Appendix B
Biological Resources Technical Report

DRAFT

BIOLOGICAL RESOURCES TECHNICAL REPORT NELSON SLOAN QUARRY RESTORATION AND BENEFICIAL REUSE OF SEDIMENT PROJECT SAN DIEGO COUNTY, CALIFORNIA

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Biological Resources Technical Report for the Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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EXECUTIVE SUMMARY

The Nelson Sloan Quarry is located in the southern portion of the Tijuana River Valley and was the site of active mineral extraction prior to being purchased by the County of San Diego and incorporated as part of the Tijuana River Valley Regional Park (TRVRP) in 2003. California Department of Parks and Recreation (CDPR) proposes the beneficial reuse of excess sediment excavated from a range of on-going and proposed sediment management activities (e.g., sediment basins, flood control facilities and conveyances, habitat restoration and enhancement projects), in the Tijuana River Valley towards landform and habitat restoration in the abandoned Nelson Sloan Quarry.

Dudek conducted vegetation communities mapping, a jurisdictional delineation, reconnaissance surveys, a focused coastal California gnatcatcher survey, and focused rare plant surveys in 2019 and 2020 within the study area. Four plant community types were identified within the proposed study area: maritime succulent scrub (32400), Diegan coastal sage scrub (32500) (including disturbed forms), mulefat scrub (63310), and southern riparian scrub (63300). Two land cover types were identified within the study area: open water (64100) and disturbed land–xeric cliff face, escarpment, ruderal (4.6, 10.1).

Sixteen special-status plant species were observed in the study area: Baja California birdbush (*Ornithostaphylos oppositifolia*), California adder's tongue (*Ophioglossum californicum*), California desert thorn (*Lycium californicum*), Lewis's evening primrose (*Camissoniopsis lewisii*), Orcutt's bird's beak (*Dicranostegia orcuttiana*), San Diego County needle grass (*Stipa diegoensis*), San Diego County viguiera (*Viguiera laciniata*), San Diego barrel cactus (*Ferocactus viridescens*), San Diego bur-sage (*Ambrosia chenopodiifolia*), ashy spike-moss (*Selaginella cinerascens*), cliff spurge (*Euphorbia misera*), golden spined cereus (*Bergerocactus emoryi*), sea dahlia (*Leptosyne maritima*), seaside cistanthe (*Cistanthe maritima*), western dichondra (*Dichondra occidentalis*), and wart-stemmed ceanothus (*Ceanothus verrucosus*).

Six special-status wildlife species were detected and determined to be resident or have nesting habitat within the study area: the federally listed threatened coastal California gnatcatcher (*Polioptila californica californica*) and federally listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*), as well as the San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), Cooper's hawk (*Accipiter cooperii*), northern harrier (*Circus cyaneus*), and turkey vulture (*Cathartes aura*). The study area is located within the City of San Diego Multiple Species Conservation Plan (MSCP) Multi Habitat Planning Area (MHPA) and is designated as MSCP Open Space within the Tijuana River Valley Local Coastal Program/Land Use Plan (LCP/LUP). Each of these documents includes land use and biological restrictions and guidelines which affect how the Project may be implemented.

Implementation of the Project will result in impacts to coastal sage scrub and disturbed coastal sage scrub occurring in four phases and totaling 11.52 acres in Year 1, 1.37 acres in Year 2 (Phase 3), 4.36 acres in Year 7 (Phase 5), and 0.14 acres in Year 10 (Phase 6). All portions of the Project will be subject to coastal sage scrub restoration; restoration will occur in four phases (3.57 acres in Year 1, 1.39 acres after completion of Phase 3, 3.50 acres after completion of Phase 5, and 12.29 acres after completion of Phase 6) and total 20.75 acres. The Project includes Project design features (PDFs) to reduce biological impacts including maintenance of habitat protection fencing, implementation of storm water and dust management measures, and prohibition of lighting or night-time activities.

Impacts to special-status vegetation communities consist of the temporary loss of coastal sage scrub. This impact is considered significant but mitigated to less than significant through monitoring, maintenance, and management of revegetation areas resulting in net gains in habitat area and quality. Direct impacts to foraging habitat for special-status wildlife species are considered less than significant because sufficient adjacent habitat is present for these species to persist during the average 10-years of temporary habitat loss and, following restoration of the site will support a greater extent and quality of suitable habitat and, therefore, provide a net benefit to these species. There are potential direct impacts to special-status reptiles, special-status small mammals, coastal California gnatcatcher, Quino checkerspot butterfly, and migratory birds protected. These impacts would be reduced to less than significant through mitigation measures.

While there are impacts to two individual San Diego County viguiera plants in Phase 1 and 63 in Phase 5 as a result of grading, these losses are not considered significant due to the low sensitivity of these species (California Rank Plant Rank of 4.3).

Indirect impacts associated with the Project are expected to be avoided and minimized to the extent feasible through implementation of the PDFs and are not considered significant. The proposed Project is compliant with the applicable sections of the MSCP Subarea Plan and Tijuana River Valley LCP/LUP.

Biological Resources Technical Report for the Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

1 INTRODUCTION

The Nelson Sloan Quarry is located in the Tijuana River Valley and was permitted as a sand and gravel quarry known as the Border Highland Pit (Figure 1). The quarry was issued a 20-year Conditional Use Permit (CUP) in 1982 by the City of San Diego. Only a portion of the approved quarry area under the CUP was subject to mining during the 1982–2002 period. No portion of the CUP area has been reclaimed as required under the original Reclamation Plan prepared as part of the CUP and as required by the State Surface Mining and Reclamation Act (SMARA) of 1975. After 2002, the County of San Diego purchased the property with funds provided by a grant from the California Coastal Conservancy with an agreement to utilize the property for habitat protection and open space consistent with the Tijuana River Valley Regional Park (TRVRP) (URS 2010).

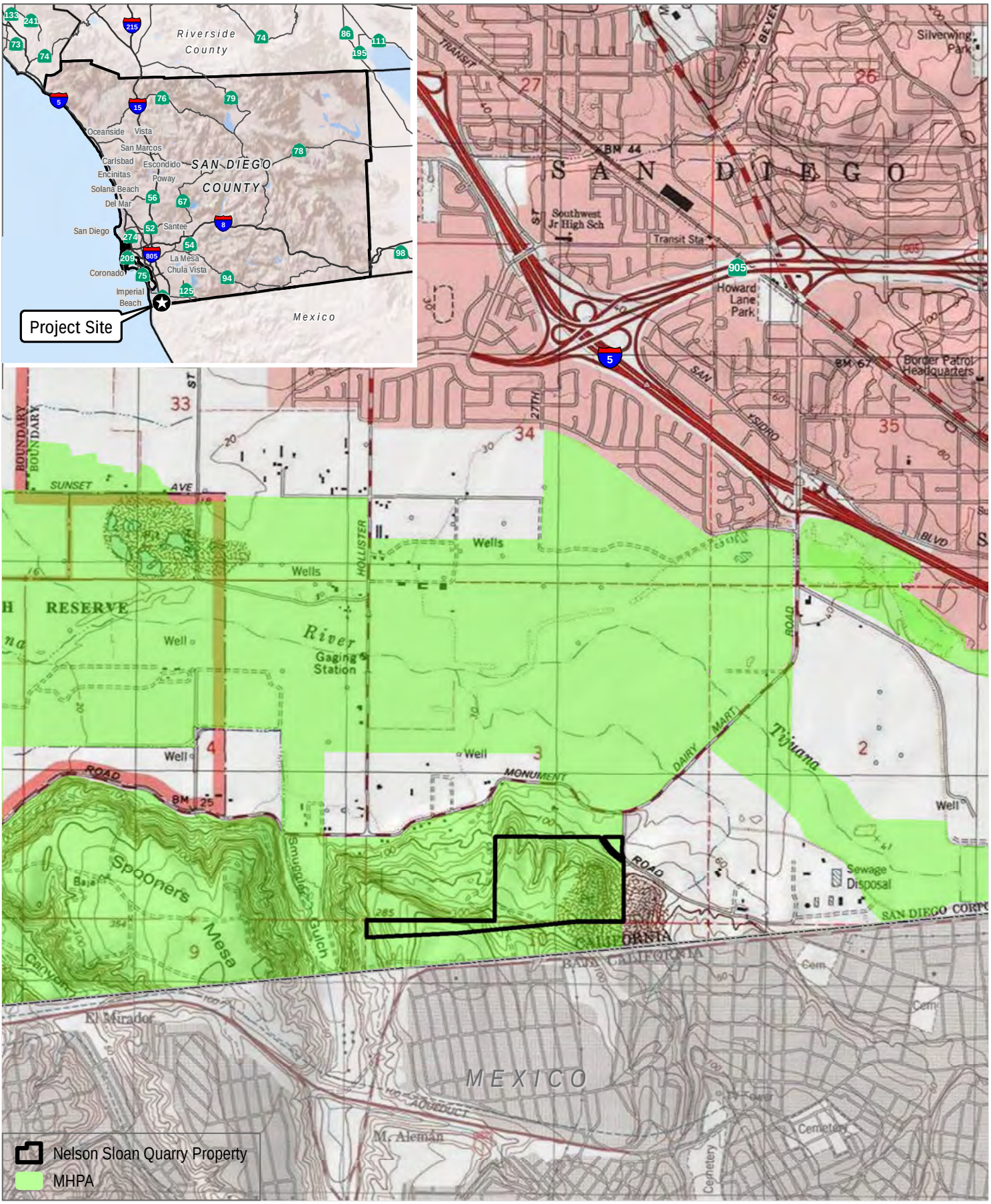
The City of San Diego, County of San Diego, and the State of California Department of Parks and Recreation (CDPR) operate flood control facilities within the Tijuana River Valley, the maintenance of which requires collection of sediment. The reclamation of the Nelson Sloan Quarry is being considered as a cost-effective location where sediment can be permanently placed while also providing opportunities for habitat restoration and regulatory compliance under SMARA.

With regard to sediment placement, as proposed, the Project intends to source sediment from multiple potential locations in the Tijuana River Valley. Sediment management operations at each of the potential source locations are subject to existing permits and/or environmental approvals. This document does not include an assessment of existing, ongoing sediment management operations (existing land uses) at potential source locations including the Goat Canyon Sedimentation Basins (managed by CDPR), Pilot Channel and Smuggler's Gulch (managed by the City), Smuggler's Gulch (south of Monument Road; managed by the County), and others. Other than utilizing the Project site as a receiving site for sediments, existing operations at sediment source locations are not anticipated to change.

Multi-jurisdictional collaboration on the Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project (Project) was taken from concept to planning in 2010 by the City of San Diego through URS (AECOM) with completion of the Land Use Options for the Nelson Sloan Property. In 2012, the City and URS (AECOM) prepared a Substantial Conformance Review document and supporting technical reports (including a Biological Technical Report and Conceptual Mitigation and Mine Reclamation Plan) that consisted of a plan to implement the Reclamation Plan for the Nelson Sloan site using sediment removed from the Tijuana River. A grading plan was developed to accommodate approximately 1,000,000 cubic yards (CY) of fill material over five grading phases on the Nelson Sloan quarry site. This active planning was furthered by the City of San Diego Conservancy grant, Recovery Team, and San Diego County through a grant from the

California Coastal Conservancy with the production of the Nelson Sloan Management and Operations Plan and Cost analysis, completed in 2016. The Management and Operations Plan presented stakeholders with sediment management responsibilities in the Tijuana River Valley a description of how the quarry might be managed and operated as a location for the placement of sediment while simultaneously fulfilling the requirements of the CUP and a Restoration Plan. The Restoration Plan considers four alternatives: placement of 100,000 CY of sediment with a passive restoration plan, and placement of 100,000, 1 million, and 2.3 million CY of sediment with a robust mitigation and monitoring plan for its restoration. Both of these planning efforts represent significant contributions toward the implementation of this Project and involved collaboration and support of partnering government stakeholders.

To facilitate evaluation of the CUP Reclamation Plan in the context of biological resource impacts and mitigation addressed in the 1982 CUP and applicable biological resource regulations, Dudek completed baseline surveys and focused surveys in 2011, 2019, and 2020 to determine presence/absence of various special-status species including California gnatcatcher (*Polioptila californica californica*), Quino checkerspot butterfly (*Euphydryas editha quino*), and narrow endemic plant species. This report includes a description of the site, survey methods, survey results, evaluation of potential Project impacts, and conformance with applicable biological resource regulations in order to provide sufficient information to support a Site Development Permit (SDP) and Coastal Development Permit (CDP) as required by the City of San Diego Development Services Department (DSD).



SOURCE: USGS 7.5-Minute Series Imperial Beach Quadrangle

DUDEK

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FIGURE 1

Project Location

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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1.1 Project Terms

Study Area: the four parcel 71.9-acre Nelson Sloan Quarry property evaluated in this report to establish baseline conditions.

Reclamation Area: the 20.93-acre portion of the study area where the proposed reclamation, sediment deposition, and restoration activities will occur. The Reclamation Area is located within the two eastern parcels of the previous quarry property and the two parcels are referred to as the Project site.

Proposed Project or Project: the Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project, which proposes to implement the Reclamation Plan and Restoration Plan through the placement of fill material for landform reclamation, creation, and habitat restoration.

Restoration Plan: an overall restoration plan (also referred to as a revegetation plan) to be approved by the County of San Diego prior to the initiation of Phase 1 operations, including invasive species removal outside of the Project limits. Individual restoration plans would be prepared for each phase and approved prior to the initiation of operations for the phase.

1.2 Project Overview

In 1982, the City issued a 20-year CUP (Document No. 497-PC in the office of the City Clerk in the City of San Diego) to Nelson and Sloan, a California Corporation, for the extraction of sand and gravel from the Border Highlands Pit (also known as the Nelson Sloan Quarry; Mine ID 91-37-0037)(City of San Diego 1982a). A Reclamation Plan, detailing the slopes and reclamation and revegetation requirements for the quarry once operations ceased, was submitted with the CUP. The 20-year CUP permitted the extraction of approximately 7.5 million cubic yards of sand and gravel from the site. Approximately 1/3 of the permitted volume of sand and gravel was actively mined from the site over the 20-year operational life of the quarry. In 2002, the CUP expired, and the quarry site was not formally reclaimed in accordance with the approved CUP reclamation plan.

Currently, sediment management activities are undertaken by City, County, state, and federal entities and their partners in the Tijuana River Valley. These entities typically haul the excess sediment off site to regional landfills or construction sites. The proposed Project would instead allow these entities to place appropriate material in the Nelson Sloan Quarry as part of a phased landform reclamation, creation, and habitat restoration project. A phased approach would be used to reclaim previously mined portions of the property. Through a series of phases, the proposed Project would place approximately 1,000,000 cubic yards (CY) total of fill material for the purpose of landform reclamation, creation, and habitat restoration. Phase 1 of the proposed Project includes regrading, implementing erosion control measures, and revegetating the slope west of the quarry

floor to stabilize the slope. These Phase 1 activities are intended to satisfy previous Reclamation Plan requirements and release the site from regulatory requirements under the SMARA. The Project also includes phased restoration of natural coastal sage scrub vegetation. Interim phases would include application of erosion control vegetation hydroseed mix and implementation of appropriate erosion control best management practices (BMPs) on slopes. Final revegetation of finished graded slopes would include coastal sage scrub container plant and seed mix application analogous to naturally occurring coastal sage scrub found on adjacent mesa slopes.

Proposed landform reclamation (and creation) and habitat restoration would occur on an approximately 20.93-acre site (i.e., Reclamation Area) and proposed activities are estimated to occur over an up to 15-year timeframe.

2 PROJECT SETTING

2.1 Project Location

The study area is an approximately 72-acre site located in extreme southwestern San Diego County, southwest of the intersection of Dairy Mart Road and Monument Road (Figure 1). Dudek completed focused surveys within the entire study area. Properties within the study area are owned by the County of San Diego (Figure 2). The Reclamation Area includes 20.93 acres on three parcels (Assessor's Parcel Number [APN] 664-011-04-00, APN 664-011-05-00, and APN 664-020-005-00).

The study area is within the City of San Diego and is part of the TRVRP in area known as the Border Highlands (Figure 3). The study area is within the Multi-Habitat Planning Area (MHPA) Subarea-113, as designated by the City of San Diego Subarea Plan to the Multiple Species Conservation Plan (MSCP). The study area is within the Coastal Overlay Zone but is completely outside the 100-year floodway as designated by the Federal Emergency Management Agency (FEMA). It is located with the Tijuana River Valley Community Plan and is zoned Agriculture (AR-1-1).

The study area is depicted on the U.S. Geological Survey (USGS) 7.5-minute Imperial Beach quadrangle, in Township 19 South, Range 2 West, Sections 3 and 10 (Figure 1).

2.2 Topography and Land Uses

The study area is generally flat in the eastern half, with a steep cut slope bisecting the middle of the site. The western half of the study area has two steep canyons draining north toward the Tijuana River. Elevations on site are approximately 30 feet above mean sea level (AMSL) in the northeast portion and approximately 440 feet AMSL along the southern boundary in the western portion of the site. The eastern portion of the study area (i.e., the Project site) was previously used as a quarry. A brief review of historical aerial photographs indicates that a third canyon existed in the area of the quarry, east of and parallel to the two existing canyons on-site. The security infrastructure along the border between the United States and Mexico was expanded around 2008 and occupies approximately 200–250 feet of land extending from the international border on the U.S. side. Fill slopes and a drainage structure from that expansion have removed any drainage to this historical canyon; drainage now flows to the existing canyon immediately east of the quarry. The fill slope has brow ditches that drain towards the quarry.

Adjacent land uses include open space and agricultural operations. The U.S. Border Patrol uses all open areas throughout the site to patrol the border. The South Bay International Wastewater Treatment Plant is located to the northeast of the Project site (east of parcel 664-011-0550 and Monument Road).

