenaceae - Verbena Family	
Verbena menthifolia Benth.	mint-leaf vervain
MONOCOTYLEDONS	
Iridaceae - Iris Family	
Sisyrinchium bellum S. Watson	blue-eyed grass
Liliaceae - Lily Family	
Allium praecox Brandegee	early onion
Bloomeria crocea (Torr.)Coville	common goldenstar
Calochortus sp. Pursh	mariposa lily
Dichelostemma capitatum (Benth.) A. W. Wood ssp. *capitatum*	wild hyacinth
Fritillaria biflora Lindl. var. *biflora*	California chocolate lily

APPENDIX 3. BUTTERFLIES NOTED ON-SITE

BUTTERFLIES

Focused Survey #1: March 28, 2007		**# of Butterflies Per Survey**
Papilionidae (Swallowtail Butterflies)		
Anise Swallowtail	*Anthocharis sara sara*	2
Pieridae (White, Orangetip and Sulfur Butterflies)		
Pacific (=Sara) Orangetip	*Papilio zelicaon*	2
Hesperiidae (Skipper Butterflies)		
Funereal Dusky Wing	*Erynnis funeralis*	3
Lycaenidae (Hairstreak, Copper, and Blue Butterflies)		
Western Pigmy-Blue	*Brephidium exile*	2
Riodinidae (Metalmark Butterflies)		
Behr's Metalmark	*Apodemia virgulti*	5
Focused Survey #2: April 2, 2007		
Pieridae (White, Orangetip and Sulfur Butterflies)		
Pacific (=Sara) Orangetip	*Papilio zelicaon*	1
Checkered (=common) White	*Pontia protodice*	1
Riodinidae (Metalmark Butterflies)		
Behr's Metalmark	*Apodemia virgulti*	2
Lycaenidae (Hairstreak, Copper, and Blue Butterflies)		
Blue	sp.	1
Focused Survey #3: April 11, 2007		
Pieridae (White, Orangetip and Sulfur Butterflies)		
Pacific (=Sara) Orangetip	*Papilio zelicaon*	5
Checkered (=common) White	*Pontia protodice*	3
Riodinidae (Metalmark Butterflies)		
Behr's Metalmark	*Apodemia virgulti*	7
Lycaenidae (Hairstreak, Copper, and Blue Butterflies)		
Western Pigmy-Blue	*Brephidium exile*	5
Focused Survey #4: April 17, 2007		
Pieridae (White, Orangetip and Sulfur Butterflies)		
Pacific (=Sara) Orangetip	*Papilio zelicaon*	3

Riodinidae (Metalmark Butterflies)

Behr's Metalmark	*Apodemia virgulti*	9

Lycaenidae (Hairstreak, Copper, and Blue Butterflies)

Western Pigmy-Blue	*Brephidium exile*	2

Focused Survey #5: April 27,2007

Pieridae (White, Orangetip and Sulfur Butterflies)

Checkered (=common) White	*Pontia protodice*	1

Nymphalidae (Brush-footed Butterflies)

West Coast Lady	*Vanessa anabella*	1

Riodinidae (Metalmark Butterflies)

Behr's Metalmark	*Apodemia virgulti*	1

Focused Survey #6: May 5, 2007

Pieridae (White, Orangetip and Sulfur Butterflies)

Cabbage White	*Pieris rapae*	1

Riodinidae (Metalmark Butterflies)

Behr's Metalmark	*Apodemia virgulti*	1

APPENDIX 6. 45-DAY LETTER REPORT OF FOCUSED CALIFORNIA GNATCATCHER SURVEYS

Merkel & Associates, Inc.
5434 Ruffin Road, San Diego, CA 92123
Tel: 858/560-5465 • Fax: 858/560-7779
e-mail: associates@merkelinc.com

July 12, 2007
M&A #07-050-01

Ms. Sandra Marquez
Recovery Permit Coordinator
U.S. Fish and Wildlife Service – Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, CA 92011

Re: 45-day Letter Report of Coastal California Gnatcatcher (*Polioptila californica californica*) Protocol Surveys for the Chula Vista Main Street Project, Located in the City of Chula Vista, San Diego County.

Dear Ms. Marquez:

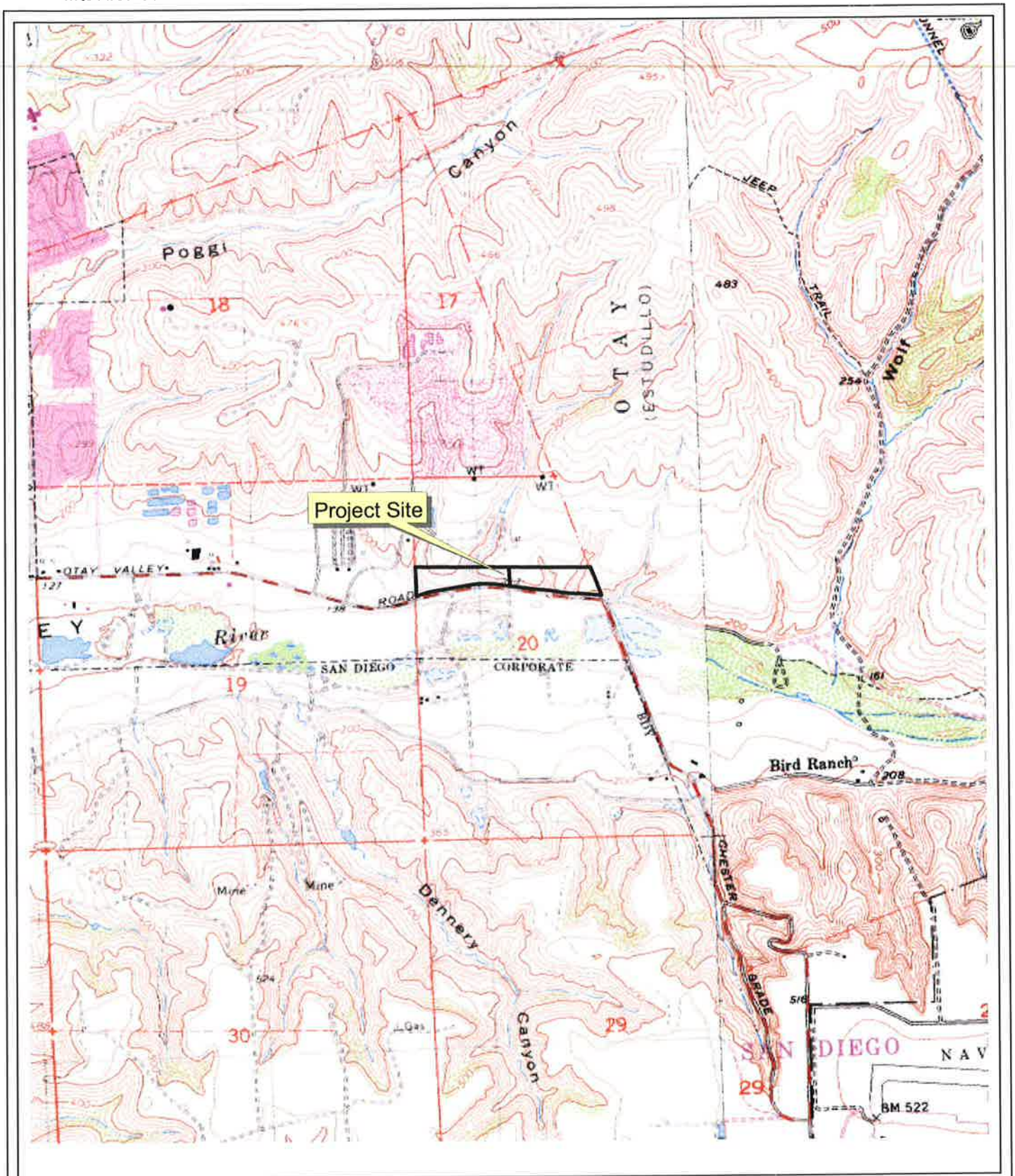
SUMMARY

Merkel & Associates, Inc. (M&A) conducted 3 protocol surveys for the federally-listed, threatened coastal California gnatcatcher (*Polioptila californica californica*) on the Chula Vista Main Street project site (Assessors Parcel Numbers 644-405-06-00 and 644-050-08-00), as authorized under M&A's federal Endangered Species Act, Section 10(a)(1)(A) permit #797999-6 and California Department of Fish and Game (CDFG) Memorandum of Understanding (MOU). These surveys were conducted in accordance with the current U.S. Fish and Wildlife Service's *Coastal California Gnatcatcher Presence/Absence Survey Protocol* (USFWS 1997). The project site contains 22 acres of potential coastal California gnatcatcher habitat. Six coastal California gnatcatchers were detected on the project site during the protocol surveys. This letter report has been prepared and submitted to the client, USFWS, and CDFG in accordance with the requirements of M&A's 10a permit and MOU.

INTRODUCTION

Merkel & Associates, Inc. (M&A) conducted protocol surveys for the federally-listed, threatened coastal California gnatcatcher (*Polioptila californica californica*) ("gnatcatcher") on the Chula Vista Main Street project site (Assessors Parcel Numbers 644-405-06-00 and 644-050-08-00). The purpose of these surveys was to determine the presence or absence of gnatcatcher on the project site.

The approximate 22-acre project site is located in Sections 19 and 20, Township18 South, Range 1 West of the U.S. Geological Survey Imperial Beach, California Quadrangle (Latitude 117°01' N, Longitude 32° 59'W; Universal Transverse Mercator coordinates 499010.22 meters ^{E}, 3606354.83 meters ^{N}) (Figure 1).



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Chula Vista/Main St.

Project Vicinity Map

Source: USGS 7.5' Imperial Beach, CA Quadrangle

Figure 1

METHODS

M&A permitted biologists conducted 3 protocol surveys for the gnatcatcher in May of 2007, as authorized under M&A's federal Endangered Species Act, Section 10(a)(1)(A) permit #797999-6 (Table 1).

Table 1. Summary of Survey Dates, Times, Conditions, and Biologists

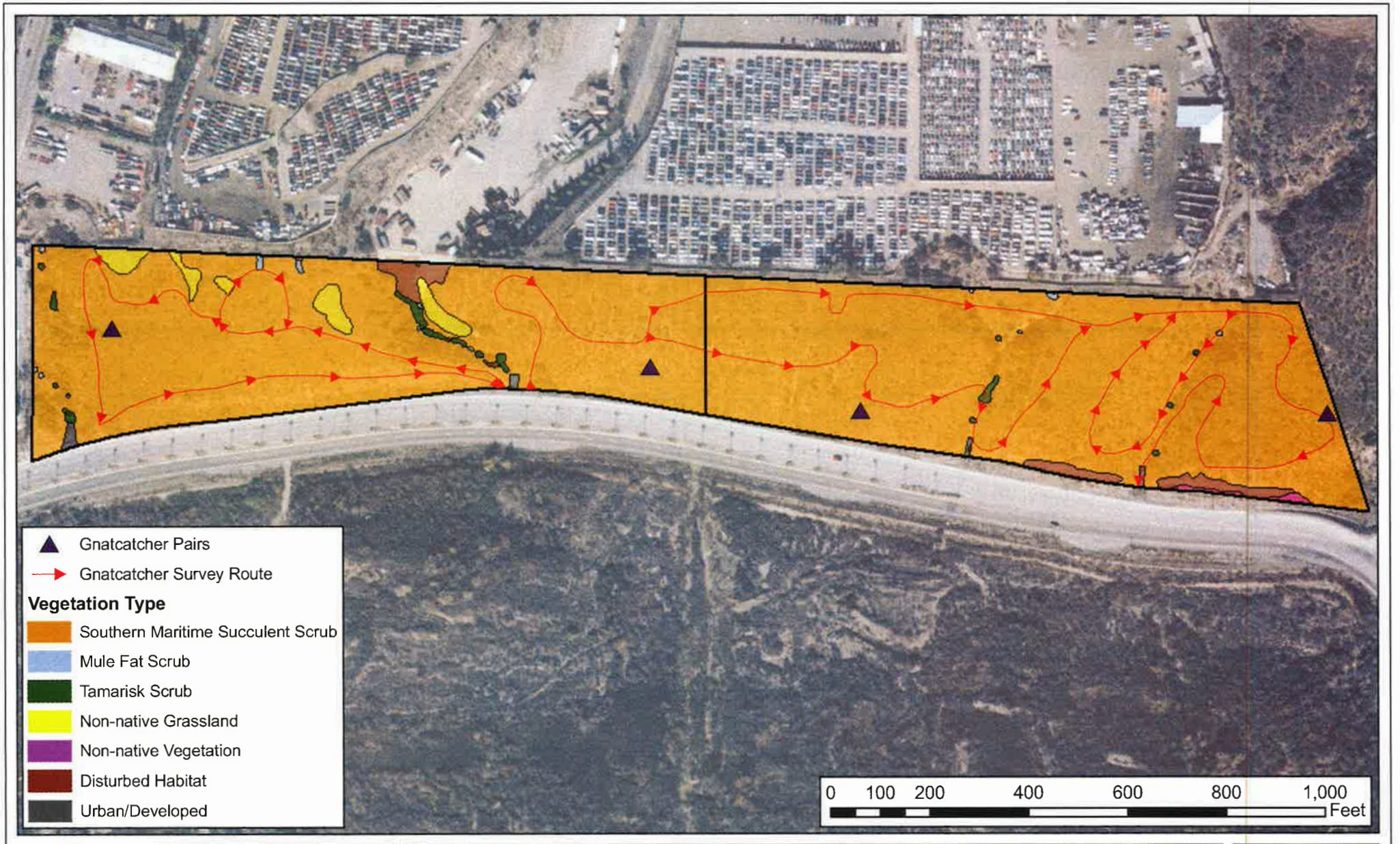
Survey #	Dates	Time	Conditions (start-end)	Permitted Biologist(s)	Authorized Assistant(s)	*Acres/ Hour	*Acres/ Day	Taped Vocalizations Playback Frequency
1	13 May 2007	0900-1200	Wthr: 5%-5% cc Wind: 2-3 BS Temp.: 68°-74° F	Antonette T. Gutierrez	None	7.3	22	1 per 10 minutes
2	21 May 2007	0740-1050	Wthr: 100%-100% cc Wind: 1-3 BS Temp.: 56°-60° F	Bonnie L. Peterson	Gina M. Krantz	7.3	22	1 per 20 minutes
3	31 May 2007	0730-1040	Wthr: 100%-5% cc Wind: 2-3 BS Temp.: 58°-65° F	Melissa A. Booker	Gina M. Krantz	7.3	22	1 per 10 minutes

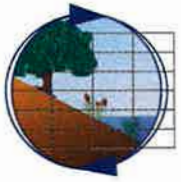
cc=cloud cover; BS=Beaufort Scale; F = Fahrenheit
*Acres of potentially suitable gnatcatcher habitat

The surveys were conducted in accordance with the current U.S. Fish and Wildlife Service's (USFWS) *Coastal California Gnatcatcher Presence/Absence Survey Protocol* (USFWS 1997). All on-site vegetation communities were mapped and survey routes were slowly walked in appropriate gnatcatcher habitat (Figure 2). Taped recordings of gnatcatcher vocalizations were used to elicit initial vocal responses, and an approximate 5 to 20 minute time interval was allowed for a response, particularly from advantageous viewpoints. Gnatcatcher presence was determined based on the detection of songs, calls, and/or direct observations. Efforts were made to determine the gender, paired or unpaired status, age, and any color band information of each observed gnatcatcher. A list of detected avian species was recorded and the locations of any identified gnatcatchers were mapped.