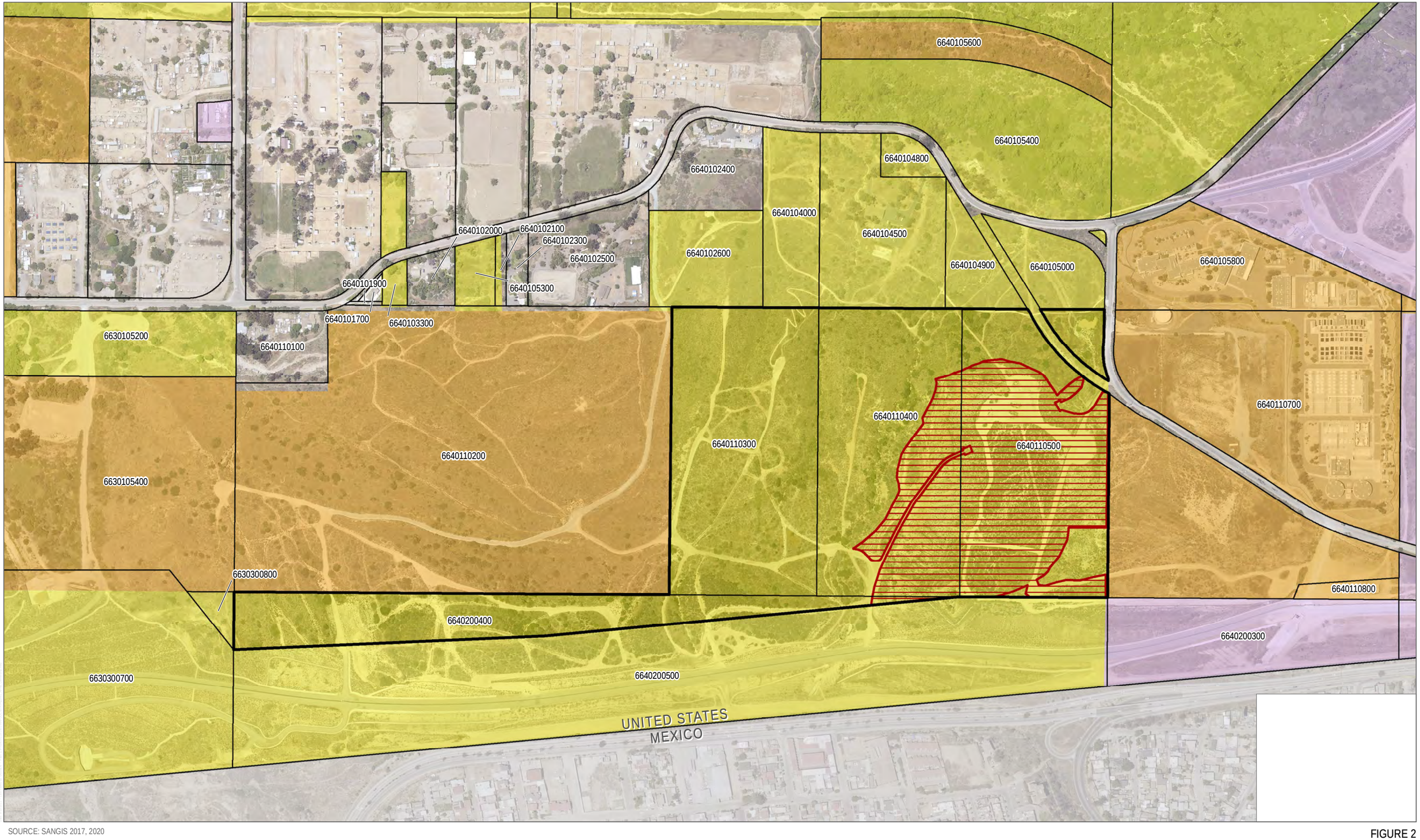
2.3 Soils

The following soil types occur within the study area: Olivenhain cobbly loam (2% to 9% slopes), Olivenhain cobbly loam (9% to 30% slopes), Olivenhain cobbly loam (30% to 50%), Huerhuero loam (5% to 9% slopes, eroded), and terrace escarpment.

Olivenhain series soils are found throughout the site. Olivenhain series soils form from gravelly and cobbly alluvium on dissected marine terraces. The topsoil layer is brown to reddish-brown and about ten inches deep over subsoil that extends to about 60 inches depth. Olivenhain cobbly loam 2% to 9% slopes, 9% to 30% slopes, and 30% to 50% slopes are mapped on-site (USDA 2019). Olivenhain soils are substrates associated with sensitive plant species.

Huerhuero series soils are moderately well-drained loams that derived from sandy marine sediments. The topsoil is strongly acid (pH 5.3) pale-, yellowish-, grayish- or strong-brown in color and sandy loam to loam in texture, and from five to 30 inches thick. Below this is an alkaline pan of clay or heavy clay loam. The subsoil extends to 68 inches depth, grading into and a sandy loam texture. Huerhuero soils support tarweeds and annual grasses and forbs. Huerhuero loam (5% to 9% slopes, eroded) soils are found in the middle and western portions of the study area.

Terrace escarpment is mapped in the western portion of the study area. Terrace escarpments are steep or very steep landscapes that occur on nearly even fronts of terraces or alluvial fans. Typically, this soil has 4 inches to 10 inches of loamy or gravelly soil over soft marine sandstone, shale, or gravelly sediments (USDA 2019).



SOURCE: SANGIS 2017, 2020

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FIGURE 2

Property Ownership and Project Areas

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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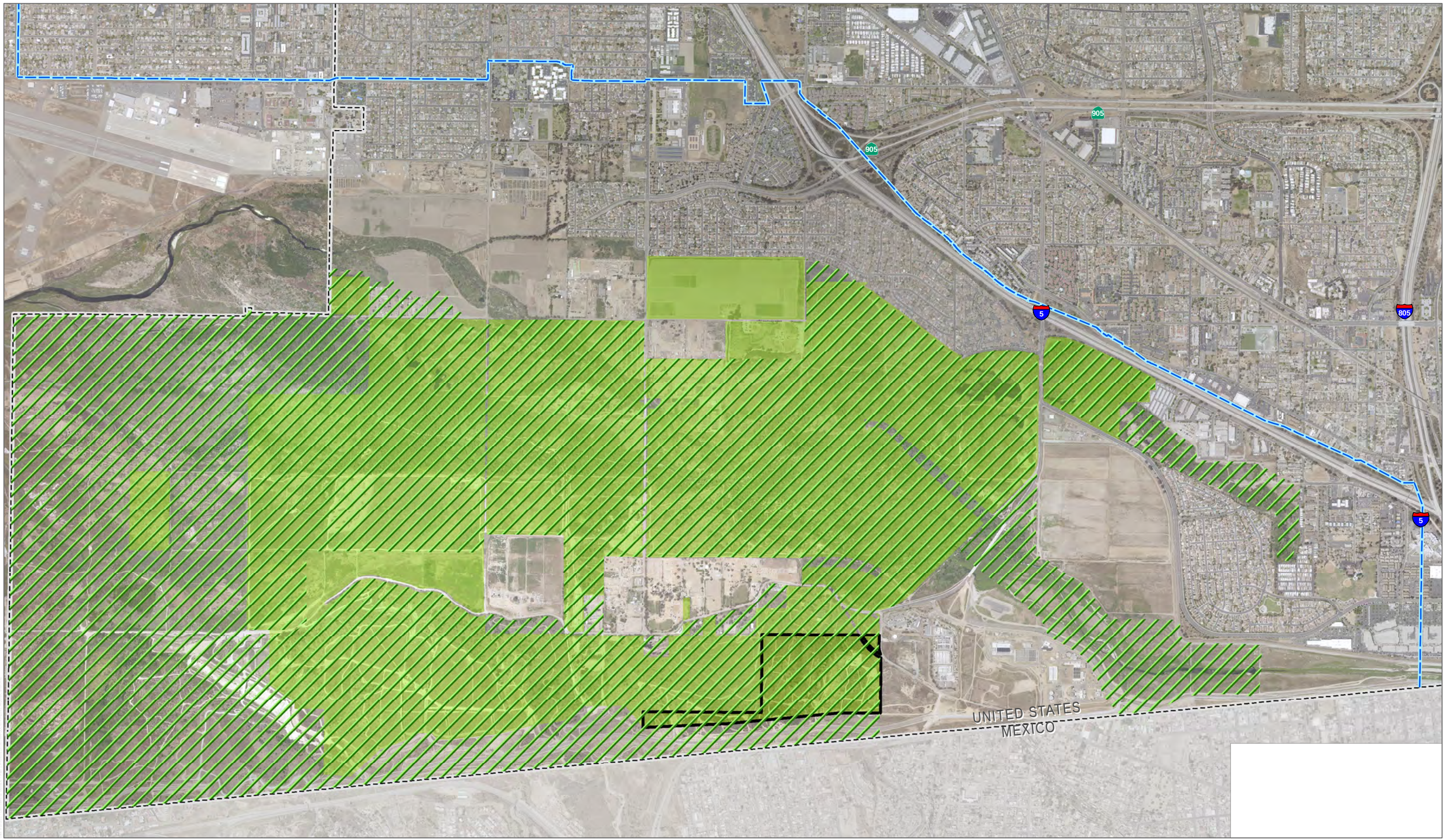

SOURCE: SANGIS 2017, 2020; CA Coastal Commission 2020

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FIGURE 3

Regional Context

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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3 METHODS AND SURVEY CONDITIONS

Data regarding biological resources present in the study area were obtained through a review of pertinent literature and through field reconnaissance and as summarized in Table 1.

Table 1
Biological Data Sources within Study Area

Biological Data Source	Study Area
County Regional Trails EIR (2006); County Biological Monitoring (2010)	CUP Study Area (County Ownership)
Dudek botanical, wildlife, and restoration reconnaissance surveys (2010[a], 2019)	2010: Reclamation Area (County Ownership) 2019: Study Area
Dudek vegetation mapping (2011[1], 2019)	2011: Reclamation Area (County Ownership) + CUP Study Area (City Ownership) 2019: Study Area
Dudek jurisdictional wetlands delineation + focused rare plant surveys (2011[1], 2019)	2011: Reclamation Area (County Ownership) 2019: Study Area
Dudek protocol California gnatcatcher survey (2011[1], 2019)	2011: Reclamation Area (County Ownership) + 500-1000' buffer (City/County Ownership) 2019: Study Area
Dudek protocol Quino checkerspot butterfly survey (2020)	2020: Study Area

3.1 Literature Review

The following data sources were reviewed to assist with the biological resource surveys:

- Aerial maps from the San Diego Association of Governments (SANDAG 2014) and Bing (Microsoft 2019)
- Biological Resources Technical Report Tijuana River Valley Regional Park Trails and Habitat Enhancement Project (Greystone 2005).
- CalFlora (CalFlora 2019) was queried to compile a list of potentially occurring special-status plant species.
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (2019)
- City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan (1997).

[a] Biological Technical Report for Nelson Sloan Quarry-Tijuana River Valley. Prepared for City of San Diego. Prepared by Dudek. October 2012.

- CNPS Inventory of Rare and Endangered Plants of California, 8th online edition (CNPS 2019), was searched to compose a list of potentially occurring flora.
- Consortium of California Herbaria (CCH 2019) was queried to compile a list of potentially occurring special status species.
- Final Biological Technical Report Nelson Sloan Quarry – Tijuana River Valley (Dudek 2012a)
- Historical Aerials online (NETROnline 2019)
- NRCS USDA soil survey (USDA 2019)
- Overview of San Diego Watershed Management Areas (SDRWQCB 2002)
- Reiser's (2001) Rare Plants of San Diego County was reviewed due to the descriptions of historical rare plant locations and soil descriptions.
- Roberts' (1995) Guide to the Oaks of Southern Californian Floristic Province: The Oaks of Coastal Southern California and Northwester Baja California, Mexico was reviewed for in preparation for scrub oak populations.
- San Diego Plant Atlas (SDNHM 2019a) was queried to compile a list of potentially occurring special-status plant species.
- San Diego Bird Atlas (SDNHM 2019b) was queried to compile a list of potentially occurring special-status bird species.
- San Diego Geographic Information Source (SanGIS) database (SanGIS 2013)
- San Diego Municipal Code, Land Development Code—Biology Guidelines (City of San Diego 2018)
- The Jepson Manual: Vascular Plants of California was reviewed prior to fieldwork to compile detailed couplet characteristics that divide rare plants from common species especially varietal differences (Jepson Flora Project 2019).
- Topographic maps (Google Earth 2019)
- USGS National Hydrography Dataset (USGS 2019)
- U.S. Fish and Wildlife Service (USFWS) Species Occurrence Data (2019a)
- USFWS National Wetlands Inventory (USFWS 2019b).

3.2 Field Reconnaissance

Dudek conducted the following surveys for the proposed Project in 2019 and 2020: vegetation and land cover mapping, jurisdictional delineation, general reconnaissance, and focused rare plant surveys. Focused wildlife surveys were conducted for coastal California gnatcatcher and Quino checkerspot butterfly. Table 2 lists the dates, conditions, and survey focus for each of the surveys.

Table 2
Schedule of Surveys

Date	Hours	Personnel	Focus/Area	Conditions
Vegetation Mapping, Rare Plants, and Jurisdictional Delineation				
02/12/2019	12:00 PM–5:59 PM	EJB, MM	Vegetation Mapping and land cover mapping, Rare Plant Reference Check, Rare Plant Survey	49°F to 55°F; 20% to 60% cloud cover; 0 mph to 3 mph wind
02/19/2019	12:00 PM–5:54 PM	EJB, KCD	Rare Plant Survey	51°F to 62°F; 0% cloud cover; 0 mph to 3 mph wind
03/01/2019	7:30 AM–6:06 PM	EJB	Rare Plant Survey	55°F; 10% to 20% cloud cover; 0 mph to 2 mph wind
03/14/2019	8:00 AM–2:12 PM	EJB, SM	Reconnaissance	60°F to 72°F; 0% to 40% cloud cover; 0 mph to 10 mph wind
03/17/2019	6:00 AM-3:45 PM	EJB	Jurisdictional Delineation	55°F to 74°F; 0% to 50% cloud cover; 0 mph to 4 mph wind
04/01/2019	7:00 AM–4:50 PM	EJB, MM	Rare Plant Survey	61°F to 78°F; 0% to 20% cloud cover; 0 mph to 3 mph wind
04/02/2019	8:02 AM–4:24 PM	EJB, MM	Rare Plant Survey	60°F to 68°F3; 2–5 mph wind
04/03/2019	8:01 AM–3:27 PM	EJB, MM	Rare Plant Survey	57°F to 63°F; 30% to 100% cloud cover; 2–5 mph wind
04/26/2019	7:00 AM–12:14 PM	EJB	*Deinandra conjugens* Reference Check	61°F to 82°F; 0% cloud cover; 1 mph to 3 mph wind
04/28/2019	1:46 PM–3:47 PM	EJB	Rare Plant Survey	55°F to 59°F; 100% cloud cover; 0 mph wind
04/29/2019	6:07 AM–6:22 PM	EJB	Rare Plant Survey	52°F to 60°F; 100% cloud cover; 0 mph to 3 mph wind
Quino Checkerspot Butterfly Host Plant Mapping and Focused Surveys				
04/10/2019	8:30 AM–4:20 PM	KCD, MF	Host plant mapping	59°F to 66°F; 0% cloud cover; 2 mph to 15 mph wind
02/07/2020	10:18 AM–4:03 PM	EJB, VJ	Quino Focused Survey Pass 1	Air Temp: 62°F to 66°F; Ground Temp: 64°F to 68°F; 0% cloud cover; 0 mph to 3 mph wind; Clear
02/14/2020	9:53 AM–3:21 PM	CA, EJB	Quino Focused Survey Pass 2	Air Temp: 61°F to 67°F; Ground Temp: 64°F to 69°F; 0% cloud

Table 2
Schedule of Surveys

Date	Hours	Personnel	Focus/Area	Conditions
				cover; 0 mph to 2 mph wind; Clear
02/21/2020	9:54 AM–2:18 PM	CA, EJB	Quino Focused Survey Pass 3	Air Temp: 65°F to 68°F; Ground Temp: 66°F to 75°F; 0% to 10% cloud cover; 0 mph to 3 mph wind; Clear
02/28/2020	9:38 AM–2:24 PM	CA, EJB	Quino Focused Survey Pass 4	Air Temp: 68°F to 80°F; Ground Temp: 70°F to 82°F; 30% to 60% cloud cover; 0 mph to 3 mph wind; Clear
03/03/2020	9:56 AM–1:55 PM	EJB	Quino Focused Survey Pass 5	Air Temp: 65°F to 75°F; Ground Temp: 70°F to 82°F; 0% to 10% cloud cover; 0 mph to 2 mph wind
03/15/2020	11:01 AM–4:00 PM	EJB	Quino Focused Survey Pass 6	Air Temp: 70°F to 73°F; Ground Temp: 74°F to 78.7°F; 50% to 90% cloud cover; 0 mph to 2 mph wind; Clear
04/22/2020	9:28 AM–1:50 PM	EM, PS	Quino Focused Survey Pass 7	Air Temp: 69.4°F to 79.3°F; Ground Temp: 76°F to 83.5°F; 0% cloud cover; 0 mph to 2 mph wind; Clear
Focused Coastal California Gnatcatcher Surveys				
02/12/2019	6:00 AM–12:00 PM	EJB, KCD, SG, SC	Focused gnatcatcher survey	49°F to 75°F; 0% to 60% cloud cover; 0 mph
02/19/2019	6:00 AM–12:00 PM	EJB, KCD, SG, SC	Focused gnatcatcher survey	35°F to 62°F; 0% cloud cover; 0 mph to 3 mph wind
02/26/2019	6:00 AM–12:00 PM	EJB, KCD, SG, SC	Focused gnatcatcher survey	49°F to 65°F; 10% to 100% cloud cover; 0 mph to 3 mph wind

Notes: °F = degrees Fahrenheit; mph = miles per hour
Personnel: CA = Callie Amoaku; EJB = Erin Bergman; EM = Erin McKinney; KCD = Kathleen Dayton; MF = Mackenzie Forgey MM = Margie Mulligan; PS = Patricia Schuyler; SM = Scott McMillan; SG=Scott Gressard, SC=Shanna Carey; VJ = Vipul Joshi

3.2.1 Vegetation and Land Cover Mapping

Vegetation was mapped in the field within the study area directly onto a 100 scale (1inch = 100 feet) aerial map of the property with the assistance of collector classic application (Collector for ArcGIS). These boundaries and locations were digitized and downloaded by Dudek Geographic Information Systems (GIS) technician Mark McGinnis using ArcGIS software.

Per City of San Diego Land Development Code (LDC), vegetation community classifications may rely on a variety of sources but should be cross-walked to MSCP Tiers and Wetland types. Vegetation

community and land cover classification in this report follow Oberbauer (2008) and Gray and Bramlet (1992). Gray and Bramlet 1992 is specially used because it provides detailed land cover type descriptions which address non-vegetated portions of the study area. Pursuant to the City's Biology Guidelines, vegetation communities within the MSCP study area have been divided into four tiers of sensitivity (the first includes the most sensitive, the fourth the least) based on rarity and ecological importance. For example, Tier I habitats include lands classified as southern foredunes, Torrey pines forest, coastal bluff scrub, maritime succulent scrub, maritime chaparral, native grasslands, and oak woodlands. Tier II includes lands classified as coastal sage scrub and coastal sage scrub/chaparral. Tier IIIA includes lands classified as mixed chaparral and chamise chaparral. Tier IIIB includes lands classified as non-native grassland. Tier IV includes lands classified as disturbed, agriculture, and eucalyptus (City of San Diego 2018).

3.2.2 Flora and Fauna

All plant species encountered during the field surveys were identified and recorded directly into a custom digital field note recording system. Those species that could not be identified immediately were brought into the laboratory for further investigation under a microscope. A compiled list of plant species observed on the property is presented in Appendix A, Plant Compendium. Latin and common names for plant species with a California Rare Plant Rank (CRPR; formerly California Native Plant Society (CNPS) List) follow the CNPS On-Line Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2019). 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 2019) and common names follow the CDFW California Natural Community List (CDFW 2020a) or the U.S. Department of Agriculture Natural Resources Conservation Service Plants Database (USDA 2020).

Wildlife species detected during the field surveys by sight, calls, tracks, scat, or other signs were recorded directly into the custom digital field note recording system. Binoculars (8 × 42 power) were used to aid in the identification of wildlife. A list of wildlife species observed on the property is presented in Appendix B. In addition to species detected during the surveys, the expected wildlife use of the site was determined by known habitat preferences of local species and knowledge of their relative distributions in the area.

Latin and common names of animals follow Crother (2017) for reptiles and amphibians, American Ornithological Society (AOS) (2018) for birds, Wilson and Reeder (2005) for mammals, and North American Butterfly Association (NABA) (2016) or San Diego Natural History Museum (SDNHM 2002) for butterflies.

3.2.3 Jurisdictional Delineation

Jurisdictional delineations of regulated waters were conducted to identify the presence or absence (including types, location, boundaries and acreages) of potential waters of the U.S and state (including federal and state defined wetlands) within the study area.

Prior to conducting the field delineation for potential jurisdictional waters of the United States and waters of the state (including wetlands) within the study area, pre-field analyses were conducted to review historical lands use, local and regional climactic data, previous survey reports (see Section 3.1, above), and areas with topographical configurations and vegetative signatures that may suggest the potential or presence of jurisdictional waters of the United States and state at the time of the delineation field survey.

Dudek formally delineated potential jurisdictional waters (including federally defined wetlands) occurring within the study area using a Trimble XH sub-foot accuracy handheld GPS unit and Collector Classic application (Collector for ArcGIS) on March 17, 2019 (refer to Table 2). These boundaries were modified based on aerial topography and final jurisdictional determinations following data review and evaluation under currently applicable regulations. It should be noted that changes in regulatory interpretation of the extent of waters of the United States and waters of the state occurred in 2020 after the date of this delineation. While the delineation was completed in 2019 based on regulatory interpretations at that time, it was reviewed in February 2021 to confirm that mapped features represent the maximum extent of potential waters of the United States/state (i.e., recent regulatory changes are expected to only result in reductions in jurisdiction compared to those in place during the 2019 delineation).

3.2.3.1 Delineation of Federal Waters

Jurisdictional waters of the United States include those waters listing in 33 CFR 328.3 (Definitions of Waters of the United States). All waters of the United States were delineated to their jurisdictional limits as defined by 33 CFR 328.4 (Limits of Jurisdiction). Field assessments included the following two delineation methodologies:

1. **Formal delineations for waters of the United States in the form of wetlands based on the three-parameter method.**

   The three-parameter method for identifying and delineating wetlands is outlined in accordance with the latest federal guidance, methodologies and procedures:

   - Corps of Engineers Wetlands Delineation (USACE 1987 Manual; Environmental Laboratory 1987);

- Regional Supplement to the Corps of Engineers Wetland Delineation Manual; Arid West Region (Version 2.0; 2008 Supplement; USACE 2008a)

Hydrology, vegetation, and soils were assessed at two geographically distinct sampling locations near the pond to determine the presence or absence of wetland field indicators. The overall area was assessed for evidence of an OHWM, saturation, permanence of surface water, wetland vegetation, and surface connectivity to traditional navigable waters of the United States. See Appendix C for the completed data station forms.

The location of sampling points and the limits of wetlands were collected in the field using a 200 scale (1 inch = 200 feet) aerial photograph, topographic base, and global positioning system (GPS) equipment with sub-meter accuracy. The jurisdictional extents were digitized in GIS based on the GPS data and data collected directly onto field maps into a Project-specific GIS using ArcGIS software.

2. **Formal delineations for waters of the United States in the form of other non-wetland waters ("other waters") based on field indicators to define and identify the jurisdictional lateral extent of the ordinary high water mark (OHWM)**.

   This is defined by 33 CFR 328.3(c)(6), federal guidance, methodologies and procedures, including the following:

   - 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)
   - Updated Data Sheet for the Identification of Ordinary High Water Mark in the Arid West Region of the western United States (Curtis and Lichvar 2010)
   - Review and Synopsis of Natural Human Controls on Fluvial Channel Process in the Arid West Channels (Field and Lichvar 2007)
   - Distribution of Ordinary High Water Mark (OHWM) Indicators and their Reliability in Identifying the Limits of "Waters of the United States" in the Arid Southwestern Channels (Lichvar et al. 2006)
   - Channel Classification across Arid West Landscapes in Support of OHW Delineation (Lefebvre et al. 2013)

3.2.3.2 Delineation of State Waters

Potential waters of the state were assessed and delineated within the study area. Two state agencies may have jurisdiction over aquatic features occurring within the study area: CDFW and the Regional Water Quality Control Board (RWQCB). Two distinct delineation methodologies for

state regulated waters were required and conducted throughout the study area during the field delineation efforts, as defined and described below:

1. **Aquatic Features Under the Purview of CDFW**

   The limits of CDFW jurisdiction are defined in the California Fish and Game Code section 1600 et seq. as the "bed, channel, or bank of any river, stream, or lake designated by [CDFW] in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit." However, in practice, CDFW usually extends its jurisdictional limit and assertion from the bed of a stream and/or lake to the top of the bank of a stream, the bank of a lake, or the outer edge of riparian vegetation, whichever is wider.

2. **Aquatic Features Under the Purview of RWQCB**

   For jurisdictional water features occurring within the study area, RWQCB jurisdiction was delineated based on the presence of aquatic features that simultaneously meet the definition for waters of the state (CWC Section 13050[e]) and present 'beneficial use' as outlined in the Water Quality Control Plan for the San Diego Basin (9) (SWRCB 1994 [as amended]). The entire streambed was considered under the purview of RWQCB if it was determined that any type of aquatic and/or aquatic-related features occurring within the study area meets the definition for waters of the state and presents a 'beneficial use' as outlined and defined in the Basin Plan (SWRCB 1994 [as amended]).

3.2.3.3 Aquatic Features Under the Purview of California Coastal Commission (CCC)

Pursuant to Section 30000 et seq. of the California Public Resource Code, the California Coastal Commission (CCC) regulates coastal resources within the Coastal Zone under jurisdiction of the California Coastal Act of 1976 (CCA) (as amended). The CCC retains permit jurisdiction over any portion of a project that is in state waters, on land up to the mean high tide line (MHTL) (including submerged and tidelands), lands subject to the public trust, or at the discretion of the CCC. Wetlands found in the California Coastal Zone are regulated under the CCA and are within jurisdiction of the CCC. Under the CCA, wetlands are defined as follows:

> "land within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens" (Public Resources Code [PRC] Section 30121).

Jurisdictional waters of the state under the purview of CCC were delineated pursuant to the guidance outlined within *Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone*, Chapter 1, Section IV (Wetland Identification and Delineation); Chapter 3, Section IIB (Definition and Classification of Wetlands by California State Agencies) (CCC 1994a). In practice, coastal wetlands are defined by the presence of any one of the three wetland criteria, as defined under the delineation of federal jurisdictional wetlands described above.

3.2.3.4 Aquatic Features Under the Purview of the City of San Diego

Wetlands are defined under the San Diego Municipal Code (SDMC) section 113.0103 and generally include any wetlands as defined by the presence of any one of the three wetland criteria, as defined under the delineation of federal jurisdictional wetlands described above, not typically including unvegetated ephemeral streams or artificial wetlands.

3.2.4 Focused Surveys for Sensitive Biological Resources

Sensitive biological resources are those defined by the City of San Diego Municipal Code, Land Development Code—Biology Guidelines (City of San Diego 2018) as follows: (1) lands that have been included in the MHPA as identified in the City of San Diego MSCP Subarea Plan (City of San Diego 1997); (2) wetlands (as defined by the Municipal Code, Section 113.0103); (3) lands outside the MHPA that contain Tier I Habitats, Tier II Habitats, Tier IIIA Habitats, or Tier IIIB Habitats as identified in the Land Development Code—Biology Guidelines (City of San Diego 2018); (4) lands supporting species or subspecies listed as rare, endangered, or threatened; (5) lands containing habitats with narrow endemic species as listed in the City of San Diego Municipal Code, Land Development Code—Biology Guidelines (City of San Diego 2018); and (6) lands containing habitats of covered species as listed in the City of San Diego Municipal Code, Land Development Code—Biology Guidelines (City of San Diego 2018).

Additionally, 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; and (4) wildlife corridors and habitat linkages. Sources used for determination of sensitive biological resources are as follows: plants–USFWS (USFWS 2020a), CDFW (2020b), and CNPS (2019); wildlife–USFWS (2020b) and CDFW (2020b); plant communities–City of San Diego MSCP Subarea Plan (City of San Diego 1997), and City of San Diego Municipal Code, Land Development Code—Biology Guidelines (City of San Diego 2018).

Qualified biologists conducted surveys and/or habitat assessments for the following sensitive biological resources: sensitive upland and wetland (i.e., jurisdictional) vegetation communities; focused surveys for sensitive plants; focused protocol surveys for coastal California gnatcatcher; larval host plant survey for Quino checkerspot butterfly; and focused protocol surveys for Quino checkerspot butterfly. Incidental detections of other sensitive wildlife species, either through sight, calls, tracks, scat, or other signs, were also recorded. A summary of the dates and site conditions for the field efforts are presented in Section 3.2, Table 2. The following sections provide specific details regarding each survey.

3.2.4.1 Focused Special-Status Plant Surveys

Field survey methods conformed to CNPS Botanical Survey Guidelines (CNPS 2001); Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2000); and Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000).

Dudek conducted a rare plant bloom analysis or reference check prior to conducting any botanical fieldwork. A rare plant bloom analysis determines the best time to target each rare plant species and determines that no rare species would be missed during the year. Based on the analysis, Dudek conducted surveys to maximize detection of special status plants in February, March, April and May 2019.

A first pass was conducted based on usual blooming patterns. Surveys were conducted in February for wart-stemmed ceanothus (*Ceanothus verrucosus*), which is common where it occurs and readily visible during its peak bloom. Another target species in February included Baja California bird bush (*Ornithostaphylos oppositifolia*) which is also in full bloom during February and occurs near the border and within Baja, California.

A second pass was conducted into March and targeted cliff spurge (*Euphorbia misera*) and California adder's tongue (*Ophioglossum californicum*).

A third pass was conducted in April 2019 to detect numerous annuals and other spring blooming species. Specifically, Dudek targeted rare species like San Diego goldenstar (*Bloomeria clevelandii*) that start to bloom in April.

A fourth pass was conducted at the very end of April to target May species. Since ample rainfall occurred during the season, target species were in bloom and biologists continued to detect other annual plants species. Biologists specifically targeted bulb species like Orcutt's brodiaea (*Brodiaea orcuttii*) and tarweeds like Otay tarplant (*Deinandra conjugens*). A late season survey

is typical in August but was not necessary as potential rare tarweeds and late season blooming species were more likely to occur end of April to early May based upon the blooming analysis conducted by Dudek.

The surveyor was prepared with a target list of species that have potential to occur on site. Rare succulents and rare shrubs were detected and recorded early in the season since they are easy to identify year-round.

Where target species were encountered, field personnel recorded data points demarcating the occurrence polygon and assessed population numbers or the record point locations; field data were recorded on 200-scale aerial/topographic field maps or using a Global Positioning System (GPS) with sub-meter accuracy. All target species occurrences on site were mapped and quantified, although population sizes greater than 100 individuals were estimated using a standardized methodology.

3.2.4.2 General Reconnaissance Wildlife Surveys

Erin Bergman and Scott McMillan performed a general study for wildlife tracks, scat, burrows, rare plants prone to cliff faces, fairy shrimp, amphibians and reptiles on March 14, 2019.

3.2.4.3 Quino Checkerspot Butterfly Host Plant Mapping

Quino checkerspot butterfly host plant mapping surveys were conducted in April 2019, in accordance with the schedule provided in Table 2. Approximately 2 person-days were spent conducting host plant mapping within the study area.

Host plant mapping surveys focused on the identification and location of all seven recognized host plants for Quino checkerspot butterfly: dot-seed plantain (*Plantago erecta*), woolly plantain (*Plantago patagonica*), Coulter's snapdragon, rigid bird's beak, purple owl's clover, Chinese houses (*Collinsia concolor*), and purple Chinese houses (*Collinsia heterophylla*) (USFWS 2014). All host plants were included in the survey; however, woolly plantain and Chinese houses do not have a western San Diego county distribution.

Dudek biologists recorded locations of Quino checkerspot butterfly host plants using a mobile application. Data collected included the surveyor(s), date, species of host plant, and density of the host plant at the point at which the host plant was found. All host plant occurrences were mapped as points. Density was assessed per square meter and was collected using the following classes:

- Very Low: 1–19 plants per square meter
- Low: 20–99 plants per square meter

- Medium: 100–999 plants per square meter
- High: 1,000+ plants per square meter

Points were collected within patches of host plants at least as close as every 3 meters (10 feet). In addition, all blooming nectar plants were recorded and included in the plant species list.

At the conclusion of surveys, Dudek geographic information systems (GIS) analysts created a GIS coverage for host plants. After review by a biologist, a geodatabase was created to ensure these data are topologically correct and met final quality control and assurance procedures.

3.2.4.4 Quino Checkerspot Butterfly Surveys

Quino checkerspot butterfly protocol level surveys were not performed in 2019 because the USFWS recommended study areas described within the 2014 protocol survey guidelines did not overlap the Project study area (USFWS 2014). The recommended Quino study areas extend east of Interstate 805. The Project study area is approximately 7 miles west of the recommended Quino study area. Given the distance from the recommended study area, protocol surveys were not advised. However, USFWS was notified of an incidental observation of Quino checkerspot butterfly in 2019 (April 2, 2019 by Dudek) during rare plant survey efforts within the Nelson Sloan study area. Protocol surveys were requested to be conducted by USFWS in the 2020 season due to this incidental observation of Quino checkerspot butterfly. Dudek performed Quino checkerspot butterfly surveys in the 2020 season because of the 2019 observation and the request by USFWS to perform surveys.

The Quino checkerspot butterfly is federally listed as endangered. Quino checkerspot butterfly focused surveys were conducted in 2020 by permitted biologists Erin Bergman (No. TE-53771B-0), Callie Amoaku (No. TE-36118B-1), Vipul Joshi (No. TE-019949-3), Patricia Schuyler (No. TE-27502B-1), and Erin McKinney (permitted under Brock Ortega's Recovery Permit TE-813545-9). Focused surveys occurred within the entire study area within both disturbed portions and suitable habitat. The focused surveys were conducted in accordance with the description in the most recent Quino checkerspot butterfly survey guidelines (December 15, 2014; USFWS 2014). According to the USFWS protocol, the first weekly survey shall begin during the third week of February, and the survey season will end the second Saturday in May. Surveys shall be conducted weekly and spaced no closer than 4 days apart (USFWS 2014).

Focused Quino checkerspot butterfly surveys were conducted over 12 person days within a 5-week period between February 7, 2020 and March 15, 2020, and on April 22, 2020 (see Table 2, Schedule of Surveys; Appendix D, 2020 Focused Quino Checkerspot Butterfly Survey Report for the Nelson

Sloan Quarry Restoration Project, San Diego County, California). The 2020 focused surveys followed the 2014 USFWS protocol with the exception of an approved amendment discussed with USFWS. The amendment allowed surveys to begin in February after a reference check was conducted near Otay on federal Bureau of Land Management (BLM) land by Erin Bergman and submitted to USFWS on February 4, 2020 (Dudek 2020). Dudek did not complete the remaining 3 survey visits to complete the full 9 surveys per the 2014 USFWS Quino Checkerspot Butterfly Survey Guidelines due to the Executive Order N-33-20 of the California State Public Health Officer and Director of the California Department of Public Health canceling non-essential work statewide. Additionally, a reference check conducted on April 3, 2020 at a nearby location for known Quino occurrences determined that Quino were no longer flying in the area (Klutz 2020).

3.2.4.5 Focused Gnatcatcher Surveys

Surveys for coastal California gnatcatcher were conducted within the entire 71.9-acre study area (Appendix E, 2019 Focused Coastal California Gnatcatcher Survey Report for the Proposed Nelson Sloan Quarry Project, County of San Diego, California). The surveys were conducted in all areas of suitable habitat, including Diegan coastal sage scrub; disturbed Diegan coastal sage scrub; disturbed land–xeric cliff face, escarpment, ruderal land; and maritime succulent scrub. Other vegetation communities including mulefat scrub and southern riparian scrub were so small that coastal California gnatcatcher surveys still covered those areas. No land cover types or vegetation communities were excluded from coastal California gnatcatcher surveys. The surveys for California gnatcatcher were conducted in conformance with the currently accepted protocol of the USFWS (1997). The USFWS guidelines specify that each area potentially supporting California gnatcatchers be surveyed a minimum of three times at a minimum interval of seven days to obtain an adequate accuracy of counts within areas enrolled in the Natural Communities Conservation Plan (NCCP) program. California gnatcatcher surveys started on February 12 and concluded on February 26, 2019.

A tape of recorded coastal California gnatcatcher vocalizations, played approximately every 100 feet, was used to induce responses from potentially present coastal California gnatcatchers. If a coastal California gnatcatcher was detected, tape playback was terminated to minimize potential for harassment. After the second survey, the tape playback was not used in order to determine specific locations of the pairs and individual where they naturally occur. This allowed Dudek biologists to determine specific locations where breeding may be more likely occur. A 200-scale (1 inch = 200 feet) aerial map of the site was used to conduct focused coastal California gnatcatcher surveys. Binoculars (10 × 42 power) were used to aid in detecting and identifying bird species. Weather conditions, time of day, and season were appropriate for the detection of coastal

California gnatcatchers (Table 2). Recorded coastal California gnatcatcher locations and survey routes were digitized using ArcGIS.

3.3 Survey Limitations

Limitations of the wildlife surveys include a diurnal bias and the absence of trapping for small mammals, reptiles, and amphibians. The surveys were conducted during the daytime to maximize the detection of most animals. Birds represent the largest component of the vertebrate fauna, and because most birds are active in the daytime, diurnal surveys maximize the number of observations of this portion of the fauna. In contrast, daytime surveys usually result in few observations of mammals, many of which may only be active at night. In addition, many species of reptiles and amphibians are secretive in their habits and are difficult to observe using standard meandering transects. The botanical surveys, including vegetation mapping, jurisdictional wetland delineation, and rare plant surveys, were completed under optimum conditions. Rare plant surveys were conducted in the spring during the typical blooming period of most species. Rainfall during the fall and winter of 2018/2019 was above average therefore it is highly likely we captured the densest populations of rare plants and Quino checkerspot butterfly host plants within the study area. Rainfall during the fall and winter of 2019/2020 was also good and resulted in host and nectar plants present during the 2020 Quino checkerspot butterfly surveys.

4 RESULTS

4.1 Vegetation Communities and Land Covers

Four plant community types and two land cover types were identified within the Project study area: Diegan coastal sage scrub, disturbed Diegan coastal sage scrub, maritime succulent scrub, mulefat scrub, and southern riparian scrub. Land cover types included open water and disturbed land–xeric cliff face/escarpment/ruderal land. Codes per Oberbauer 2008 and Gray and Bramlet 1992 are provided for each community and land cover mapped in the heading. The acreage of each vegetation community and land cover type is presented in Table 3, and their locations are shown in Figure 4A.