Data collected from the surveys were digitized into ArcView Geographical Information System (GIS) Version 3.2a.

The scientific nomenclature used in this report is noted according to the following references: vegetation, Holland (1986) and flora, Rebman and Simpson (2006); and birds, American Ornithologists' Union (1998 and 2006).





Coastal California Gnatcatcher Locations and Survey Routes

Chula Vista/Main St.

Figure 2

RESULTS

VEGETATION COMMUNITIES

On-site habitats included southern maritime succulent scrub, non-native grassland, mule fat scrub, tamarisk scrub, and southern willow scrub. Each of these communities is briefly described below.

Southern Maritime Succulent Scrub Holland 32400

Southern maritime succulent scrub is the dominant vegetation type throughout the project site. The western parcel supports moderate quality habitat due some disturbances in the vegetation from illegal dumping of trash. The eastern parcel contains intact contiguous maritime succulent scrub, characterizing good quality habitat. Both parcels are dominated by jojoba (*Simmondsia chinensis*), coast cholla (*Cylindropuntia prolifera*), bladderpod (*Isomeris arborea*), coast California buckwheat (*Eriogonum fasciculatum fasciculatum*), San Diego county viguiera (*Viguiera laciniata*), California adolphia (*Adolphia californica*), and California encelia (*Encelia californica*). Other plants present within this habitat type include species such as coast prickly-pear (*Opuntia littoralis*), California sagebrush (*Artemisia californica*), and San Diego barrel cactus (*Ferocactus viridescens*).

Non-native Grassland Holland 42200

Non-native grasslands are found sporadically in the northern portion of the west parcel. These areas contain high stands of non-native, invasive weedy plants. Species dominating the non-native grassland vegetation included ripgut grass (*Bromus diandrus*), slender wild oat (*Avena barbata*), red brome (*Bromus rubens*), and soft chess (*Bromus hordeaceus*). Other species present within this habitat type included black mustard (*Brassica nigra*), short-pod mustard (*Hirschfeldia incana*), and red-stem filaree (*Erodium cicutarium*). Plant components of this habitat are also found in the eastern parcel but are associate with dense stands of southern maritime succulent scrub and do not warrant separation as non-native grassland.

Mule Fat Scrub Holland 63310

Patches of mule fat scrub found throughout the on-site drainages contain an upland vegetation understory and are surrounded by open tracts of non-native grassland in the west parcel. Additionally, in the west parcel, mule fat scrub is closely associated with the tamarisk scrub, creating a contiguous canopy cover in the drainages. The eastern parcel drainages support patches of mule fat scrub containing upland vegetation, bare ground, or cobble rock in the understory. For both parcels, the mule fat scrub habitat has low plant diversity and is dominated by mule fat (*Baccharis salicifolia*).

Tamarisk Scrub Holland 63810

Patches of mature four-petal European tamarisk (*Tamarix parviflora*) trees are found in the on-site drainages. An extensive tree canopy occurs in the western parcel drainages. The trees in the eastern parcel drainages are mostly disjunct and only a small portion represents a contiguous tree canopy in the western drainage. There is little to no understory in this scrub and only one location in the eastern drainage contains upland vegetation in the understory.

Southern Willow Scrub Holland 63320

A small patch of southern willow scrub is present on the western portion of the property within one of the on-site drainages. This habitat was of poor quality and included only one arroyo willow (*Salix lasiolepis*) and a few small mule fat shrubs. No southern willow scrub was found in the eastern parcel.

PROTOCOL SURVEYS

The presence of coastal California gnatcatchers at the Chula Vista Main Street project site was confirmed during all 3 protocol surveys (Table 2). Over the course of the 3 protocol surveys and during other protocol and general biological surveys, 4 distinct gnatcatcher pairs were identified on-site: 2 on the western parcel and 2 on the eastern parcel (Figure 2). Detection for each gnatcatcher pair within each parcel is described below.

Western Parcel:
Two gnatcatcher pairs were documented in the west parcel. One adult pair was continuously observed on the far western portion of the west parcel during protocol quino checkerspot butterfly (*Euphydryas editha quino*) surveys in March 2007 and again in July 2007 during general biological surveys. This pair was not detected during the gnatcatcher protocol survey time period; however, given the chronology of the other gnatcatcher families confirmed on-site, it is possible that this western pair relocated to the off-site, adjacent riparian habitat to provide food for fledglings. The second pair of gnatcatchers was located in the eastern portion of the west parcel prior to and during protocol surveys. Prior to protocol surveys (April 17, 2007), this same pair was observed as a family group consisting of 2 adults and 2-3 fledglings. During protocol surveys, an adult male gnatcatcher was observed in the same location, with 2 fledglings gnatcatchers. This male is presumed to be part of the same pair from the eastern portion of the west parcel. Additionally, in mid June 2007 during general biological surveys, two adult gnatcatchers were observed feeding 2 fledglings, in this same location (again the same pair). These observations in the same location but at different times during the breeding season indicate that this pair had at least 2 successful clutches for the 2007 breeding season.

Eastern Parcel:
Two gnatcatcher pairs were observed in the east parcel. Gnatcatcher protocol surveys confirmed one adult pair of gnatcatchers on the eastern boundary of the east parcel. This pair was often observed flying off-site to the east. A second adult gnatcatcher pair was observed in the western portion of the east parcel during quino checkerspot butterfly surveys, rare plant surveys, and wetland delineation work (May 2007). In mid June 2007 during general biological surveys, two adult gnatcatchers were observed feeding 3 fledglings, in this same location. These two observations were presumed to be the same pair detected on two different dates. No nests were detected during focused surveys, but the presence of fledglings indicates successful breeding on-site.

Table 2. Summary of Results for Detected California Gnatcatchers.

Survey #	Dates	Number	Age	Sex	Color Band
1	13 May 2007	4	2 Adults, 2 Fledglings	2 Males, 2Unknown	None
2	21 May 2007	2	2 Unknown	2 Unknown	None
3	31 May 2007	4	4 Adults	2 Males, 2 Females	None

CONCLUSIONS

Pursuant to the reporting requirements contained within M&A's federal Endangered Species Act, Section 10(a)(1)(A) permit #797999-6, we have included this Conclusions section to address our recommendations for recovery of the species.

RECOVERY RECOMMENDATIONS

It is my recommendation that USFWS require a minimum of 5 protocol surveys for jurisdictions participating in the NCCP interim section 4(d) process in lieu of the 3 survey minimum. It has been my experience, from February 15 to August 30 that during nesting time there is a window just before the eggs are about to hatch where gnatcatchers become elusive and secretive as they are tending their nests. Often at this time they do not respond to taped vocalizations. Additionally, it is known that gnatcatcher parents will take fledglings to habitats supporting wetlands or drainages adjacent from their upland coastal sage scrub territory to provide cover and food for fledglings (Grishaver *et al*, 1998). In some cases, as likely occurred for this specific project, the wetland/drainages might be located off-site and outside the study area. Because the adults spend 3-5 weeks with the fledglings a minimum 5 protocol surveys conducted at least one week apart would provide more opportunities to locate gnatcatchers during a wider time span.

If you have any questions concerning this report, please do not hesitate to contact me at (858) 560-5465 or agutierrez@merkelinc.com.