Table 3
Vegetation Communities and Land Cover Types in Study Area

Vegetation Community/Land Cover	Reclamation Area (County ownership)	Remainder (County Ownership)	Total Study Area acreage[1]
Maritime succulent scrub (32400) (Tier I)	–	10.06	10.06
Disturbed Maritime succulent scrub (32400) (Tier I)	–	0.34	0.34
Diegan coastal sage scrub (32500) (Tier II)	6.09	30.57	36.67
Diegan coastal sage scrub, revegetated (32500) (Tier II)	–	2.55	2.55
Disturbed Diegan coastal sage scrub (32500) (Tier II)	7.50	3.64	11.14
Mulefat scrub (63310) (Wetland)	–	0.20	0.20
Southern riparian scrub (63300) (Wetland)	–	0.04	0.04
Open water (64100) (N/A)	–	0.08	0.08
Disturbed land- xeric cliff face, escarpment, ruderal land (4.6,10.1) (Tier IV)	7.34	3.50	10.84
Total	**20.93**	**50.98**	**71.91**

[1] Totals may not sum due to rounding.

4.1.1 Maritime Succulent Scrub (32400)

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. The majority of growth occurs in the springtime (Oberbauer 2008).

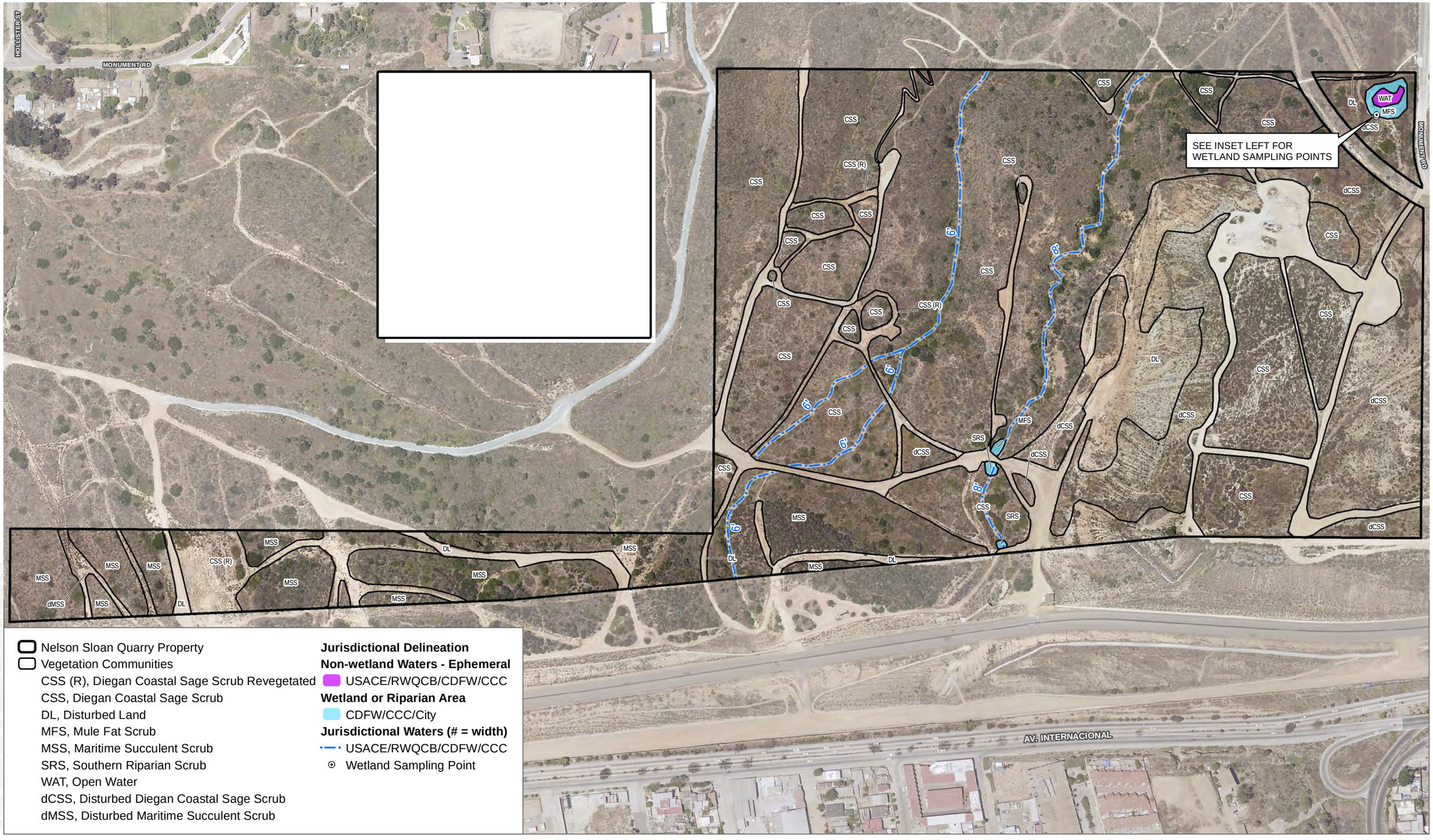
Within the study area, numerous succulent species are present and, in some areas, abundant. Succulents are scattered around the plant community and include coastal barrel cactus (*Ferocactus viridescens*), golden spined cereus (*Bergerocactus emoryi*), coast cholla (*Cylindropuntia*

prolifera) and coastal prickly pear (*Opuntia littoralis*). Larger shrubs growing with the succulents include wart-stemmed ceanothus, cliff spurge (*Euphorbia misera*), California encelia (*Encelia californica*), Mojave yucca (*Yucca schidigera*) and San Diego sunflower (*Viguiera laciniata*). Less commonly occurring species within the maritime succulent scrub include spiny redberry (*Rhamnus crocea*), laurel sumac (*Malosma laurina*) and chamise (*Adenostoma fasciculatum*). Most of the maritime succulent scrub is high quality with few non-native species. Maritime succulent scrub is a dominant plant community within the study area. The highest quality maritime succulent scrub occurs on the western portion of the study area. Maritime succulent scrub is not mapped on the Reclamation Area.

4.1.2 Diegan Coastal Sage Scrub (32500)

Diegan coastal sage scrub (coastal sage scrub) is a native plant community composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*), and laurel sumac (*Malosma laurina*). It typically develops on south-facing slopes and other xeric locations (Holland 1986). Coastal sage scrub is recognized as a sensitive plant community by local, state, and federal resource agencies. It supports a rich diversity of sensitive plants and animals, and it is estimated that it has been reduced by 75%–80% of its historical coverage throughout southern California. It is the focus of the current State of California NCCP (Oberbauer 2008).

Within the study area, dominant species include California sagebrush, California buckwheat, spreading goldenbush (*Isocoma menziesii* ssp. *menziesii*), deerweed (*Acmispon glaber*), black sage (*Salvia mellifera*), bladderpod (*Peritoma arborea*) and lemonadeberry (*Rhus integrifolia*). Less commonly occurring species include wild cucumber (*Marah macrocarpus*), pygmyweed (*Crassula connata*), white sage (*Salvia apiana*), mock parsley (*Apiastrum angustifolium*) and small flowered stipa (*Stipa lepida*). Diegan coastal sage scrub is a dominant plant community within the study area. The Diegan coastal sage scrub within the study area is high quality habitat for numerous species. Few non-native plant species are present within this community and the floor consists of numerous bryophytes, spike mosses, small annuals and cryptogamic crusts.



SOURCE: SANGIS 2017

DUDEK

0 120 240 Feet

FIGURE 4A

Biological Resources - Vegetation Communities and Jurisdictional Delineation

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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4.1.3 Disturbed Diegan Coastal Sage Scrub (32500)

Disturbed coastal sage scrub is similar to coastal sage scrub but is dominated by desert broom (*Baccharis sarothroides*) with large patches of crown daisy (*Glebionis coronarium*). Disturbed coastal sage scrub typically occurs where soils are nutrient poor and disturbance is present. Disturbed coastal sage scrub typically fills in areas after high levels of disturbance (Oberbauer 2008; Gray and Bramlet 1992).

Within the Reclamation Area, desert broom and crown daisy dominate the site. Less commonly occurring species within the understory of desert broom and crown daisy include annual yellow sweetclover (*Melilotus indicus*), slender leaf iceplant (*Mesembryanthemum nodiflorum*), pygmy weed (*Crassula connata*), California encelia (*Encelia californica*), and combseeds (*Pectocarya* species). Large sections of this community are disturbed, and some portions consist of bare soils that have been graded.

4.1.4 Mulefat Scrub (63310)

Mulefat scrub is a riparian scrub community dominated by mulefat (*Baccharis salicifolia*). Mulefat scrub is maintained by frequent flooding. Absent frequent flooding, most stands would be succeeded by cottonwood or sycamore riparian forests or woodlands. Mulefat occurs on intermittent stream channels with generally sandy soils and a moderate water table (Oberbauer 2001).

Within the study area, mulefat scrub is dominated by mulefat and is found in wet areas that have occasional water flow or saturation. Non-native herbs make up some of the understory within the mulefat scrub community. Mulefat scrub occurs in two sections of the study area, near the central portion in a canyon located to the west of the Reclamation Area and around the open water located in the northeastern corner of the study area (i.e., in the northeast corner of parcel 664-011-0500).

4.1.5 Southern Riparian Scrub (63320)

Southern riparian scrub typically occurs within riparian zones that consist of shrubs or small trees and generally lacks taller riparian trees. Southern riparian scrub can encroach into some coastal saltmarsh habitats. Southern riparian scrub regularly occurs on river systems, where flood scour occurs and areas that receive run-off. Plant species in this community include arroyo willow (*Salix lasiolepis*), willow species (*Salix* sp.), mulefat and broom baccharis (*Baccharis sarothorides*). Southern riparian scrub is found throughout San Diego County (Oberbauer et. al. 2008).

Within the study area, southern riparian scrub consists of nearly a monoculture of red willow (*Salix laevigata*) with a few mulefat interspersed in the vegetation community. Southern riparian scrub was not mapped on the Reclamation Area but occurs to the immediate west and northeast.

4.1.6 Open Water (64100)

Open water refers to a small pond located in the very northeastern corner of the study area. The pond appears to support perennial surface water; areas without ponded water have cracked soils are mostly unvegetated, mud flat. The source of the water is unknown but is presumed to be supported by more than just surface water runoff from the surrounding area.

4.1.7 Disturbed Land – Xeric cliff face, Escarpment, Ruderal Land (4.6, 10.1)

Ruderal land or waste ground includes invasive plant species that are the first to inhabit disturbed land due to human activity. Soils are heavily disturbed. Disturbed land offers no important attributes for wildlife (Gray and Bramlet 1992).

Within the study area, ruderal lands consist of old quarry lands including much of the east-facing slope within the Reclamation Area, access roads, and other areas of visible disturbance. Leftover soil mounds, invasive plant species, wood piles, and trash describe the ruderal land within the study area. The most abundant plant within the ruderal disturbed land is crown daisy, a non-native invasive species from East Asia, which is having a detrimental impact on much of western San Diego County. This species has especially impacted coastal areas and the Otay region. Crown daisy covers over 80% of the ruderal disturbed lands within the study area. The Invasive Plant Council has described crown daisy as an invasive plant due to the dry dead remnants of crown daisy crowding out massive areas of land for numerous years and preventing the potential for native plants to recolonize. Crown daisy can reach up to 5 feet in height, also preventing the potential for native plants to recolonize.

Xeric cliff face or escarpment is described as a long, steep slope. The slope is often found on the edge of a plateau and is eroded. Xeric cliff face is described as having minimal attributes for wildlife but if vegetation is present, nesting bird habitat may occur (Gray and Bramlet 1992).

4.2 Floral Diversity

A total of 211 species of vascular plants, 158 native (75%) and 53 non-native (25%), were recorded in the study area. The complete list of plant species identified on-site by Dudek is provided as Appendix A.

4.3 Wildlife Diversity

The study area supports habitat for a number of common upland species. Fifty-six species of wildlife were observed during general and focused wildlife surveys within the study area (Appendix B). Observation by the Greystone (2005) and previous survey results by Dudek (2012) are noted as a supplement to data collected by Dudek in 2019 and 2020.

Birds

Thirty species of birds were observed during Project surveys. Common species observed include California towhee (*Pipilo crissalis*), house finch (*Carpodacus mexicanus*), lesser goldfinch (*Carduelis psaltria*), common raven (*Corvus corax*), Anna's hummingbird (*Calypte anna*), and Cassin's kingbird (*Tyrannus vociferans*). Of the 30 species of birds observed, five special-status birds were observed within the study area: coastal California gnatcatcher, Cooper's hawk (*Accipiter cooperii*), northern harrier (*Circus cyaneus*), turkey vulture (*Cathartes aura*), and American peregrine falcon (*Falco peregrinus anatum*).

Reptiles and Amphibians

Five species of reptiles were observed within the study area during Project surveys: western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), striped race (*Coluber lateralis*), southern alligator lizard (*Elgaria multicarinata*), and western skink (*Plestiodon skiltonianus*).

No amphibian species were observed during the surveys; however, it is possible that treefrogs (*Hyla regilla, H. cadaverin*a), western toad (*Bufo boreas*), and bullfrog (*Rana catesbeiana*) could occur within or nearby the small pond in the northeast portion of the study area.

Mammals

A total of three mammals were observed within the study area during Project surveys, including desert cottontail (*Sylvilagus audubonii*), woodrat (*Neotoma* sp.), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii)*.

Invertebrates

Seventeen common butterfly species were observed during focused Quino checkerspot butterfly surveys including: funereal duskywing (*Erynnis funeralis*), southern blue (*Glaucopsyche lygdamus*

australis), painted lady (*Vanessa cardui*) and checkered white (*Pontia protodice*), among others. One special-status invertebrate, Quino checkerspot butterfly, was observed within the study area.

4.4 Special-Status Plants

Plant species are considered sensitive 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 a MSCP Covered Species; and/or have been adopted by the City as narrow endemic.

Sensitive plant surveys were conducted within the study area. Prior to special-status plant species surveys, an evaluation of known records in the Imperial Beach quadrangle and the surrounding quadrangles, including Point Loma, National City, Jamul Mountains, and Otay Mesa (CDFW 2019; CNPS 2019; USFWS 2019a) was conducted. In addition, biological resources and regional distribution of each species, as well as elevation, habitat, and soils present within the study area were evaluated to determine the potential for various special-status species to occur.

Sixteen special-status plant species were observed in the study area: Baja California birdbush (*Ornithostaphylos oppositifolia*), California adder's tongue (*Ophioglossum californicum*), California desert thorn (*Lycium californicum*), Lewis's evening primrose (*Camissoniopsis lewisii*), Orcutt's bird's beak (*Dicranostegia orcuttiana*), San Diego County needle grass (*Stipa diegoensis*), San Diego County viguiera (*Viguiera laciniata*), San Diego barrel cactus (*Ferocactus viridescens*), San Diego bur-sage (*Ambrosia chenopodiifolia*), ashy spike-moss (*Selaginella cinerascens*), cliff spurge (*Euphorbia misera*), golden spined cereus (*Bergerocactus emoryi*), sea dahlia (*Leptosyne maritima*), seaside cistanthe (*Cistanthe maritima*), western dichondra (*Dichondra occidentalis*), and wart-stemmed ceanothus (*Ceanothus verrucosus*). Wart-stemmed ceanothus is a relatively restricted species, endemic to San Diego County, and an indicator of southern maritime chaparral. San Diego County viguiera (sunflower family) and San Diego barrel cactus are relatively widespread and common components of coastal sage scrub throughout the southern portion of San Diego County. The majority of these recorded observations occurred to the west of the Reclamation Area and within the central and western portions of the study area.

Table 4 lists those special-status plant species that occur on-site. Special-status plant species with low potential or not expected to occur are provided in Appendix F, Special-Status Plant Species with Low Potential or Not Expected to Occur within the Study Area. Together, these lists include all plants that are covered in the MSCP, all plants that are listed in the CNPS nine-quad inventory search (CNPS 2019), and sensitive plants known to occur in the vicinity (CDFW 2019). For each species listed, a determination is made regarding the potential for the species to occur on-site,

based on the location of the site, habitats and soils present, degree of disturbance to the vegetation on the site, and the results of 2019 focused surveys.

Table 4
Special-Status Plant Species Detected in Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Ambrosia chenopodiifolia	San Diego bur-sage	None/None/2B.1/ /None	Coastal scrub/perennial shrub/Apr–June/180–510	Observed within the study area in 2019, but outside of the Reclamation Area. There is suitable coastal scrub present. The closest known CNDDB occurrence is 2.2 miles east of the study area on the eastern boundary of Pacific Gateway Park (CDFW 2019).
Viguiera laciniata	San Diego County viguiera	None/None/4.3/ None	Chaparral, Coastal scrub/perennial shrub/Feb–June(Aug)/195–2460	Observed within the study area in 2019, both within and outside of the Reclamation Area. Observed within the study area during 2012 field surveys (Dudek 2012a). Observed during focused surveys within the study area in 2004 (Greystone 2005). The closest known occurrence is 0.5 miles west of the study area within the Tijuana River Valley (CCH 2019).
Bergerocactus emoryi	golden-spined cereus	None/None/2B.2/ None	Closed-cone coniferous forest, Chaparral, Coastal scrub; sandy/perennial stem succulent/May–June/5–1295	Observed within the study area in 2019, but outside of the Reclamation Area. The primary habitat where this species occurs is maritime succulent scrub, which occurs outside the Reclamation Area. No maritime succulent scrub was found within the Reclamation Area. The closest known CNDDB occurrence is 1.0 miles west of the study area

Table 4
Special-Status Plant Species Detected in Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				within Tijuana River Valley (CDFW 2019).
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	Observed within the study area in 2019, both within and outside of the Reclamation Area. There is coastal scrub present. The closest known occurrence is 0.5 miles north of the study area along Tijuana River (CCH 2019).
Ceanothus verrucosus	wart-stemmed ceanothus	None/None/2B.2/ Covered	Chaparral/perennial evergreen shrub/Dec–May/0–1245	Observed within the study area in 2019, but outside of the Reclamation Area. Observed on site within southern maritime chaparral during 2012 field surveys (Dudek 2012a). Observed during focused surveys within the study area in 2004 (Greystone 2005).
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)/15–985	Observed within the study area in 2019, but outside of the Reclamation Area on the edges of the cliffs. There is suitable coastal scrub present. The closest known occurrence is 1.1 miles west of the study area within the Tijuana River Valley (CCH 2019).
Dichondra occidentalis	western dichondra	None/None/4.2/ None	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial rhizomatous herb/(Jan)Mar–July/160–1640	Observed within the study area in 2019, but outside of the Reclamation Area. There is suitable coastal scrub and chaparral present. Species is more likely to be seen after a fire. The closest known occurrence is 1.4 miles west of the study area

Table 4
Special-Status Plant Species Detected in Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				within the Tijuana River Valley (CCH 2019).
Dicranostegia orcuttiana	Orcutt's bird's-beak	None/None/2B.1/ Covered	Coastal scrub/annual herb (hemiparasitic)/(Mar)Apr–July(Sep)/30–1150	Observed within the study area in 2019, but outside of the Reclamation Area. Known from the vicinity. Identified within the study area of the Quarry EIR (recorded from the southern mesas of TRVRP); however, the area site search and habitat monitoring transects did not result in any observation or positive identification of this species (County of San Diego 2010). This species is primarily associated with seasonally dry drainages adjacent to riparian habitat and is considered nearly extirpated in San Diego County (Reiser 2001). The closest known CNDDB occurrence is 0.5 miles west of the study area within Tijuana River Valley (CDFW 2019).
Euphorbia misera	cliff spurge	None/None/2B.2/ None	Coastal bluff scrub, Coastal scrub, Mojavean desert scrub; rocky/perennial shrub/Dec–Aug(Oct)/30–1640	Observed within the study area in 2019, but outside of the Reclamation Area. This species was previously observed on south-facing slopes in the southwest portion of the study area (Greystone 2005). The closest known CNDDB occurrence is less than 0.5 miles from the western boundary of the study are (CDFW 2019).

Table 4
Special-Status Plant Species Detected in Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
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/5–1475	Observed within the study area in 2019, but outside of the Reclamation Area. Observed within the western portion of the study area during 2012 field surveys (Dudek 2012a). The closest known CNDDB occurrence is less than 0.5 miles from the northern boundary of the study area (CDFW 2019).
Leptosyne maritima	sea dahlia	None/None/2B.2/ None	Coastal bluff scrub, Coastal scrub/perennial herb/Mar–May/15–490	Observed within the study area in 2019, but outside of the Reclamation Area. There are known populations on the north-facing slopes or mesa tops north of Spooner's Mesa and east of Smuggler's Gulch (Greystone 2005). The closest known CNDDB occurrence is less than 0.5 miles north of the study area (CDFW 2019).
Lycium californicum	California desert thorn	None/None/4.2/ None	Coastal bluff scrub, Coastal scrub/perennial shrub/(Dec)Mar,June,July,Aug/15–490	Observed within the study area in 2019, but outside of the Reclamation Area. There is suitable coastal scrub present. The closest known occurrence is 1.7 miles west of the study area within Tijuana River Valley (CCH 2019).
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/195–1720	Observed within the study area in 2019, but outside of the Reclamation Area. The closest known occurrence is 7.4 miles north of the Project study area within Bonita (CCH 2019).

Table 4
Special-Status Plant Species Detected in Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ MSCP)	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/180–2625	Observed within the study area in 2019, but outside of the Reclamation Area. There is suitable chaparral present. The closest known CNDDB occurrence overlaps the western portion of the study area (CDFW 2019). Observed during focused surveys within the study area in 2004 (Greystone 2005).
Selaginella cinerascens	ashy spike-moss	None/None/4.1/ None	Chaparral, Coastal scrub/perennial rhizomatous herb/N.A./65–2100	Observed within the study area in 2019, but outside of the Reclamation Area. Observed within the study area during 2012 field surveys (Dudek 2012a). Observed during focused surveys within the study area in 2004 (Greystone 2005). The closest known occurrence is 1.4 miles west of the study area within the Tijuana River Valley (CCH 2019).
Stipa diegoensis	San Diego County needle grass	None/None/4.2/ None	Chaparral, Coastal scrub; rocky, often mesic/perennial herb/Feb–June/30–2625	Observed within the study area in 2019, but outside of the Reclamation Area. There is suitable coastal scrub and chaparral present. The closest known occurrence is 1.4 miles west of the study area within the Tijuana River Valley (CCH 2019).

Legend
MSCP: Covered Species under MSCP
MSCP NE: Narrow endemic species covered under MSCP
SE: State-listed as endangered
CRPR: California Rare Plant Rank
All species are either listed as covered under MSCP or have been recorded (CNPS or CNDDB) within the 9 quads that surround the property. Those noted as occurring in the vicinity are recorded from the Imperial Beach quadrangle

4.4.1 Listed or MSCP-Covered Species

Wart-Stemmed Ceanothus (*Ceanothus verrucosus*), MSCP Covered Species

Wart-stemmed ceanothus is a CRPR 2B.2 and MSCP Covered species (CNPS 2019; City of San Diego 1997). Wart-stemmed ceanothus is a dicot, perennial evergreen shrub that occurs in San Diego and Riverside counties (CNPS 2019). This species is found in chaparral. The bloom period for wart-stemmed ceanothus is between December and May. Wart-stemmed ceanothus occurs at an elevation of below 1,245 feet amsl.

Approximately a total of 943 wart-stemmed ceanothus individuals were observed within Maritime succulent scrub (including disturbed), restored Diegan coastal sage scrub, and Diegan coastal sage scrub within the study area, but outside of the Reclamation Area (Figure 4B).

Orcutt's Bird's-Beak (*Dicranostegia orcuttiana*), MSCP Covered Species

Orcutt's bird's-beak is a CRPR 2B.1 and MSCP Covered species (CNPS 2019; City of San Diego 1997). Orcutt's bird's-beak is a dicot, annual herb that occurs in San Diego counties (CNPS 2019). This species is found in coastal sage scrub. Orcutt's bird's-beak occurs at an elevation between 30 feet and 1,150 feet amsl. The bloom period for Orcutt's bird's-beak is between April and July.

Approximately 26 Orcutt's bird's-beak individuals were observed within Maritime succulent scrub (including disturbed) within the study area but outside of the Reclamation Area (Figure 4B).

San Diego Barrel Cactus (*Ferocactus viridescens*), MSCP Covered Species

San Diego barrel cactus is a CRPR 2B.1and MSCP Covered species (CNPS 2019; City of San Diego 1997). This succulent occurs in San Diego County (CNPS 2019). San Diego barrel cactus is located at elevations between 5 feet and 1,475 feet amsl within chaparral, coastal scrub, valley and foothill grasslands, and sometimes vernal pools. This species blooms May through July.

Approximately 209 San Diego barrel cactus individuals were observed within Maritime succulent scrub (including disturbed) and Diegan coastal sage scrub within the study area, but outside of the Reclamation Area (Figure 4B).

Baja California Birdbush (*Ornithostaphylos oppositifolia*), SE

Baja California birdbush is a SE and CRPR 2B.1 species (CDFW 2019; CNPS 2019). Baja California birdbush is a dicot shrub that occurs in San Diego County (CNPS 2019). This species

is found in chaparral at an elevation from 180 feet to 2,625 feet amsl. The bloom period for Baja California birdbush is between January and April.

Approximately 36 Baja California birdbush individuals were observed within Maritime succulent scrub (including disturbed) and restored Diegan coastal sage scrub within the study area, but outside of the Reclamation Area (Figure 4B).

4.4.2 Other Special-Status Plant Species

San Diego Bur-Sage (*Ambrosia chenopodiifolia*)

San Diego bur-sage is a CRPR 2B.1 species (CNPS 2019). San Diego bur-sage is a dicot shrub that occurs in San Diego and Orange counties (CNPS 2019). This species is found in coastal sage scrub. The bloom period for San Diego bur-sage is between April and June. San Diego bur-sage occurs at an elevation between 180 feet and 510 feet amsl.

Approximately one San Diego bur-sage individual was observed in restored Diegan coastal sage scrub within the study area but outside of the Reclamation Area (Figure 4B).

San Diego County Viguiera (*Viguiera laciniata*)

San Diego County viguiera (sunflower family) is a CRPR 4.3 species (CNPS 2019). This shrub occurs in San Diego, Los Angeles, Orange, Riverside, and Ventura Counties. San Diego County viguiera is found at elevations ranging from 195 feet to 2,460 feet amsl in chaparral and coastal scrub. This species typically blooms between February and June.

A total of approximately 5,420 San Diego County viguiera individuals were observed within Maritime succulent scrub (including disturbed), restored Diegan coastal sage scrub, Diegan coastal sage scrub (including disturbed), and disturbed land in the study area, including 4,456 individuals outside the Reclamation Area, and the remaining 964 individuals inside the Reclamation Area (Figure 4B).

Golden-Spined Cereus (*Bergerocactus emoryi*)

Golden-spined cereus (also referred to as velvet cactus or snake cactus) is a CRPR 2B.2 species (CNPS 2019). Golden-spined cereus is a dicot shrub that occurs in San Diego and Los Angeles counties (CNPS 2019). This species is found in chaparral, coastal sage scrub, and closed-cone pine forest. The bloom period for golden-spined cereus is between May and June. Golden-spined cereus occurs at an elevation between 5 feet and 1,295 feet amsl.

Approximately 45 golden-spined cereus individuals were observed in Maritime succulent scrub (including disturbed) within the study area but outside of the Reclamation Area (Figure 4B).

Lewis's Evening-Primrose (*Camissoniopsis lewisii*)

Lewis's evening-primrose is a CRPR 3 species (CNPS 2019). Lewis's evening-primrose is a dicot annual herb that occurs in San Diego County, and southern and coastal California counties (CNPS 2019). This species is found in coastal strand, foothill woodland, coastal sage scrub, and valley grassland. Lewis's evening-primrose occurs at an elevation below 985 feet amsl. The bloom period for Lewis's evening-primrose is between March and June.

A total of approximately 14 Lewis's evening-primrose individuals were observed within Maritime succulent scrub (including disturbed), Diegan coastal sage scrub, and disturbed land in the study area, including 9 individuals within the Reclamation Area and the remaining 5 individuals outside of the Reclamation Area (Figure 4B).

Seaside Cistanthe (*Cistanthe maritima*)

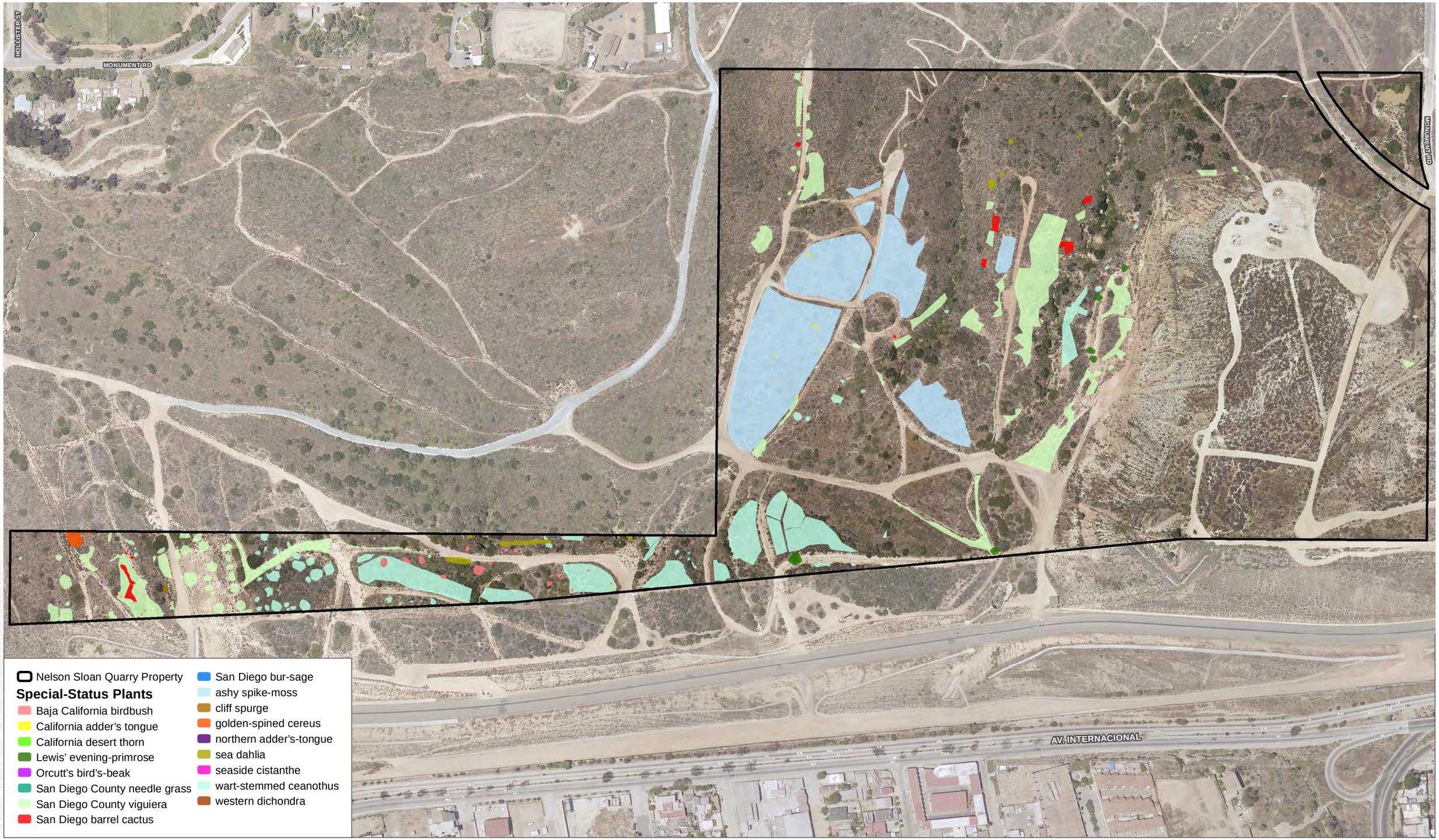
Seaside cistanthe (coastal succulent) is a CRPR 4.2 species (CNPS 2019). Seaside cistanthe is a dicot annual herb that occurs in San Diego County (CNPS 2019). This species is found in valley grassland and coastal sage scrub at an elevation between 15 feet and 985 feet amsl. The bloom period for seaside cistanthe is between March and June.

Approximately 151 seaside cistanthe individuals were observed within Maritime succulent scrub (including disturbed) within the study area, but outside of the Reclamation Area (Figure 4B).

Western Dichondra/Ponyfoot (*Dichondra occidentalis*)

Western dichondra/ponyfoot is a CRPR 4.2 species (CNPS 2019). Western dichondra is a dicot perennial herb that occurs in San Diego County, and coastal California counties (CNPS 2019). This species is found in chaparral, valley grassland, foothill woodland, northern coastal scrub, and coastal sage scrub. Western dichondra occurs at an elevation between 160 feet and 1,640 feet amsl. The bloom period for western dichondra is between March and July.

Approximately 20 western dichondra individuals were observed within Diegan coastal sage scrub within the study area, but outside of the Reclamation Area (Figure 4B).



SOURCE: SANGIS 2017

DUDEK

0 120 240 Feet

FIGURE 4B

Biological Resources - Special-Status Plants

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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Cliff Spurge (*Euphorbia misera*)

Cliff spurge is a CRPR 2B.2 and species (CNPS 2019). Cliff spurge is a dicot shrub that occurs in San Diego, Los Angeles, Orange, Riverside, and Santa Barbara counties (CNPS 2019). This species is found in coastal sage scrub at an elevation between 30 feet and 1,640 feet amsl. The bloom period for cliff spurge is between December and April.

Approximately 5 cliff spurge individuals were observed within Maritime succulent scrub (including disturbed) within the study area, but outside of the Reclamation Area (Figure 4B).

Sea Dahlia (*Leptosyne maritima*)

Sea dahlia is a CRPR 2B.2 species (CNPS 2019). Sea dahlia is a dicot, perennial herb that occurs in San Diego, Los Angeles, and Santa Barbara Counties (CNPS 2019). This species is found in coastal sage scrub at an elevation from 5 feet to 490 feet amsl. The bloom period for sea dahlia is between March and May.

Approximately 151 sea dahlia individuals were observed within Maritime succulent scrub (including disturbed) and Diegan coastal sage scrub within the study area (Figure 4B).

California Desert Thorn (*Lycium californicum*)

California desert thorn is a CRPR 4.2 species (CNPS 2019). California desert thorn is a dicot shrub that occurs in San Diego County and southern California counties (CNPS 2019). This species is found in coastal sage scrub at an elevation between 15 feet and 490 feet amsl. The bloom period for California desert thorn is between March and August.

Approximately two California desert thorn individuals were observed within Diegan coastal sage scrub within the study area, but outside of the Reclamation Area (Figure 4B).

California Adder's-Tongue (*Ophioglossum californicum*)

California adder's-tongue is a CRPR 4.2 species (CNPS 2019). California adder's-tongue is a fern (rhizomatous) that occurs in San Diego County, coastal southern and central California, and inland mountain ranges, including Sierra Nevada Foothills and Great Central Valley Region (Jepson Flora Project 2019). This species is found in chaparral, valley grassland, freshwater wetlands, vernal pool edges, and wetland-riparian habitats at an elevation from 195 feet and 1,720 feet amsl. The bloom period for California adder's-tongue is between January and June.

Approximately 249 California adder's-tongue individuals were observed within Diegan coastal sage scrub within the study area but outside of the Reclamation Area (Figure 4B).

Ashy Spike-Moss (*Selaginella cinerascens*)

Ashy spike-moss is a CRPR 4.1 and species (CNPS 2019). Ashy spike-moss is a pteridophyte, California native fern that occurs in San Diego, Riverside, and Orange counties (CNPS 2019). This species is found in chaparral and coastal sage scrub. Ashy spike-moss occurs at an elevation between 65 to 2,100 feet amsl.

Approximately 4.03 acres (mapped as polygons) were observed within restored Diegan coastal sage scrub and Diegan coastal sage scrub within the study area, but outside of the Reclamation Area. This species is a fern and grows as a continuous mat, which makes it difficult to provide accurate population counts (Figure 4B).

San Diego County Needle Grass (*Stipa diegoensis*)

San Diego County needle grass is a CRPR 4.2 and species (CNPS 2019). This shrub occurs in San Diego, Los Angeles, Santa Barbara, Ventura, San Luis Obispo, Contra Costa, and Sierra counties. San Diego County needle grass is found at elevations ranging from 30 feet to 2,625 feet amsl in chaparral and coastal sage scrub. This species typically blooms between February and June.

Approximately five San Diego County needle grass individuals were observed within maritime succulent scrub within the study area, but outside of the Reclamation Area (Figure 4B).

4.5 Special-Status Wildlife

Sensitive wildlife species are those listed as federal/state endangered or threatened, proposed for listing, fully protected by CDFW, California Watch List (WL), California Species of Special Concern (SSC), or MSCP Covered Species. Protocol-level surveys were conducted in the study area for the following sensitive wildlife species: coastal California gnatcatcher and Quino checkerspot butterfly. Additional surveys included larval host plant surveys for Quino checkerspot butterfly prior to the protocol surveys for this species.

Sensitive wildlife species directly observed in the study area during focused surveys, or those known to occur in the surrounding region, are described in Table 5, Special-Status Wildlife Species Detected or Potentially Occurring in Study Area, and Appendix G, Special-Status Wildlife Species with Low Potential or Not Expected to Occur within the Study Area. Table 5 and Appendix G describes the potential for each species to occur based on their general biology (primary habitat

associations, range, and known elevation range) and known occurrences within the Imperial Beach quadrangle and the surrounding quadrangles, including Point Loma, National City, Jamul Mountains, and Otay Mesa (CDFW 2019; USFWS 2019a), as well as Dudek's knowledge of biological resources in the area and regional distribution of each species.