Sincerely,

Antonette T. Gutierrez
Senior Biologist/Project Manager

cc: Dr. John Gustafson, Habitat Conservation Planning Branch, California Department of Fish and Game, 1416 Ninth Street, 12th Floor, Sacramento, CA 95814

cc: Kevin O'Neill 621 Del mar Ave, Chula Vista, CA 91910

I hereby certify that the statements furnished herein and in the attached exhibits present the data and information as required pursuant to Recovery Permit TE-797999-6, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

1) Fieldwork Performed By:

Antonette T. Gutierrez, Senior Biologist
10(a) Permit Number 797999-6

2) Fieldwork Performed By:

Bonnie L. Peterson, Senior Biologist
10(a) Permit Number 797999-6

3) Fieldwork Performed By:

Melissa A. Booker, Senior Biologist
10(a) Permit Number 797999-6

4) Fieldwork Performed By:

Gina M. Krantz, Associate Biologist
10(a) Permit Number 797999-6 authorized assistant

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Appendix H

California Gnatcatcher Protocol Survey Reports

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

November 18, 2021 13518

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 Nirvana Project - Additional Area East, Chula Vista, County of San Diego, California

Dear Recovery Permit Coordinator:

This letter report documents the results of three protocol-level focused surveys for the coastal California gnatcatcher (*Polioptila californica californica*) that were conducted for the proposed Nirvana Project (project) - additional area east, which is located on a 0.44-acre site adjacent to the Nirvana site. Dudek biologist Erin Bergman surveyed the additional area east between October 11, 2021, and October 25, 2021. The surveys were conducted in areas of suitable coastal California gnatcatcher habitat. This report is intended to satisfy reporting requirements for coastal California gnatcatcher -permitted biologists Erin Bergman (TE-53771B-2).

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 habitat loss, degradation, and fragmentation. Coastal California gnatcatcher typically occurs below 820 feet above mean sea level 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).

Project Location and Existing Conditions

The study area is located within Chula Vista, California (Figure 1, Project Location). The site is located at 821 Main Street on the north side of Main Street and east of Nirvana Avenue in the City of Chula Vista (City). It comprises Tax Assessor parcel numbers – APNs 644-050-060-1300 & 644-050-60-1400. The majority of this site was surveyed in the summer of 2021, but this report covers an additional 0.44-acre area to the east.

Elevation on site ranges between approximately 139 feet and 212 feet above mean sea level. The landscape is steep on the additional area east. The site is located within Section 20 of Township 18 south and Range 1 west in the 7.5-minute USGS Imperial Beach quadrangle.

Vegetation Communities

One plant community was identified within the additional area east as highly suitable coastal California gnatcatcher habitat: maritime succulent scrub. Three other vegetation communities were not considered highly suitable habitat. These included disturbed habitat, tamarisk scrub and unvegetated stream. Due to proximity and intermixed nature of other vegetation communities, all vegetation was included within the study area. Approximately 0.44 acres of

coastal California gnatcatcher-suitable habitat was mapped on site in accordance with Holland (1986) and Oberbauer et al. (2008). The 0.44-acre project site primarily consists of disturbed habitat. The vegetation communities and land cover types recorded on the additional area east are described in detail below, their acreages are presented in Table 1 and vegetation figures are presented in Figure 2.

Table 1. Vegetation Communities and Land Cover within the Additional Area East

Vegetation Community/ Land Cover	Acres
Disturbed Habitat	0.09
Maritime succulent scrub	0.29
Tamarisk scrub	0.05
Unvegetated Stream	0.01
Total	**0.44**

Maritime Succulent Scrub

Maritime succulent scrub is a low-lying community with openings that range from 25% to 75% cover and is dominated by drought deciduous, woody, malacophyllous shrubs with a rich admixture of stem and leaf succulents. Cacti is more dominant in inland populations and southern populations. Large portions of the ground are bare between the shrubs. Most of the growth and flowering occurs in the springtime within this community. Maritime succulent scrub extends as far inland as Bonita, Ca. Maritime succulent scrub is typically dominated by some or all of the following species: California copperleaf (*Acalypha californica*), Shaw's agave (*Agave shawii*), California sagebrush (*Artemisia californica*), golden spined cereus (*Bergerocactus emoryi*), California encelia (*Encelia californica*), cliff spurge (*Euphorbia misera*), coast barrel cactus (*Ferocactus viridescens*), California box thorn (*Lycium californicum*), coast prickly pear (*Opuntia littoralis*), chaparral prickly pear (*Opuntia oricola*), coast cholla (*Cylindropuntia prolifera*), lemonade berry (*Rhus integrifolia*), San Diego sunflower (*Viguera or Bahiopsis laciniata*) (Oberbauer 2001).

Within the additional area east, there are 0.29 acres of maritime succulent scrub present. Numerous succulent species are present and, in some areas, abundant. Succulents are dominant or scattered around the plant community and include coastal barrel cactus (*Ferocactus viridescens*), coast cholla (*Cylindropuntia prolifera*), strawberry cactus (*Mammilaria dioica*) and coastal prickly pear (*Opuntia littoralis*). Larger dominant shrubs growing with the succulents include jojoba (*Simmondsia chinensis*), lemonadeberry (*Rhus integrifolia*), California buckwheat (*Eriogonum fasciculatum*), San Diego sunflower (*Bahiopsis laciniata*), laurel sumac (*Malosma laurina*) and California adolphia (*Adolphia californica*). Less commonly occurring species within the maritime succulent scrub include Mojave yucca (*Yucca schidigera*), cane bluestem (*Bothriochloa barbinoidis*) and clustered tarplant (*Deinandra fasciculata).* The majority of the maritime succulent scrub on site is high quality with only few non-native grass species. Non-native grasses scattered throughout the site are few and include mostly a variety of European bromes like red brome (*Bromus rubens*), rip gut brome (*Bromus diandrus*) and false brome (*Brachypodium distachyon*). Large open patches of the maritime succulent scrub are dominated by cryptogamic crusts and spikemoss species. Ashy spikemoss (*Selaginella cinerascens*) is a dominate plant on site within most openings. Soils within this vegetation community consist of clay loams.

Tamarisk scrub

Tamarisk scrub (*Tamarix ramosissima*) is a non-native community consisting almost entirely as a monoculture. Tamarisk scrub supplants native vegetation following a major disturbance. Tamarisk scrub is found in sandy, gravelly braided channels, or washes or intermittent streams. Tamarisk is a prolific seeding species and an aggressive competitor to other species in riparian corridors. Tamarix scrub is widely scattered and increasing its range, throughout the drier parts of California. Tamarix scrub is also moving into the deserts of Nevada, Arizona and beyond (Oberbauer 2008).

Within the additional area east, 0.05 acres of Tamarisk scrub is present. Tamarisk is the dominant within the plant community on site making up 95% of the vegetative cover. This tamarisk community can be easily identified with aerial photography due to the density. The soils below the tamarisk consist of sand or sandy loams. Small annuals and perennials tolerate shade well. Below the tamarisk community on site patches of cocklebur (*Xanthium strumarium*), smilograss (*Stipa miliacea*), red brome and rip gut brome are present.

Unvegetated Stream Channel

Unvegetated stream channel is an aquatic community characterized by sandy, gravelly, or rocky fringes found around waterways or flood channels. Vegetation may be present but is usually is less than 10% total cover and grows on the outer edge of the channels (Oberbauer 2008).

Within the additional area east, 0.01 acres of unvegetated stream occurs within the drainage that generally flow north to south across the site. This drainage is found at the bottom of two steep slopes.

Disturbed Habitat

Disturbed habitats are areas that have been physically disturbed and are no longer recognizable as a native or naturalized vegetation association. 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 additional area east, 0.09 acres of disturbed habitat is found near the southern portion. This area consists soil disturbances with non-native European bromes present.