Seven special-status wildlife species were detected during the 2019 surveys of the study area including: coastal California gnatcatcher (FE/SSC/Group 1/MSCP Covered), Cooper's hawk (WL/Group 1/MSCP Covered), northern harrier (SSC/Group 1/MSCP Covered), turkey vulture (County Group 1), American peregrine falcon (FDL, BCC/FP, SDL/Group 1/MSCP Covered), San Diego black-tailed jackrabbit (SSC/County Group 2), and Quino checkerspot butterfly (FE/County Group 1). There are no other special-status wildlife species mapped within the study area during recent County surveys (Greystone 2005, County of San Diego 2010; Dudek 2012b).

Table 5 lists special-status wildlife species which were observed or have potential to occur within the study area based on the location of the site, general vegetation communities found in the area, and known distributions of sensitive species in the region. Species observed or with potential to occur on site are described below. For each species listed, a determination is made regarding the potential for the species to occur on-site. In addition, Table 5 lists if the species was observed during Project surveys. Where pertinent, a distinction is made between foraging and breeding habitat available on site.

Table 5
Special-Status Wildlife Species Detected or Potentially Occurring in Study Area

Scientific Name	Common Name	Status: Federal/State/ MSCP	Habitat	Potential to Occur*
		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	Moderate potential to occur. There is suitable scrub and chaparral present. Species observed within the vicinity during previous surveys in 2004 (Greystone 2005) and 1997-1999 (Fisher and Case 2000). The closest known CNDDB occurrence is 0.7 miles north of the study area north of Tijuana River (CDFW 2019).

Table 5
Special-Status Wildlife Species Detected or Potentially Occurring in Study Area

Scientific Name	Common Name	Status: Federal/State/ MSCP	Habitat	Potential to Occur*
Arizona elegans occidentalis	California glossy snake	None/SSC/None	Commonly occurs in desert regions throughout southern California. Prefers open sandy areas with scattered brush. Also found in rocky areas.	Moderate potential to occur. There is suitable scrub and sandy areas present. The closest known CNDDB occurrence is 2.0 miles west of the study area within Border Field State Park (CDFW 2019).
Aspidoscelis hyperythra	orange-throated whiptail	None/WL/Covered	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood	Moderate potential to occur. There is suitable coastal scrub and chaparral present. This species was observed within the vicinity in 2004 (Greystone 2005) and 1997-1999 (Fisher and Case 2000). The closest known CNDDB occurrence is 1.9 east of the study area along the Tijuana River (CDFW 2019).
Crotalus ruber	red diamond rattlesnake	None/SSC/None	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Moderate potential to occur. There is suitable coastal scrub and chaparral present. The closest known CNDDB occurrence is 5.1 miles northeast of the study area within Poggi Canyon (CDFW 2019).
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. There is suitable sandy soil and coastal scrub present. This species was observed within the vicinity in 2004 (Greystone 2005) and 1997-1999 in dune and marsh habitat (Fisher and Case 2000). The closest known CNDDB occurrence is 2.3 miles west of the study area within Border Field State Park (CDFW 2019).

Table 5
Special-Status Wildlife Species Detected or Potentially Occurring in Study Area

Scientific Name	Common Name	Status: Federal/State/ MSCP	Habitat	Potential to Occur*
		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 during surveys in 2019. Moderate potential to nest in areas with tree species (large willows; Salix). The Reclamation Area (old quarry) does not have habitat for nesting Cooper's Hawk. Observed flying over the site in 2012 during previous surveys (Dudek 2012a). Observed in the vicinity during previous surveys in 2004 (Greystone 2005). The closest known CNDDB occurrence is 1.6 miles west of the study area within Border Field State Park (CDFW 2019).
Accipiter striatus (nesting)	sharp-shinned hawk	None/WL/None	Nests in coniferous forests, ponderosa pine, black oak, riparian deciduous, mixed conifer, Jeffrey pine; winters in lowland woodlands and other habitats	Moderate potential to forage. Not expected to nest; not known to nest in the region. This species is not known to occur within the vicinity (CDFW 2019).
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. Observed during 2012 previous surveys (Dudek 2012a). Observed in the vicinity during previous surveys in 2004 (Greystone 2005). The closest known CNDDB occurrence is 6.5 miles northeast of the study area south of Poggi Canyon (CDFW 2019).
Artemisiospiza belli	Bell's sage sparrow	BCC/WL/None	Nests and forages in coastal scrub and dry chaparral; typically in large, unfragmented patches dominated by chamise; nests in more dense patches but uses more open habitat in winter	Moderate potential to occur. There is suitable coastal scrub and chaparral present; however, there are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).

Table 5
Special-Status Wildlife Species Detected or Potentially Occurring in Study Area

Scientific Name	Common Name	Status: Federal/State/ MSCP	Habitat	Potential to Occur*
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	Moderate potential to occur. Potential burrowing owl habitat occurs on the cliff edges with shrub openings where potential for burrows exist but are hard to examine. The Reclamation Area (old quarry) was surveyed for burrows and they were not observed. The closest known CNDDB occurrence is 1.6 miles northwest of the study area within Tijuana River valley (CDFW 2019).
Circus hudsonius (nesting)	northern harrier	None/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	Observed foraging during surveys in 2019. Potential nesting habitat occurs in open meadows dominated by dotseed plantain, wildflowers and grasses. The Reclamation Area (old quarry) does not have nesting habitat for northern harrier. Observed in 2012 during previous surveys (Dudek 2012a). Observed in the vicinity during previous surveys in 2004 (Greystone 2005). The site is outside of the species' known geographic range and there is no suitable vegetation present. The closest known CNDDB occurrence is 1.6 miles west of the study area within Border Field State Park (CDFW 2019).
Eremophila alpestris actia	California horned lark	None/WL/None	Nests and forages in grasslands, disturbed lands, agriculture, and beaches; nests in alpine fell fields of the Sierra Nevada	Moderate potential to occur within open areas not utilized frequently by border patrol mainly in the most western portion of the site. Some

Table 5
Special-Status Wildlife Species Detected or Potentially Occurring in Study Area

Scientific Name	Common Name	Status: Federal/State/ MSCP	Habitat	Potential to Occur*
				suitable habitat in association with old dirt roads on site that are infrequently used and have some vegetative growth. The closest known CNDDB occurrence is 5.2 miles northeast of the study area within Otay Mesa (CDFW 2019).
Falco peregrinus anatum (nesting)	American peregrine falcon	FDL, BCC/FP, SDL/Covered	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	Observed during surveys in 2019. Low potential to nest due to lack of suitable nesting habitat. The closest known occurrence is 8.4 miles northeast of the study area along Salt Creek (USFWS 2019a).
Lanius ludovicianus (nesting)	loggerhead shrike	BCC/SSC/None	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Moderate potential to occur. There is suitable scrub habitat present. This species is not known to occur within the vicinity (CDFW 2019).
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 slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Observed during focused surveys in 2019. Observed in two locations in 2010 and one location in 2011 during previous surveys (Dudek 2012a). Observed in two locations within the study area during focused surveys in 2004 (Greystone 2005). The closest known occurrence overlaps the eastern portion of the study area (USFWS 2019a).
Setophaga petechia (nesting)	yellow warbler	BCC/SSC/None	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	High potential to occur. Observed in 2012 during previous surveys (Dudek 2012a). The closest known CNDDB occurrence is 6.0 miles east of the study area

Table 5
Special-Status Wildlife Species Detected or Potentially Occurring in Study Area

Scientific Name	Common Name	Status: Federal/State/ MSCP	Habitat	Potential to Occur*
				along a Tijuana River tributary (CDFW 2019).
			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 human-made structures and trees	Moderate potential to forage; low potential to roost. There is suitable scrub habitat present. The closest known CNDDB occurrence is 1.8 miles north of the study area in Nestor (CDFW 2019).
Chaetodipus californicus femoralis	Dulzura pocket mouse	None/SSC/None	Open habitat, coastal scrub, chaparral, oak woodland, chamise chaparral, mixed-conifer habitats; disturbance specialist; 0 to 3,000 feet above mean sea level	Moderate potential to occur. There is suitable coastal scrub and chaparral habitat present. This species is not known to occur within the vicinity (CDFW 2019).
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	High potential to occur. There is suitable coastal scrub and chaparral habitat present. The closest known CNDDB occurrence is 2.3 miles northwest of the study area within Imperial Beach (CDFW 2019).
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	Moderate potential to forage; low potential to roost. There is suitable scrub habitat present. The closest known CNDDB occurrence is 3.2 miles northwest of the study area within Imperial Beach (CDFW 2019).
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, human-made structures, and tunnels	Moderate potential to forage; low potential to roost. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
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	Moderate potential to forage; low potential to roost. There is suitable coastal scrub and chaparral habitat present.

Table 5
Special-Status Wildlife Species Detected or Potentially Occurring in Study Area

Scientific Name	Common Name	Status: Federal/State/ MSCP	Habitat	Potential to Occur*
			where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	The closest known CNDDB occurrence is 3.5 miles north of the study area north of Otay Valley Regional Park (CDFW 2019).
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/SSC/None	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Observed during surveys in 2019. Observed in 2012 during previous surveys (Dudek 2012a). The closest known CNDDB occurrence is 7.3 miles east of the study area south of Otay Valley (CDFW 2019).
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC/None	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	High potential to occur. There is suitable coastal scrub habitat present along with an observed woodrat midden. However, no woodrat midden was observed near or within the Reclamation Area (old quarry) The closest known CNDDB occurrence is 4.4 miles northeast of the study area within Poggi Canyon (CDFW 2019).
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	Moderate potential to forage; low potential to roost. There is suitable scrub habitat present. The closest known CNDDB occurrence is 6.6 miles north of the study area within Chula Vista (CDFW 2019).
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	Moderate potential to forage; low potential to roost. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).

Table 5
Special-Status Wildlife Species Detected or Potentially Occurring in Study Area

Scientific Name	Common Name	Status: Federal/State/ MSCP	Habitat	Potential to Occur*
Invertebrates				
Branchiopods	Listed fairy shrimp	FE/None/None	Vernal pools, non-vegetated ephemeral pools	High potential to occur within the open space on site; low potential to occur within the Reclamation Area.
Euphydryas editha quino	quino checkerspot butterfly	FE/None/None	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)	Observed during focused surveys in 2020 and incidentally in 2019. Low densities of host plant with the Reclamation Area and high densities of host plant located on mesas in the western, open space portion of the study area.

The federal and state status of species is based on the Special Animals List (July 2020) (CDFW 2020b).

* "Vicinity" refers to species recorded in the USGS 7.5-minute Imperial Beach quadrangle and surrounding 4 quadrangles including the Point Loma, National City, Jamul Mountains, and Otay Mesa quadrangles (CDFW 2019; USFWS 2019a).

Federal Designations:
BCC Fish and Wildlife Service: Birds of Conservation Concern
(FD) Federally delisted; monitored for 5 years.
FE Federally listed as Endangered.
FT Federally listed as Threatened.

State Designations:
SSC California Species of Special Concern
P California Department of Fish and Wildlife Protected and Fully Protected Species
(SD) State-delisted.
WL California Department of Fish and Wildlife Watch List

County of San Diego:
Group 1: Group 1 Listed Species
Group 2: Group 2 Listed Species

City of San Diego Subarea Multiple Species Conservation Program:
Covered: MSCP Covered Species

4.5.1 Listed or MSCP-Covered Species

Birds

*Coastal California Gnatcatcher (*Polioptila californica californica*), FE/SSCMSCP Covered Species*

Coastal California gnatcatcher is federally threatened, SSC, and MSCP Covered species. This species occurs in coastal Southern California and Baja California year-round, where it depends

on a variety of arid scrub habitats. California gnatcatcher occurs mainly on cismontane slopes (coastal side of the mountains) in Southern California, ranging from Ventura and northern Los Angeles Counties south through the Palos Verdes Peninsula to Orange, Riverside, San Bernardino, and San Diego Counties. The species' range continues south to El Rosario, Mexico. Initially it was reported that 99% of all coastal California gnatcatcher locality records occurred at or below an elevation of 984 feet amsl (Atwood 1990; Atwood and Bolsinger 1992). Since that time, data collected at higher elevations show that the species may occur as high as 3,000 feet amsl, but that more than 99% of the known coastal California gnatcatcher locations occur below 2,500 feet amsl (65 FR 63680). Because of the natural topography of the Southern California hills and mountain ranges, most of the higher-elevation locations are more inland, where population densities tend to be much lower than coastal populations.

Coastal California gnatcatcher typically occurs in or near coastal sage scrub vegetation that is composed of relatively low-growing, dry-season deciduous and succulent plants. Characteristic plants of this community include coastal sagebrush (*Artemisia californica*), various species of sage, California buckwheat (*Eriogonum fasciculatum*), lemonade sumac (*Rhus integrifolia*), California encelia (*Encelia californica*), and cactus (e.g., *Opuntia* spp.). Coastal California gnatcatcher also occurs in chaparral, grassland, and riparian vegetation communities where the coastal sage scrub community is close (Bontrager 1991). Use of these vegetation communities appears to be most frequent during late summer, autumn, and winter, with smaller numbers of birds using such areas during the nesting season. Coastal California gnatcatcher tends to occur most frequently in the coastal sagebrush–dominated stands on mesas, gently sloping areas, and along the lower slopes of the Coast Ranges (Atwood 1990). Coastal California gnatcatcher occurs in high frequencies and densities in coastal scrub communities with an open or broken canopy, but it is absent from coastal sage scrub dominated by tall shrubs, and occurs in low frequencies and densities in low coastal scrub with a closed canopy (Weaver 1998).

Coastal California gnatcatcher gleans insects and spiders from foliage of shrubs, primarily California buckwheat and coastal sagebrush (Atwood 1993). Its diet is primarily composed of spiders, but is also composed of wasps, bees, and ants (Burger et al. 1999). Coastal California gnatcatcher habitat use has been positively associated with insect abundance and diversity (Redak et al. 1996, as cited in Diffendorfer et al. 2002).

Coastal California gnatcatcher nests usually are located in a small shrub or cactus 1 to 3 feet above the ground. Territory size varies and is influenced by season and locale (Preston et al. 1998), but is unrelated to vegetation structure (Braden et al. 1997). During the breeding/nesting season, territories in coastal areas are often smaller—averaging 5.7 acres (Atwood et al. 1998a, 1998b)—than those in more inland regions, which average 8.4 acres (Braden et al. 1997).

One individual and four pairs of coastal California gnatcatchers were observed during focused surveys in February 2019. One individual (uncapped) was heard and observed in the central portion of the study area during week 1 and week 2. The following four coastal California gnatcatcher pairs were individually identified and mapped separately: Pair 1 was located on the most western side of the study area; Pair 2 was observed approximately 0.15 mile east of Pair 1; Pair 3 was observed approximately 0.35 mile northeast of Pair 2; and Pair 4 was observed approximately 0.22 mile northeast of Pair 3 (Figure 4C). As shown on the figure, Pairs 1, 2, and 3 were observed outside of the Reclamation Area. Pair 4 and Individual 1 (the sole individual observed) were observed within the boundaries of the Reclamation Area.

American Peregrine Falcon (*Falco peregrinus anatum*), FDL, BCC/FP, SDL/MSCP Covered

American peregrine falcon is a federally delisted species, BCC, fully protected, state delisted, and MSCP Covered species. American peregrine falcon is a subspecies and inhabits riparian woodland, forest, inland wetlands, and coastal habitats (Zeiner et al. 1990). This species migrates throughout California, and breeds along the coast of southern and central California, inland north coastal mountains, Klamath Mountains, Cascade Range, Sierra Nevada, and Channel Islands. The American peregrine falcon frequents bodies of water in open areas with cliffs.

One American peregrine falcon was observed flying over the central portion of the site (Figure 4C).

Least Bell's Vireo (*Vireo bellii pusillus*), FE, SE, Covered

Least Bell's vireo is a federally and state-listed endangered species and MSCP Covered species. Least Bell's vireos 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. During spring and fall migration, the Bell's vireo occupies a wider range of habitats, including coastal scrub, riparian, and woodland habitats.

One least Bell's vireo was observed in April 2020 moving between blue elderberry (*Sambucus nigra* ssp. *caerulea*) and laurel sumac (*Malosma laurina*) in the northeast corner of the study area (Figure 4C). There is no nesting habitat for this species within the study area and this observation was assumed to be a migrant individual.

Cooper's Hawk (*Accipiter cooperii*), WL/MSCP Covered

Cooper's hawk is a WL and MSCP Covered species. It is found throughout California in wooded areas. This species inhabits live oak, riparian, deciduous, or other forest habitats near water. Nesting and foraging usually occur near open water or riparian vegetation. Nests are built in dense stands with moderate crown depths, usually in second-growth conifer or deciduous riparian areas. Cooper's hawk uses patchy woodlands and edges with snags for perching while it hunts for prey such as small birds, small mammals, reptiles, and amphibians within broken woodland and habitat edges (Zeiner et al. 1990).

Three Cooper's hawks were observed in the central and western portion of the study area (Figure 4C).

Northern Harrier (*Circus cyaneus*), SSC/MSCP Covered

Northern harrier is an SSC and MSCP Covered species. Northern harriers use a wide variety of open habitats in California, including deserts, coastal sand dunes, pasturelands, croplands, dry plains, grasslands, estuaries, flood plains, and marshes. This species can also forage over coastal sage scrub or other open scrub communities. Nesting areas are associated with marshes, pastures, grasslands, prairies, croplands, desert shrub-steppe, and riparian woodland (Macwhirter and Bildstein 2011). Winter habitats similarly include a variety of open habitats dominated by herbaceous cover. Northern harrier populations are most concentrated in areas with low vegetation.

Two northern harrier individuals were observed in the northeastern and western portion of the study area and outside of the Reclamation Area (Figure 4C).

Invertebrates

Fairy Shrimp (Branchiopods)

Fairy shrimp or Branchiopods are restricted to vernal pools and other non-vegetated temporary basins (USFWS 2008). Protocol fairy shrimp surveys were not conducted within the Project area due to lack of vernal pool habitat. Road ruts were incidentally observed during spring surveys, immediately following on mesa top roads in the western portion of the study area and one location east of the Reclamation Area. Fairy shrimp (unidentified species) were visually observed in one mesa top dirt road approximately 500 feet west of the proposed Reclamation Area on February 28, 2020. During a visit the following week and subsequent visits in 2020, the road rut had dried up and no vernal pool indicator plants were observed in any of the road ruts.

Federally listed fairy shrimp have high potential to occur in the study area on site, however they have low potential to occur within the Reclamation Area.

Quino Checkerspot Butterfly (*Euphydryas editha quino*), FE

Quino checkerspot butterfly is a federally endangered species. This species is found only in western Riverside County, southern San Diego County, and northern Baja California, Mexico (USFWS 2003). This species is found on sparsely vegetated hilltops, ridgelines, and occasionally on rocky outcrops in open chaparral and coastal sage scrub habitat (typically at less than 3,000 feet amsl). This species requires host plants within these vegetation communities for feeding and reproduction. The primary larval host plant is dotseed plantain (*Plantago erecta*); however, several other species have been documented as important larval host plants, including desert plantain, sometimes called woolly plantain (*Plantago patagonica*); thread-leaved bird's beak (*Cordylanthus rigidus*); white snapdragon (*Antirrhinum coulterianum*); owl's clover (*Castilleja exserta*); and Chinese houses (*Collinsia* spp.) (USFWS 2003).

Host Plant Mapping Results

The entire study area was surveyed for host plants. The western side and central side of the mesa complex supports an abundance of dotseed plantain, a known host plant of Quino checkerspot butterfly. In addition to dotseed plantain, numerous nectar plants were also discovered exclusively within the western and central portion of the mesa complex. High quality host plant habitat and quality nectar are mapped outside of the Reclamation Area.

- 91 locations were mapped as **very low density** (1-19 individuals)
- 76 locations were mapped as **low density** (20-99 individuals)
- 269 locations were mapped as **medium density** (100-999 individuals)
- 114 locations were mapped as **high density** (1,000+ individuals)

SOURCE: SANGIS 2017

DUDEK

0 120 240 Feet

FIGURE 4C

Biological Resources - Special-Status Wildlife

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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Quino Findings and Behavior

Quino checkerspot butterfly were observed in 2019 and 2020. A total of five adult Quino checkerspot butterfly were observed on April 2, 2019 by permitted biologist Margie Mulligan (TE-88969B-0). The Quino checkerspot butterfly observations in 2019 occurred during a rare plant survey and not a protocol Quino checkerspot butterfly survey. It occurred within the study area. The first Quino checkerspot butterfly of one individual was observed for approximately 15 minutes at 9:44am. The Quino checkerspot butterfly individual landed and then was observed flying low along access road, periodically landing on the road perched with wings open for several moments on the western side of the mesa. The second observation occurred at 12:05pm. At a new location, one male and one female were observed to be mating for at least 20 minutes. They were first observed on the ground and then flew to an *Adenostoma fasciculatum* shrub. They were both in good condition. Then soon after two other butterflies were observed nearby, one in good condition and one that had a battered wing.

A total of three Quino were observed during the 2020 focused protocol surveys on March 3, 2020 within the study area but outside of the Reclamation Area (Figure 4D; Appendix D). Specifically, the three Quino observed on March 3, 2020 were located approximately 0.40 mile west of the Reclamation Area boundary. One Quino larval host plant, dotseed plantain, was observed within the immediate area of the observation locations. The first Quino observed appeared to have just emerged from a chrysalis as the wing was slightly bent. Two additional Quino were observed flying from near the U.S./Mexico International border. These two Quino performed hilltopping behaviors. “Hilltopping” is a behavior wherein insects seek out the highest points in the landscape and congregate to seek mates. A gust of wind moved the two butterflies further north. These Quino were only observed during this one survey week on this one day. No other Quino were observed during the 2020 protocol surveys.

Quino were found in areas away from the densest host plant populations performing hilltopping behaviors or basking behaviors on the disturbed dirt roads utilized frequently by U.S. Border Patrol. Soils on these elevated locations were disturbed to highly disturbed with little to no nectar resources. Quino were only observed in disturbed areas hilltopping near the ridgelines and regaining energy basking. During the hilltopping observation mating did occur, but the mating Quino butterflies moved back toward better habitat after the hilltopping behavior was concluded.

4.5.2 Other Special-Status Wildlife Species

Mammals

San Diego Black-Tailed Jackrabbit (*Lepus californicus bennettii*), SSC

San Diego black-tailed jackrabbit is an SSC species. It is confined to coastal Southern California, with marginal eastern records in Mount Piños, Arroyo Seco, Pasadena, San Felipe Valley, and Jacumba (Hall 1981). It is found in many diverse habitats, but primarily in arid regions supporting short-grass habitats. Jackrabbits typically are not found in high grass or dense brush where it is difficult for them to move quickly, and the openness of open scrub habitat likely is preferred over dense chaparral. Jackrabbits are common in grasslands that are overgrazed by cattle, and they are well adapted to using low-intensity agricultural habitats (Hall 1981).

San Diego black-tailed jackrabbits were observed throughout the study area including the Reclamation Area (Figure 4C).

4.6 Jurisdictional Aquatic Resources

The potential presence/absence of jurisdictional water was assessed for the study area (Table 6; Figure 4A). There are two canyon drainages in the study area, west of the proposed Reclamation Area, that each support ephemeral stream channels that are potential waters under state regulations (i.e., CDFW, CCC and RWQCB jurisdiction) and federal regulations (i.e., USACE). The channels vary from 4 to 8 feet in width and convey storm flows immediately following rain events towards the Tijuana River. Mulefat scrub and southern riparian scrub are present in the upper portion of the western drainage. Given the presence of areas predominated by hydrophytic vegetation in association with a stream channel, mulefat and southern riparian scrub are considered wetlands/riparian under CDFW, CCC, and City regulation.

The open water and surrounding mulefat scrub associated with the pond in the northeastern portion of the study area supports the presence of hydric soils, hydrophytic vegetation, and local hydrology indicators and is therefore potentially jurisdictional under USACE, CDFW, RWQCB, CCC, and City regulation. However, the area (located the northeast corner of parcel 664-011-0500 and outside of the Reclamation Area) does not have evidence of surface hydrology connection to the ephemeral canyon drainages in the western portion of the site and is separated from any stream channels and or other means of surface or subsurface connectivity with the Tijuana River. The area appears to collect local runoff and is an isolated wetland feature, likely created from prior site disturbance.

Table 6
Jurisdictional Resources in Study Area

Jurisdictional Resource	Total Study Area acreage[1]
Non-wetland waters	0.08 (3,868 linear feet)
Riparian area	0.24
Total	**0.30**

[1] Totals may not sum due to rounding.
Note: jurisdictional resources do not occur within the Reclamation Area.

4.7 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Wildlife corridors contribute to population viability by assuring continual exchange of genes between populations, providing access to adjacent habitat areas for foraging and mating, and providing routes for recolonization of habitat after local extirpation or ecological catastrophes (e.g., fires).

Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation. Habitat linkages provide a potential route for gene flow and long-term dispersal of plants and animals and may also serve as primary habitat for smaller animals, such as reptiles and amphibians. Habitat linkages may be continuous habitat or discrete habitat islands that function as stepping-stones for dispersal.

Although the site is part of a regional open space park, the study area has limited function as a wildlife corridor or habitat linkage due to its location on the international border and because of natural topography. Wildlife movement in the region likely is concentrated in the valley bottom itself. Movement across the site is relatively free but U.S. Border Patrol vehicular traffic is regular throughout the day and night and likely limits movement. The study area has good connectivity to the river valley but the regional area is relatively isolated from other large blocks of open space (e.g., Otay Mesa, Otay Mountain, Otay River Valley).

4.8 Regional Resource Planning Context

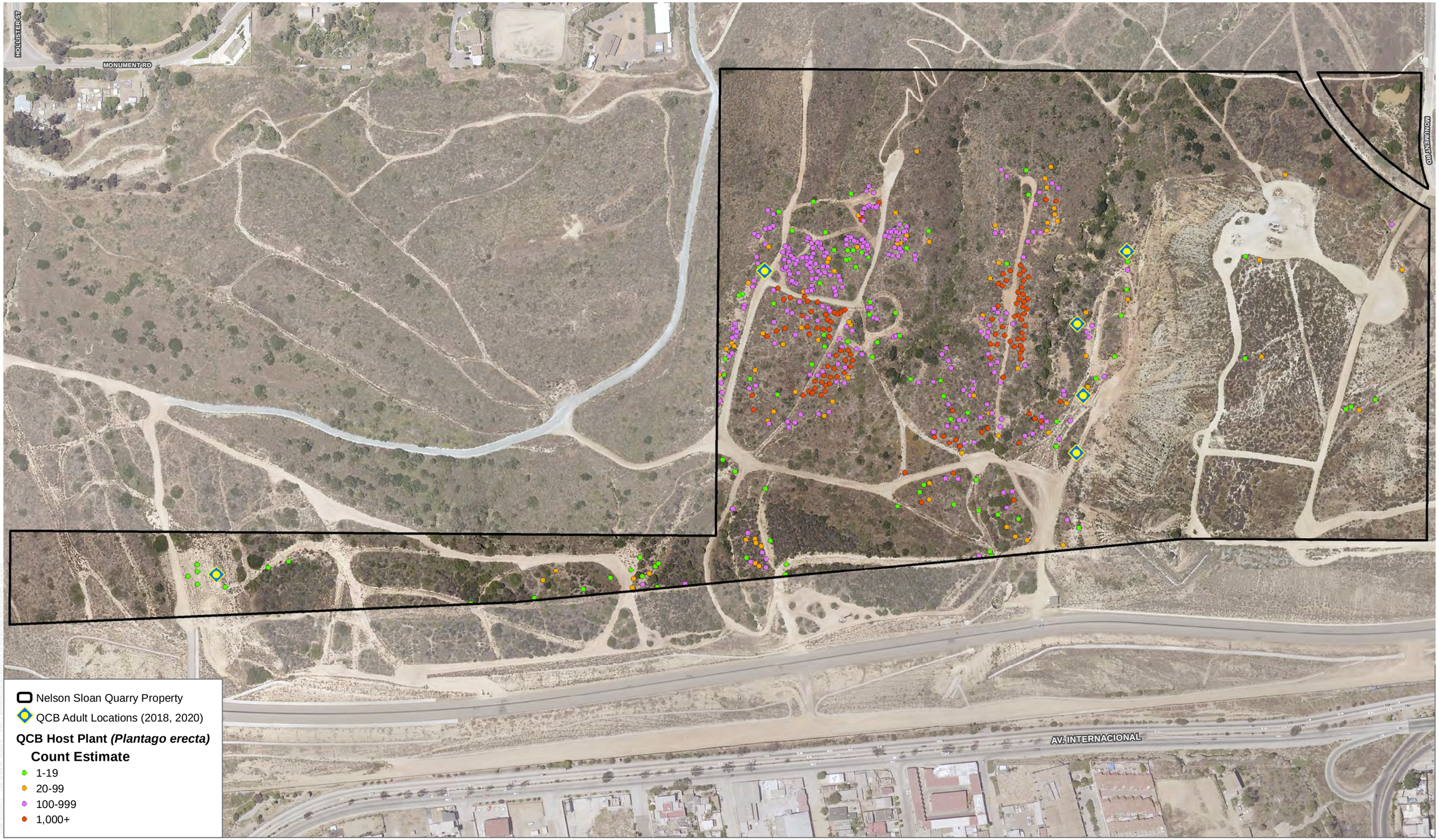
The City's Biology Guidelines require that the Project be developed in accordance with MSCP Subarea Plan general guidelines (City of San Diego 1997), specific guidelines for the Tijuana River Valley (City of San Diego 1999), and Land Use Adjacency Guidelines. In addition, the location of the Project within the Tijuana River Valley Local Coastal Program requires conformance with many of these same guidelines. The guidelines are listed below.

City of San Diego MSCP Subarea Plan

The City of San Diego is a permittee in accordance with an Implementing Agreement (IA) with the USFWS and CDFW based on the City Subarea Plan. The study area occurs within the Southern Area of the City's Subarea Plan. The majority of the study area and all of the Reclamation Area are completely within the MHPA; the MHPA is generally designated for preservation of biological resources with specific land use restrictions and guidelines (Figure 2).

The reclamation of mining operations is addressed in the MSCP Subarea Plan for properties within the MHPA in Section 1.4.1 (Compatible Land Uses):

> *Currently permitted mining operations that have approved restoration plans may continue operating in the MHPA. New operations are permitted in the MHPA if: 1) impacts have been assessed and conditions incorporated to mitigate biological impacts and restore mined areas; 2) adverse impacts to covered species in the MHPA have been mitigated consistent with the Subarea Plan; and 3) requirements of other City land use policies and regulations (e.g., Adjacency Guidelines, Conditional Use Permit) have been satisfied. Existing and any newly permitted operations adjacent to or within the MHPA shall meet noise, air quality and water quality regulation requirements, as identified in the conditions of any existing or new permit, in order to adequately protect adjacent preserved areas and covered species. Such facilities shall also be appropriately restored upon cessation of mining activities. All existing and future mined lands adjacent to or within the MHPA shall be reclaimed pursuant to SMARA. Ponds are considered compatible uses where they provide native wildlife and wetland habitats and do not conflict with conservation goals of the MSCP and Subarea Plan.*



SOURCE: SANGIS 2017

DUDEK

0 120 240 Feet

FIGURE 4D

Biological Resources - Quino Checkerspot Butterfly Adults and Host Plants

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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In addition, Section 1.4.2 General Planning Policies and Design Guidelines includes discussion of siting and construction methods for roads, utilities, fencing, lighting, signage, materials storage, and flood control. These guidelines generally require that projects within or adjacent to the MHPA be developed with avoidance and minimization of impacts to the MHPA and habitat of MSCP covered species, and avoidance and minimization of impacts to wildlife movement. Projects within the MHPA may not include constraints or barriers to natural drainage flows, unless reviewed by all appropriate agencies and adequately mitigated and may not include riprap, concrete, or other unnatural material in the stabilization of drainage banks (rock gabions are allowed where necessary).

Section 1.4.3 Land Use Adjacency Guidelines contains measures which minimize the impact to adjacent MHPA habitats through restrictions/requirements on drainage, toxic materials, lighting, noise, barriers, invasive species, brush management, and grading/manufactured slopes. Although the Reclamation Area is within the MHPA, as opposed to adjacent, during grading operations the site will function similar to a development adjacent to conserved habitats and, therefore, should abide by these guidelines in order to minimize impacts. These measures include requirements such as drainage into the MHPA be developed to prevent release of pollutants, lighting is directed away from the MHPA, noise is minimized especially during the breeding season adjacent to sensitive species habitats, barriers be used to direct public access to appropriate locations, and no invasive species should be used.

Section 1.5.2 General Management Directives includes sections on mitigation and restoration which would apply to the restoration Project. These directives indicate that mitigation needs to be provided in accordance with the City's Environmentally Sensitive Lands Ordinance and Biology Guidelines and that restoration be provided in accordance with a plan that includes elements addressing financial responsibility, site preparation, planting specifications, maintenance, monitoring and success criteria, remediation, and contingency measures.

Section 1.5.5 Specific Management Policies and Directives for the Tijuana River Valley includes language on goals and objectives and specific priorities for "Mesa Areas" within the river valley. The goals and objectives, as applicable to this Project, include a vision of natural habitat mixed with agricultural, recreational, and water quality uses with prohibitions against off-road activities, control of trash, and removal of invasive species. Within the Mesa Areas specifically, a priority is the restoration of the Border Highlands areas (which includes the Nelson Sloan Quarry) "to coastal sage scrub, maritime succulent scrub, possibly some grasslands and/or chaparral….The border patrol should be involved in exploring limiting vehicle access to well-defined roads through the area." Another priority is to "restore areas of the mesas that have been mined and excavated. Restoration should include reconfiguration to the natural landform, with surrounding natural areas

as reference. Restoration of these areas may present research opportunities if not already required as part of the existing CUPs."

Tijuana River Valley Local Coastal Plan/Land Use Plan

The Tijuana River Valley LCP/LUP (City of San Diego 1999) includes similar language as the MSCP Subarea Plan. The LCP/LUP includes general goals and objectives similar to those listed above. The plan designates the County-owned portion of the quarry CUP area as MSCP Open Space and provides the following applicable recommendations regarding land use: maintain adequate habitat for covered species, existing permitted mining operations "shall meet noise, air quality, and water quality regulation requirements and shall be restored appropriate upon cessation of mining activities", shall include "noise reduction methods that take into consideration the breeding and nesting seasons of sensitive bird species", "shall consider changes and impacts to water quality, water table level, fluvial hydrology, flooding, and wetlands and habitat upstream and downstream, and provide adequate mitigation," provide a minimum 100-foot wetland buffer and 50-foot riparian buffer (which may be increased or decreased in consultation with CDFW), and drainage control measures be implemented to prevent and control runoff of pollutants into riparian and floodplain areas.

USFWS Critical Habitat

No critical habitat is designated within the study area. There is designated critical habitat for least Bell's vireo north of the study area within riparian habitat associated with the Tijuana River.

5 ANTICIPATED PROJECT IMPACTS

This section addresses direct, indirect, and cumulative impacts to biological resources that may result from implementation of the proposed Reclamation Plan. A description of the Project is provided followed by a determination of how the various activities associated with the projects will be analyzed short- and long-term direct, indirect, and cumulative impacts.

5.1 Project Objectives and Description

5.1.1 Project Objectives

The purpose of the proposed Project is to beneficially reuse excess sediment deposited in the Tijuana River Valley towards the restoration of the Nelson Sloan Quarry. As proposed, it is anticipated that this Project would improve Tijuana River Valley land managers ability to conserve and restore high-quality habitat impacted by sedimentation, and to better protect valley-wide infrastructure from sedimentation and flooding. The purpose of the proposed Project is guided by the following Project objectives:

- Consistent with Objective 3, Strategy 1 of the Tijuana River Valley Recovery Team Five-Year Action Plan, restore the landform, ecological functions, and values of the impacted habitats on the Project site that were significantly altered by past mining activity. As proposed, the Nelson Sloan Quarry would be restored and stabilized consistent with DMR reclamation standards.
- Improve water quality within the watershed and reduce public health and safety hazards associated with cross-border flows.
- Reduce opportunities for downstream erosion, run-off, and water quality impairment through stabilization of the Project site. Implement interim and permanent design features to reduce erosion and storm water runoff.
- Facilitate cost-effective habitat protection, conservation and restoration opportunities in areas impacted by sedimentation and flooding in the Tijuana River Valley.
- Advance efforts to meet the intent of the recorded grant deed for the transfer of the property from the Coastal Conservancy to the County of San Diego; the deed states that the property must be used for habitat protection, restoration and open space in perpetuity.
- Release the existing Mine ID No. 91-37-0037 associated with "Border Highlands" also known as the "Border Area Borrow Pit" or "Nelson Sloan Quarry"; City Project No. 308715 and CUP No. 497-PC.

While it is outside the scope of this report, it is important to note that a wide variety of highly sensitive and endangered biological resources would benefit from development of the proposed Project because it would provide a cost-effective method to dispose of sediment that is required to restore and maintain the health of habitats including wetland and riparian resources within the Tijuana River and its tributaries and historical salt marsh within the Tijuana Estuary.

5.1.2 Project Description

Project operations and restoration would begin with site preparation, and then phased restoration that would progress in a series of north-northeasterly advancing phases (Phases 1 through 6). Revegetation is planned for each phase once final phase landform elevations are established, except for Phase 1.

Site preparation includes installation of fencing, removal of vegetation where required, establishment of electrical and water utilities, placement of temporary structures, construction of a temporary silt trap, installation of erosion control BMPs, establishment of material stockpile and processing locations, establishment of equipment staging locations, and improvement of access roads. Chain link fence would be installed around the Project perimeter to secure the area from public access. Site preparation would include improvements to the existing dirt road from Monument Road that would function as the site driveway. The road would be regraded and widened to approximately 28 feet to accommodate haul trucks and other vehicles. A gate would be installed at the ingress point to the proposed driveway off Monument Road and would control access to the site.