Methods

Three focused surveys for coastal California gnatcatcher were performed within the additional area east within suitable habitat between October 11, 2021, and October 25, 2021, by coastal California gnatcatcher-permitted biologists Erin Bergman according to the schedule in Table 2. The surveys were conducted following the currently accepted protocol of the U.S. Fish and Wildlife Service, *Coastal California Gnatcatcher* (Polioptila californica californica) *Presence/Absence Survey Protocol* (USFWS 1997).

Table 2. Schedule of 2021 Coastal California Gnatcatcher Surveys

Date	Time	Biologist	Survey Effort (acres/hour)	Survey Conditions
10/11/2021	8:48 AM–11:27 AM	Erin Bergman	<1	59–68°F; 0-50% cloud cover; 1–3 mph wind
10/18/2021	7:46 AM–10:32 AM	Erin Bergman	<1	61–68°F; 0–90% cloud cover; 0–3 mph wind
10/25/2021	9:46 AM–12:04 AM	Erin Bergman	<1	61–66°F; 50-100% cloud cover; 0–3 mph wind

Survey routes for site visits completely covered the areas of suitable coastal California gnatcatcher habitat on site, as shown on Figure 3. Appropriate birding binoculars (8 x 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 20 feet. 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.

Results

During the survey efforts, no coastal California gnatcatchers were detected within the additional area east.

No new wildlife species were observed within the additional area east. In total, 30 wildlife species were recorded during all the survey efforts within the entire Nirvana site and are included in Appendix A.

No new plant species were observed within the additional area east. A total of 63 species of native or naturalized plants, 32 native (51%) and 31 non-native (49%), were recorded during all survey efforts within the entire Nirvana site and are included in Appendix B.

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: Project Location
Figure 2: Vegetation Communities and Land Cover Types
Figure 3: Survey Route
Appendix A: Wildlife Species Observed During the 2021 Nirvana Project -Additional Survey Area East Coastal California Gnatcatcher Surveys
Appendix B: Plant Species Observed During the 2021 Nirvana Project- Additional Survey Area East Coastal California Gnatcatcher Surveys

cc: Callie Amoaku, Dudek

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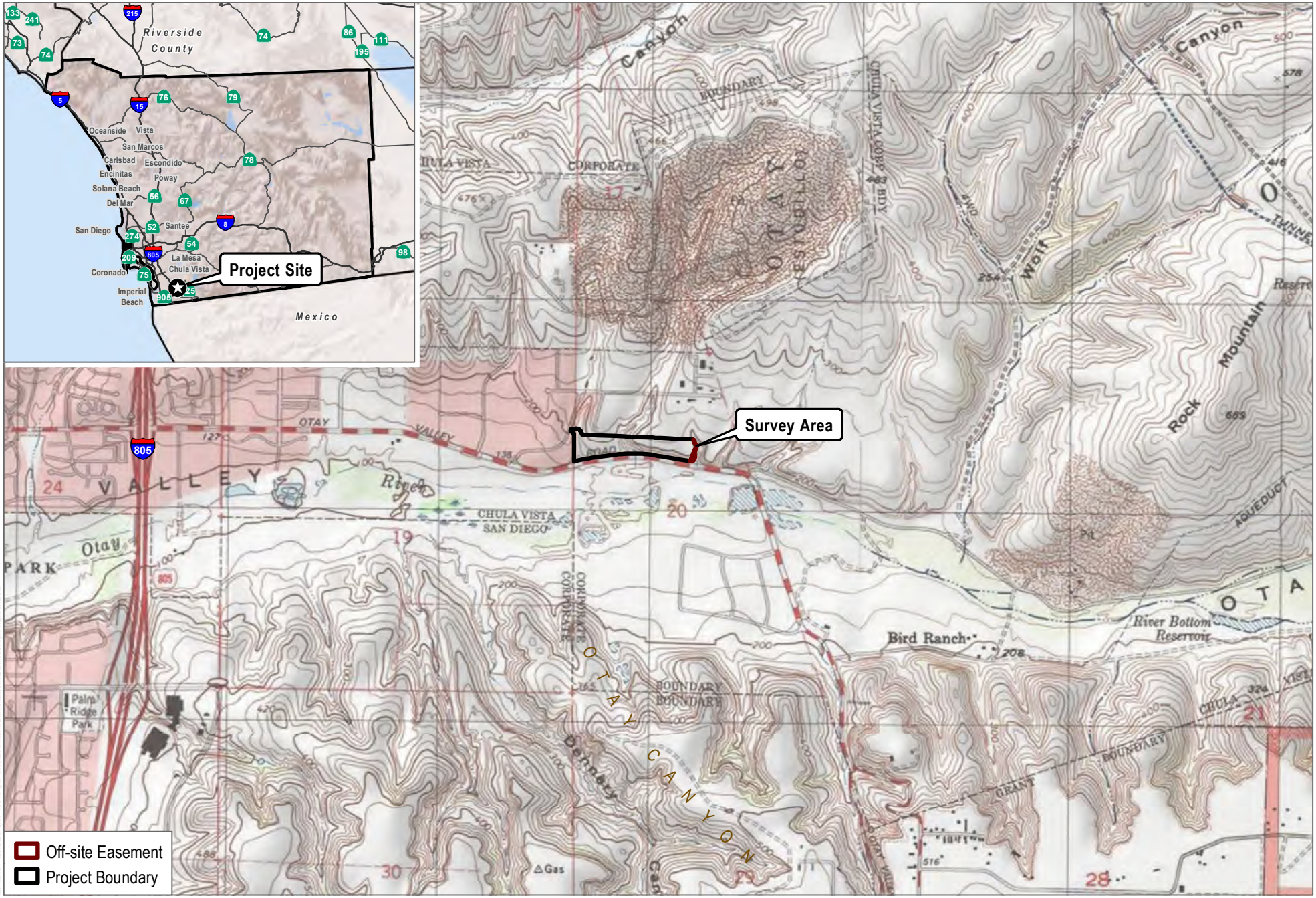

SOURCE: USGS 7.5-Minute Series Imperial Beach Quadrangle
Township 18S; Range 1W; Section 20

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

2021 Focused Coastal California Gnatcatcher Survey Report for the Proposed Nirvana Project - Additional Area East, Chula Vista, County of San Diego, California

SOURCE: SANGIS 2020, 2021

DUDEK

0 50 100 Feet

FIGURE 2

Vegetation Communities and Land Cover Types

2021 Focused Coastal California Gnatcatcher Survey Report for the Proposed Nirvana Project - Additional Area East, Chula Vista, County of San Diego, California

SOURCE: SANGIS 2020, 2021

DUDEK

0 50 100 Feet

FIGURE 3

Survey Routes

2021 Focused Coastal California Gnatcatcher Survey Report for the Proposed Nirvana Project - Additional Area East, Chula Vista, County of San Diego, California

Appendix A

Wildlife Species Observed During the 2021 Nirvana 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

Falcons

FALCONIDAE—CARACARAS AND FALCONS

Falco sparverius—American kestrel

Finches

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch

Spinus psaltria—lesser goldfinch

Flycatchers

TYRANNIDAE—TYRANT FLYCATCHERS

Empidonax difficilis—Pacific-slope flycatcher

Sayornis nigricans—black phoebe

Sayornis saya—Say's phoebe

Tyrannus vociferans—Cassin's kingbird

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

Mockingbirds and Thrashers

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird

Pigeons and Doves

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

Vireos

VIREONIDAE—VIREOS

Vireo bellii pusillus—least Bell's vireo

Wood Warblers and Allies

PARULIDAE—WOOD-WARBLERS

Geothlypis trichas—common yellowthroat

Wrens

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren

New World Sparrows

PASSERELLIDAE—NEW WORLD SPARROWS

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

Brephidium exile—western pygmy-blue

Hemiargus ceraunus gyas—Edward's blue
Leptotes marina—marine blue

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark

PIERIDAE—WHITES AND SULFURS

Phoebis sennae—cloudless sulphur

Mammals

Canids

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote

Squirrels

SCIURIDAE—SQUIRRELS

Otospermophilus beecheyi—California ground squirrel

Reptiles

Lizards

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

Appendix B

Plant Species Observed During the 2021 Nirvana Project Coastal California Gnatcatcher Surveys

Vascular Species

Eudicots

AIZOACEAE—FIG-MARIGOLD FAMILY

* *Mesembryanthemum crystallinum*—common iceplant
* *Mesembryanthemum nodiflorum*—slenderleaf iceplant

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Malosma laurina—laurel sumac
Rhus integrifolia—lemonade berry
* *Schinus molle*—Peruvian peppertree
Toxicodendron diversilobum—poison oak

APIACEAE—CARROT FAMILY

* *Apium graveolens*—wild celery
* *Foeniculum vulgare*—fennel

ASTERACEAE—SUNFLOWER FAMILY

Ambrosia monogyra—singlewhorl burrobrush
Ambrosia pumila—San Diego ambrosia
Artemisia californica—California sagebrush
Baccharis salicifolia—mulefat
Baccharis sarothroides—desertbroom
* *Centaurea melitensis*—Maltese star-thistle
Deinandra fasciculata—clustered tarweed
* *Glebionis coronaria*—crowndaisy
Isocoma menziesii var. *vernonioides*—Menzies' goldenbush
* *Lactuca serriola*—prickly lettuce
Viguiera laciniata—San Diego County viguiera
Xanthium strumarium—cocklebur

BORAGINACEAE—BORAGE FAMILY

Heliotropium curassavicum—salt heliotrope

BRASSICACEAE—MUSTARD FAMILY

* *Brassica nigra*—black mustard
* *Hirschfeldia incana*—shortpod mustard

CACTACEAE—CACTUS FAMILY

Cylindropuntia californica var. *californica*—snake cholla

Cylindropuntia prolifera—coastal cholla
Ferocactus viridescens—San Diego barrel cactus
Mammillaria dioica—strawberry cactus
Opuntia littoralis—coast prickly pear
Opuntia oricola—chaparral pricklypear

CHENOPODIACEAE—GOOSEFOOT FAMILY

Atriplex lentiformis—quailbush
* *Atriplex semibaccata*—Australian saltbush
* *Bassia hyssopifolia*—fivehorn smotherweed
* *Salsola tragus*—prickly Russian thistle

CLEOMACEAE—CLEOME FAMILY

Peritoma arborea—bladderpod

CRASSULACEAE—STONECROP FAMILY

Dudleya pulverulenta—chalk dudleya

EUPHORBIACEAE—SPURGE FAMILY

* *Ricinus communis*—castorbean

FABACEAE—LEGUME FAMILY

* *Acacia melanoxylon*—blackwood
* *Acacia redolens*—bank catclaw

LAMIACEAE—MINT FAMILY

* *Marrubium vulgare*—horehound

POLYGONACEAE—BUCKWHEAT FAMILY

Eriogonum fasciculatum var. *fasciculatum*—California buckwheat
* *Rumex crispus*—curly dock

RHAMNACEAE—BUCKTHORN FAMILY

Adolphia californica—California adolphia

SALICACEAE—WILLOW FAMILY

Salix gooddingii—Goodding's willow
Salix laevigata—red willow

SIMMONDSIACEAE—JOJOBA FAMILY

Simmondsia chinensis—jojoba

SOLANACEAE—NIGHTSHADE FAMILY

Datura wrightii—sacred thorn-apple
* *Nicotiana glauca*—tree tobacco

TAMARICACEAE—TAMARISK FAMILY

* *Tamarix ramosissima*—tamarisk

Ferns and Fern Allies

SELAGINELLACEAE—SPIKE-MOSS FAMILY

Selaginella cinerascens—ashy spike-moss

Monocots

AGAVACEAE—AGAVE FAMILY

Yucca schidigera—Mojave yucca

ARECACEAE—PALM FAMILY

* *Washingtonia robusta*—Washington fan palm

CYPERACEAE—SEDGE FAMILY

Schoenoplectus californicus—California bulrush

POACEAE—GRASS FAMILY

* *Avena barbata*—slender oat
Bothriochloa barbinodis—cane bluestem
* *Brachypodium distachyon*—purple false brome
* *Bromus diandrus*—ripgut brome
* *Bromus rubens*—red brome
* *Cynodon dactylon*—Bermudagrass
* *Ehrharta erecta*—panic veldtgrass
* *Festuca perennis*—perennial rye grass
* *Pennisetum setaceum*—fountain grass
* *Polypogon monspeliensis*—annual rabbitsfoot grass
* *Stipa miliacea* var. *miliacea*—smilograss

605 THIRD STREET
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August 19, 2021 13518

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 Nirvana Project, Chula Vista, County of San Diego, California*

Dear Recovery Permit Coordinator:

This letter report documents the results of three protocol-level focused surveys for the coastal California gnatcatcher (*Polioptila californica californica*) that were conducted for the proposed Nirvana Project (project), which is located on an approximately 13.49-acre site, by Dudek biologists Erin Bergman between July 1, 2021, and August 13, 2021. The surveys were conducted in areas of suitable coastal California gnatcatcher habitat. This report is intended to satisfy reporting requirements for coastal California gnatcatcher -permitted biologists Erin Bergman (TE-53771B-2).

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 habitat loss, degradation, and fragmentation. Coastal California gnatcatcher typically occurs below 820 feet above mean sea level 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).

Project Location and Existing Conditions

The study area is located within Chula Vista, California (Figure 1, Project Location). The site is 13.49 acres located at 821 Main Street on the north side of Main Street and east of Nirvana Avenue in the City of Chula Vista (City). It comprises Tax Assessor parcel numbers – APNs 644-050-060-1300 & 644-050-60-1400.

Elevation on site ranges between approximately 139 feet and 212 feet above mean sea level. The landscape is flat apart from the southern section of the property that is particularly steep. The site is located within Section 20 of Township 18 south and Range 1 west in the 7.5-minute USGS Imperial Beach quadrangle.

Vegetation Communities

One plant community was identified within the project site as highly suitable coastal California gnatcatcher habitat: maritime succulent scrub. Four other vegetation communities were not considered highly suitable habitat. These included disturbed habitat, urban/developed, tamarisk scrub and unvegetated stream. Due to proximity and intermixed nature of other vegetation communities, all vegetation was included within the study area. Approximately, 13.49 acres of coastal California gnatcatcher-suitable habitat was mapped on site in accordance with Holland (1986) and Oberbauer et al. (2008). The 13.49-acre project site primarily consists of maritime succulent

scrub. The vegetation communities and land cover types recorded on the project site are described in detail below, their acreages are presented in Table 1 and vegetation figures are presented in Figure 2.

Table 1. Vegetation Communities and Land Cover within the Study Area

Vegetation Community/ Land Cover	Acres
Disturbed Habitat	0.26
Urban/Developed	0.02
Maritime succulent scrub	12.73
Tamarisk scrub	0.27
Unvegetated Stream	0.21
Total	**13.49**

Maritime Succulent Scrub

Maritime succulent scrub is a low-lying community with openings that range from 25% to 75% cover and is dominated by drought deciduous, woody, malacophyllous shrubs with a rich admixture of stem and leaf succulents. Cacti is more dominant in inland populations and southern populations. Large portions of the ground are bare between the shrubs. Most of the growth and flowering occurs in the springtime within this community. Maritime succulent scrub extends as far inland as Bonita, Ca. Maritime succulent scrub is typically dominated by some or all of the following species: California copperleaf (*Acalypha californica*), Shaw's agave (*Agave shawii*), California sagebrush (*Artemisia californica*), golden spined cereus (*Bergerocactus emoryi*), California encelia (*Encelia californica*), cliff spurge (*Euphorbia misera*), coast barrel cactus (*Ferocactus viridescens*), California box thorn (*Lycium californicum*), coast prickly pear (*Opuntia littoralis*), chaparral prickly pear (*Opuntia oricola*), coast cholla (*Cylindropuntia prolifera*), lemonade berry (*Rhus integrifolia*), San Diego sunflower (*Viguera or Bahiopsis laciniata*) (Oberbauer 2001).

Onsite, there are 12.73 acres of Maritime succulent scrub present. Numerous succulent species are present and, in some areas, abundant. Succulents are dominant or scattered around the plant community and include coastal barrel cactus (*Ferocactus viridescens*), coast cholla (*Cylindropuntia prolifera*), strawberry cactus (*Mammilaria dioica*) and coastal prickly pear (*Opuntia littoralis*). Larger dominant shrubs growing with the succulents include jojoba (*Simmondsia chinensis*), lemonadeberry (*Rhus integrifolia*), California buckwheat (*Eriogonum fasciculatum*), San Diego sunflower (*Bahiopsis laciniata*), laurel sumac (*Malosma laurina*) and California adolphia (*Adolphia californica*). Less commonly occurring species within the maritime succulent scrub include Mojave yucca (*Yucca schidigera*), cane bluestem (*Bothriochloa barbinoidis*) and clustered tarplant (*Deinandra fasciculata).* The majority of the maritime succulent scrub on site is high quality with only few non-native grass species. Non-native grasses scattered throughout the site are few and include mostly a variety of European bromes like red brome (*Bromus rubens*), rip gut brome (*Bromus diandrus*) and false brome (*Brachypodium distachyon*). Large open patches of the maritime succulent scrub are dominated by cryptogamic crusts and spikemoss species. Ashy spikemoss (*Selaginella cinerascens*) is a dominate plant on site within most openings. Soils within this vegetation community consist of clay loams. Maritime succulent scrub is the overall dominant plant community onsite.

Tamarisk scrub

Tamarisk scrub (*Tamarix ramosissima*) is a non-native community consisting almost entirely as a monoculture. Tamarisk scrub supplants native vegetation following a major disturbance. Tamarisk scrub is found in sandy, gravelly braided channels, or washes or intermittent streams. Tamarisk is a prolific seeding species and an aggressive competitor to other species in riparian corridors. Tamarix scrub is widely scattered and increasing its range, throughout the drier parts of California. Tamarix scrub is also moving into the deserts of Nevada, Arizona and beyond (Oberbauer 2008).

Onsite, 0.27 acres of Tamarisk scrub is present. Tamarisk is the dominant within the plant community on site making up 95% of the vegetative cover. This tamarisk community can be easily identified with aerial photography due to the density. Onsite, two narrow riparian corridors are present within the project boundary that contain tamarisk. One corridor sits on the very western side of the site and the other near the central portion of the site. Tamarisk creates dense monocultures that allow minimal light penetration to the ground onsite. A few remnant willows were still present onsite. Thick stands of tamarisk allow for few annuals and few small perennials to persist below the canopy. The soils below the tamarisk consist of sand or sandy loams. These small annuals and perennials tolerate shade well. Below the tamarisk community on site patches of wild celery (*Apium graveolens*), water cress (*Nasturtium officinale*), cocklebur (*Xanthium strumarium*), smilograss (*Stipa miliacea*), red brome and rip gut brome are present.

Unvegetated Stream Channel

Unvegetated stream channel is an aquatic community characterized by sandy, gravelly, or rocky fringes found around waterways or flood channels. Vegetation may be present but is usually is less than 10% total cover and grows on the outer edge of the channels (Oberbauer 2008).
On-site, 0.21 acres of unvegetated stream occurs within the two drainages that generally flow north to south across the site. These drainages are both found at the bottom of steep slopes, one on the western edge of the project, the other in the center. The central channel's eastern slope and edge consist of patches of dense singlewhorl burrobush (*Ambrosia monogyra*).

Disturbed Habitat

Disturbed habitats are areas that have been physically disturbed and are no longer recognizable as a native or naturalized vegetation association. 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).

On-site, 0.26 acres of disturbed habitat is found near the central portion of the site. This area consists of an old dirt road and other disturbances. The majority of this disturbed habitat has either compacted soils, soils that may have been historically disced and or graded to maintain a dirt road. In this disturbed area, non-native European bromes dominate. However, the edges of this disturbed habitat consist of San Diego ambrosia (*Ambrosia pumila*). San Diego ambrosia continues into the maritime succulent scrub habitat.

Urban/Developed

Urban/developed land refers to areas that have been constructed on or disturbed so severely that native vegetation is no longer supported. 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).

On-site, 0.02 acre of urban/developed land is found in a small section of the project's northwest corner in an existing developed lot. It is the smallest community on-site.

Methods

Three focused surveys for coastal California gnatcatcher were performed within suitable habitat between July 1, 2021, and April 13, 2021, by coastal California gnatcatcher-permitted biologists Erin Bergman according to the schedule in Table 2. The surveys were conducted following the currently 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.

Table 2. Schedule of 2021 Coastal California Gnatcatcher Surveys

Date	Time	Biologist	Survey Effort (acres/hour)	Survey Conditions
07/01/2021	7:20 AM–11:47 AM	Erin Bergman	3	61–84°F; 0% cloud cover; 1–4 mph wind
07/23/2021	5:59 a.m.–11:46 a.m.	Erin Bergman	3	62–78°F; 30–90% cloud cover; 0–3 mph wind
8/13/2021	6:02 AM–11:45 AM	Erin Bergman	3	66–84°F; 0–10% cloud cover; 0–3 mph wind

Survey routes for site visits completely covered the areas of suitable coastal California gnatcatcher habitat on site, as shown on Figure 3. Appropriate birding binoculars (8 x 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 20 to 100 feet. 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.

Results

During the survey efforts, no coastal California gnatcatchers were detected.

In total, 29 wildlife species were recorded during the survey efforts and are included in Appendix A.

A total of 63 species of native or naturalized plants, 32 native (51%) and 31 non-native (49%), was recorded on the site and are included in Appendix B.

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: Project Location
Figure 2: Vegetation Communities and Land Cover Types
Figure 3: Survey Route
Appendix A: Wildlife Species Observed During the 2021 Ramona Sprayfields Project Coastal California Gnatcatcher Surveys
Appendix B: Plant Species Observed During the 2021 Ramona Sprayfields Project Coastal California Gnatcatcher Surveys

cc: camoaku@dudek.com Callie Amoaku

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Bontrager, D.R. 1991. Habitat Requirements, Home Range Requirements, and Breeding Biology of the California Gnatcatcher (Polioptila californica) in South Orange County, California. Prepared for Santa Margarita Company, Ranch Santa Margarita, California. April 1991.

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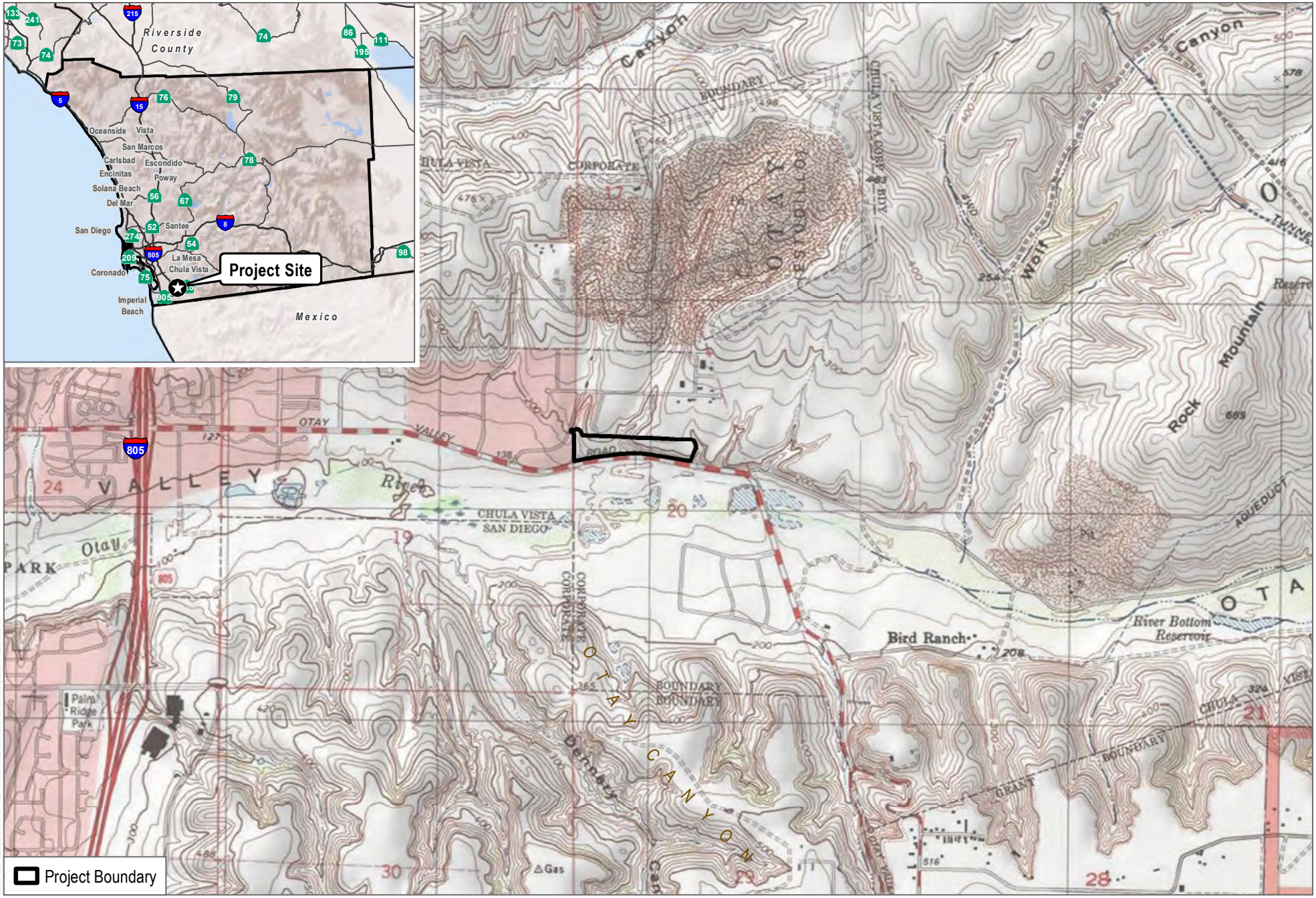

SOURCE: USGS 7.5-Minute Series Imperial Beach Quadrangle
Township 18S; Range 1W; Section 20

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

OnPoint Nirvana Project

SOURCE: SANGIS 2020, 2021

DUDEK

0 100 200 Feet

FIGURE 2

Vegetation Communties and Land Cover Types

OnPoint Nirvana Project

SOURCE: SANGIS 2020, 2021

DUDEK

0 100 200 Feet

FIGURE 3

Coastal California Gnatcatcher Survey Route

OnPoint Nirvana Project

Appendix A

Wildlife Species Observed During the 2021 Nirvana 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

Falcons

FALCONIDAE—CARACARAS AND FALCONS

Falco sparverius—American kestrel

Finches

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch

Spinus psaltria—lesser goldfinch

Flycatchers

TYRANNIDAE—TYRANT FLYCATCHERS

Empidonax difficilis—Pacific-slope flycatcher

Sayornis nigricans—black phoebe

Sayornis saya—Say's phoebe

Tyrannus vociferans—Cassin's kingbird

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

Mockingbirds and Thrashers

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird

Pigeons and Doves

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

Vireos

VIREONIDAE—VIREOS

Vireo bellii pusillus—least Bell's vireo

Wood Warblers and Allies

PARULIDAE—WOOD-WARBLERS

Geothlypis trichas—common yellowthroat

Wrens

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren

New World Sparrows

PASSERELLIDAE—NEW WORLD SPARROWS

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

Brephidium exile—western pygmy-blue

Hemiargus ceraunus gyas—Edward's blue
Leptotes marina—marine blue

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark

PIERIDAE—WHITES AND SULFURS

Phoebis sennae—cloudless sulphur

Mammals

Canids

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote

Squirrels

SCIURIDAE—SQUIRRELS

Otospermophilus beecheyi—California ground squirrel

Reptiles

Lizards

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

Appendix B

Plant Species Observed During the 2021 Nirvana Project Coastal California Gnatcatcher Surveys

Vascular Species

Eudicots

AIZOACEAE—FIG-MARIGOLD FAMILY

* *Mesembryanthemum crystallinum*—common iceplant
* *Mesembryanthemum nodiflorum*—slenderleaf iceplant

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Malosma laurina—laurel sumac
Rhus integrifolia—lemonade berry
* *Schinus molle*—Peruvian peppertree
Toxicodendron diversilobum—poison oak

APIACEAE—CARROT FAMILY

* *Apium graveolens*—wild celery
* *Foeniculum vulgare*—fennel

ASTERACEAE—SUNFLOWER FAMILY

Ambrosia monogyra—singlewhorl burrobrush
Ambrosia pumila—San Diego ambrosia
Artemisia californica—California sagebrush
Baccharis salicifolia—mulefat
Baccharis sarothroides—desertbroom
* *Centaurea melitensis*—Maltese star-thistle
Deinandra fasciculata—clustered tarweed
* *Glebionis coronaria*—crowndaisy
Isocoma menziesii var. *vernonioides*—Menzies' goldenbush
* *Lactuca serriola*—prickly lettuce
Viguiera laciniata—San Diego County viguiera
Xanthium strumarium—cocklebur

BORAGINACEAE—BORAGE FAMILY

Heliotropium curassavicum—salt heliotrope

BRASSICACEAE—MUSTARD FAMILY

* *Brassica nigra*—black mustard
* *Hirschfeldia incana*—shortpod mustard

CACTACEAE—CACTUS FAMILY

Cylindropuntia californica var. *californica*—snake cholla

Cylindropuntia prolifera—coastal cholla
Ferocactus viridescens—San Diego barrel cactus
Mammillaria dioica—strawberry cactus
Opuntia littoralis—coast prickly pear
Opuntia oricola—chaparral pricklypear

CHENOPODIACEAE—GOOSEFOOT FAMILY

Atriplex lentiformis—quailbush
* *Atriplex semibaccata*—Australian saltbush
* *Bassia hyssopifolia*—fivehorn smotherweed
* *Salsola tragus*—prickly Russian thistle

CLEOMACEAE—CLEOME FAMILY

Peritoma arborea—bladderpod

CRASSULACEAE—STONECROP FAMILY

Dudleya pulverulenta—chalk dudleya

EUPHORBIACEAE—SPURGE FAMILY

* *Ricinus communis*—castorbean

FABACEAE—LEGUME FAMILY

* *Acacia melanoxylon*—blackwood
* *Acacia redolens*—bank catclaw

LAMIACEAE—MINT FAMILY

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