Prior to the initiation of Phase 1, initial revegetation activities on the Project site would occur. These activities would be limited and focused in two distinct areas: in the southeast corner of APN 664-011-0500 and atop/near the mesa on APN 664-011-0400. As proposed, revegetation would occur outside of grading/disturbance limits associated with Project phases and within restoration/enhancement area limits (i.e., within currently disturbed areas). For example, on APN 664-011-0400, revegetation and enhancement of existing areas would occur on lands subject to previous disturbance associated with erosion and access road development/use. As a component of the Project, a 12-foot-wide access road would be maintained atop the mesa. Consistent with later phases of restoration and revegetation, coastal sage scrub seed mixes would be used in the initial revegetation areas.

Each phase includes placement of processed sediment excavated as part of ongoing annual, permitted channel and basin maintenance activities in the Tijuana River Valley. Historic data suggest an assumed annual volume of approximately 75,000 CY of sediment would be available

for restoration. Further, the source sediment would be a sandy loam material that is suitable for restoration of coastal sage scrub vegetation.

The Project includes interim and final restoration and revegetation associated with the phased placement of sediment materials and application of an erosion control (or habitat forming) seed mix. Interim restoration would occur as interim grading is completed. T-post and rope fencing, and/or temporary habitat protection construction fence or chain link fence would be installed along the perimeter of each phase area in sequence to protect adjacent environmentally sensitive areas (ESAs) and mitigation areas from subsequent phased grading activity. Actual fence locations would be approved by the Project biologist prior to installation.

In regard to revegetation, an erosion control seed mix would be applied to interim regraded slopes and new landforms (i.e., slopes/terrain that is subject to future disturbance by phases). The seed mix would consist of a mix of low growing herbs, grasses and wildflowers that germinate quickly and provide vegetative cover (erosion control) relatively quickly while avoiding creating a native vegetation community that is likely to attract nesting birds or other wildlife. Other temporary BMP measures may include the use of fiber rolls, erosion control blankets, and other erosion products to minimize runoff and soil erosion from temporary slopes.

Final restoration would be completed when final elevation contours are established in each phase. Final restoration would establish native upland plant species found on site and naturally occurring on adjacent mesa slopes (e.g., CSS). Plant composition would be patterned after naturally occurring plant species associations found on the southern mesas. Two separate plant palettes would be implemented: the slopes would be restored with a typical CSS mix highly suitable for occupation by California gnatcatcher and the mesa would be restored with a more open CSS mix with elements of maritime succulent scrub and host plant and nectar resources for Quino checkerspot butterfly. Interim erosion control would be conducted after Phase 1 to obtain mine closure from DMR.

The Revegetation Monitoring and Management Plan for the Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project (Dudek 2021) is intended to successfully restore/create self-sustaining native habitats, which would serve as mitigation for impacts to sensitive vegetation communities, pursuant to City and Wildlife Agencies requirements.

Table 7
Proposed Coastal Sage Scrub Restoration Phases

Phase No. – Approx. Year Complete	Total Acres
Phase 1 – Year 5	3.57
Phase 3 – Year 10	1.39
Phase 5 – Year 13	3.50
Phase 6 – Year 15	12.29
Project Total	**20.75**

Following revegetation, there would be initial monitoring and a 5-year maintenance and non-native plant species control within the Reclamation Area.

5.1.3 Additional Project Features

Sediment Sampling and Characterization

Sediment will be sampled in order to characterize the sediment prior to (in-situ), or after (from stockpile), excavation. In either instance, the number of samples needed to be analyzed to characterize the materials would be consistent with Conditional Waiver No. 8 (Discharges/Disposal of Solid Wastes to Land) and/or a Project specific Waste Discharge Requirement issued by the RWQCB specifying the number of samples per unit volume.

Sediment Placement and Grading

Sediment excavated from in-valley sources would be placed on site to form slopes between 4:1 (horizontal to vertical) to 2:1, but no steeper than 2:1. Sediment placed on quarry slopes would be ripped (i.e., deep tilled) to 12 inches deep to break up compacted soil layers. Slopes would be floated out (dragged with a section of chain link fence fabric) to remove ridges and depressions in the ripped soil surface. Areas to be seeded and/or planted would be ripped to 8 inches deep and lightly track walked up and down slope. Any non-native and invasive plants that have germinated during the grading process would be removed from the mitigation areas prior to planting or seeding and the installation of erosion control devices/BMPs. Perennial weeds or exotic species such as fennel (*Foeniculum vulgare*) and artichoke thistle (*Cynara cardunculus*) would be treated with a systemic herbicide and removed once the root system is dead.

Stockpile Management

Excavated sediment would arrive on site and be placed on native soil. If sediment is being screened, each of the screened stockpiles would be placed on native soil. Coverings are required for dust suppression and compliance with the Storm Water Pollution Prevention Plan (SWPPP). BMPs consisting of a linear sediment barrier around the base of each stockpile would also be placed and appropriately anchored. Examples of liner sediment barriers include a silt fence, fiber rolls, gravel bag berms and straw bale barriers. This sediment barrier would prevent run-on and concentrated storm water flows from contacting the stockpile. The plastic sheeting cover(s) would be maintained and replaced as necessary. Linear sediment barrier(s) would be repaired or replaced as needed to keep them functioning properly. Stockpiles would be managed in accordance with applicable standards of regulatory agencies including the Regional Water Quality Control Board.

Storm Water and Erosion Control

BMPs would be installed as necessary throughout the different phases (at the beginning, during and at the end of each year's construction season) of the Project as well as during the 5-year monitoring period following the completion of each phase. The intermediate graded slopes between phases and final slopes are designed to mitigate possible storm water runoff impacts in accordance with City and County regulations and the National Pollutant Discharge Elimination System (NPDES) permit. Construction BMPs (straw wattles, silt socks/fiber rolls etc.) would be utilized on and around the grading operations as specified in the SWPPP to stabilize graded slopes. BMPs would include installation of non-invasive, non-habitat forming erosion control seed mix (to be defined in the grading plans and specifications), silt fencing, fiber rolls and gravel bags where soil erosion and runoff is expected. A sediment trap would be maintained throughout each phase. Unless otherwise noted in grading plans, runoff would be directed to the sediment basin by sheet flow and temporary drainage features that would be removed prior to subsequent phases.

Solid Waste and Debris Management

Given the binational nature of the watershed, much of the surface water flow in the Valley during storm events originates across the international border with Mexico. In addition to sediment, these flows transport a considerable volume of solid waste and waste tires. These waste materials would need to be removed from the excavated sediment prior to placement on the Project site for landform reclamation and creation. Solid waste, intermingled with the excavated sediment, would be removed when the sediment is processed (likely using shakers and screens) either at the Stakeholder staging area or the processing station.

Bi-products of material processing determined not suitable for placement on site would be managed and hauled off site for reuse or disposal at an approved landfill. Stockpiles would be managed in accordance with applicable standards of regulatory agencies. Refuse generated by site personnel would be collected in trash bins and removed by a local refuse disposal company. Equipment would be maintained on site and all used oils, fuels, and solvents would be collected in accordance with all applicable regulations and transported off site by an approved hauler for materials recycling.

Operational Water Use

The proposed Project would require water for general dust suppression, surface watering of loads placed on site, and processing screen deck dust suppression, and irrigation for permanent restoration vegetation. Water usage would be directly related to processing volume and volume of sediment placed on site. As such, water usage would vary by restoration phase. A water trailer or drop tank(s) would be installed on site and a single water truck would be used for dust suppression.

Operating Hours

The hours of operation for processing and filling would be between 7:00 a.m. and 5:00 p.m., Monday through Friday. Offsite transporting of sediment for reuse or disposal would be conducted from 7:00 am to 5:00 pm, Monday through Friday. The site would be closed on Saturdays, Sundays and holidays. The installation of shielded night lighting may be considered near the processing screen for security purposes and would be designed to minimize glare and reflection onto off-site properties.

Fencing

T-post and rope fencing, and/or temporary habitat protection construction fence or chain link fence would be installed along the perimeter of each phase area in sequence to protect adjacent environmentally sensitive areas (ESAs) and mitigation areas from subsequent phased grading activity. Actual fence locations would be approved by the Project biologist prior to installation. Fences would be installed approximately 15 feet from the edge of each phase grading limits to permit equipment access. Fence locations are subject to relocation during transition of select restoration phases. All fencing would be removed following acceptance of Phase 6 mitigation/restoration by the resource agencies and the City of San Diego as lead agency for MSCP compliance.

5.2 Impacts Determination

As described above, the proposed Project would have benefits to multiple habitat and species throughout the Tijuana River Valley and Tijuana Estuary because it provides a cost-effective means

to dispose and reuse cross-border sediment flow. However, the process of placing this sediment and restoring the quarry's original topography over time, will result in impacts during the life of the Project. Efforts have been made in the design of the Project to minimize the time between clearing of existing vegetation and restoration of final habitat. The proposed impacts per phase is shown on the Figure 5 series and the proposed restoration per phase is shown on the Figure 6 series.

Direct impacts consist of the loss of habitat and the plant and wildlife species it contains within the area impacted by the proposed Project. Direct impacts are typically classified as permanent or temporary. The access roads will be considered permanent impacts. Habitat restoration has been incorporated into the plan so that all portions of the Project site that would be subject to grading, other access, drainage, BMP's, and materials storage will be restored/revegetated upon completion of the grading activity to support coastal sage scrub and associated species. The planted structures (turfmat lined channel, turf reinforced mat ditch, riprap channel, buried storm drain) would be impact neutral, meaning they are not permanent impacts but also may have somewhat reduced function as restored habitat.

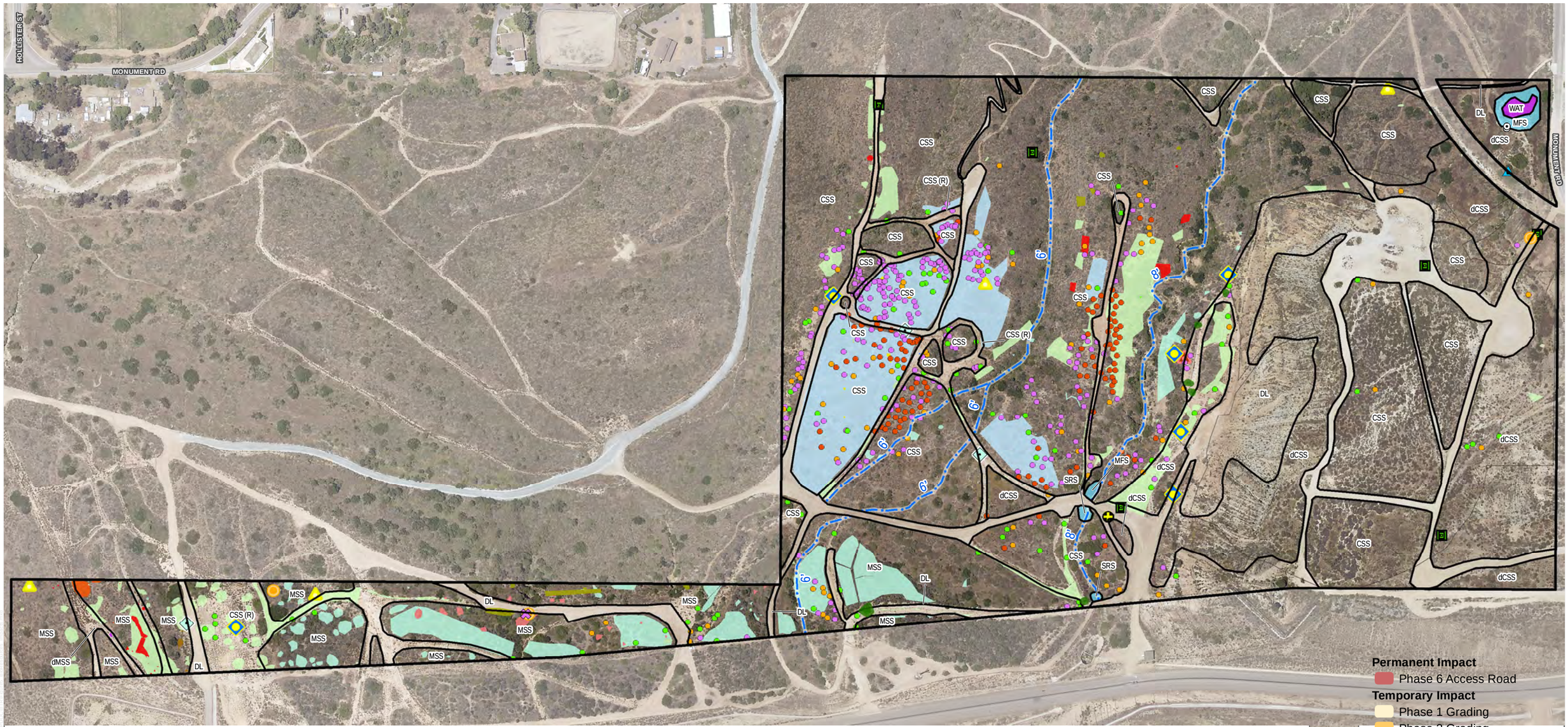
Most of the Reclamation Area is considered temporarily impacted by the Project. The majority of the area will be subject to grading but additional areas will also be subject to disturbance in order to place a temporary stockpile area and to provide access to the site. Removal of vegetation is minimized to the extent practicable within each phase. In particular, vegetation and habitat adjacent to the existing mesa is delayed from impact until Phase 5 (Figure 5A). Table 8 shows the year of impact compared to the year of phased restoration. Impact phasing is shown on Figure 5 and final restoration phasing is shown on Figure 6.

Table 8
Estimated Impact and Restoration Phasing

Impact Phase – Year of Impact (CSS acres)	CSS Restoration Phase – Year of Completion				Total Restoration
	Phase 1 – Year 5	*Phase 3 – Year 10*	*Phase 5 – Year 13*	*Phase 6 – Year 15*	
Pre-Phase 1 Restoration	3.57 ac (17% of restoration)	–	–	–	3.57 ac
Phase 1 – Year 1 (8.56 ac)	–	1.39 ac (7% of restoration)	3.09 ac (15% of restoration)	6.94 ac (33% of restoration)	11.42 ac
Phase 3 – Year 2 (0.30 ac)	–	–	0.41 ac (2% of restoration)	0.93 ac (4% of restoration)	1.34 ac

Table 8
Estimated Impact and Restoration Phasing

Impact Phase – Year of Impact (CSS acres)	CSS Restoration Phase – Year of Completion				Total Restoration
	Phase 1 – Year 5	*Phase 3 – Year 10*	*Phase 5 – Year 13*	*Phase 6 – Year 15*	
Phase 5 – Year 7 (2.69 ac)	–	–	0.01 (<0.1% of restoration)	4.28 ac (21% of restoration)	4.28 ac
Phase 6 – Year 10 (0.14 ac)	–	–	–	0.14 ac (1% of restoration)	0.14 ac
Total CSS Restoration	**3.57 ac**	**1.39 ac**	**3.50 ac**	**12.29 ac**	**20.75 ac**
Net CSS Habitat On-site	**-5.29 ac**	**-6.73 ac**	**-3.23 ac**	**+9.06 ac**	



SOURCE: SANGIS 2017

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FIGURE 5

Biological Resources and Proposed Phased Impacts Map

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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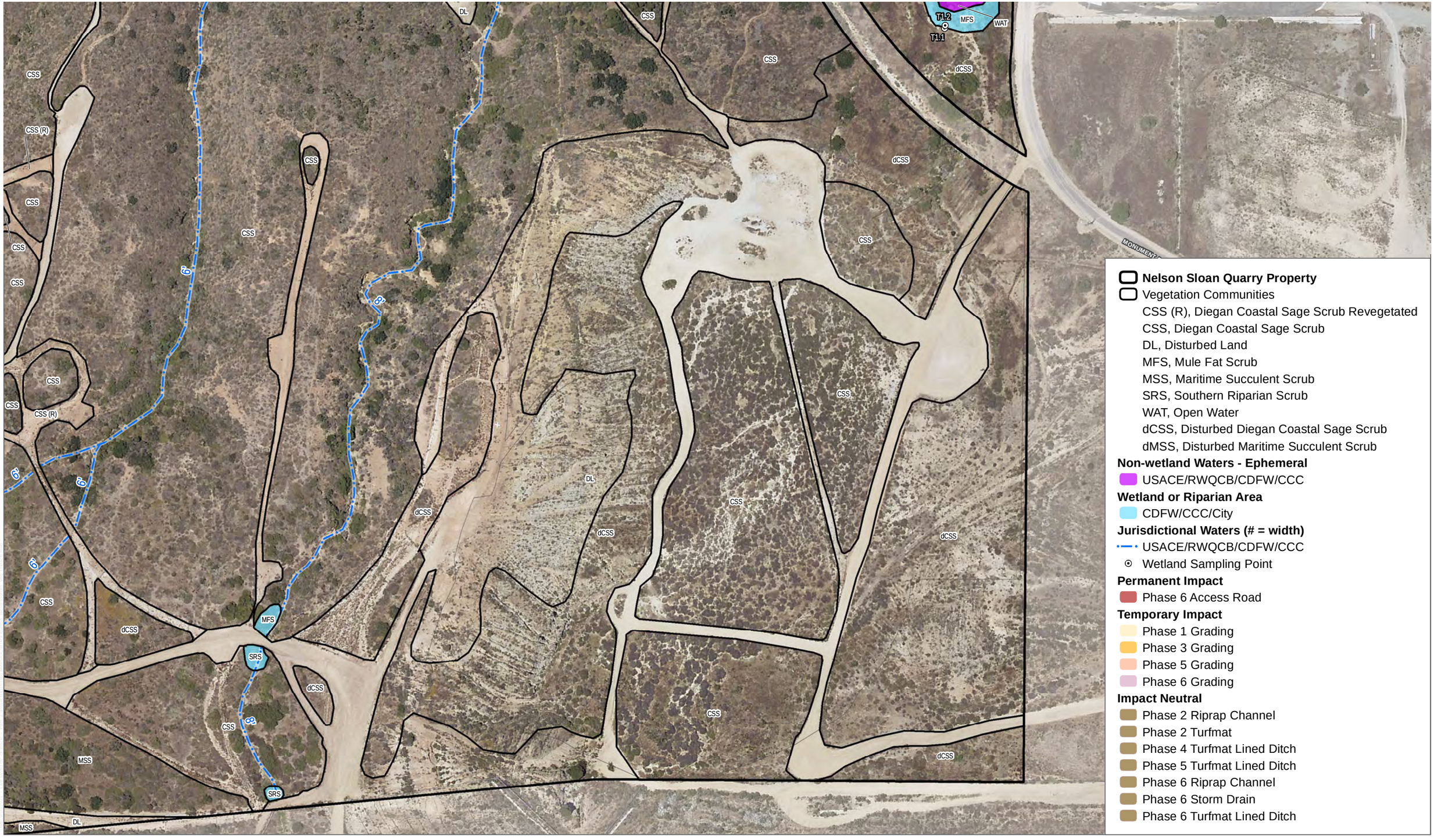

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FIGURE 5A

Biological Resources and Proposed Phased Impacts - Vegetation Communities and Jurisdictional Delineation

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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SOURCE: SANGIS 2017

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FIGURE 5B

Biological Resources and Proposed Phased Impacts - Special-Status Plants

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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SOURCE: SANGIS 2017

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FIGURE 5C

Biological Resources and Proposed Phased Impacts - Special-Status Wildlife

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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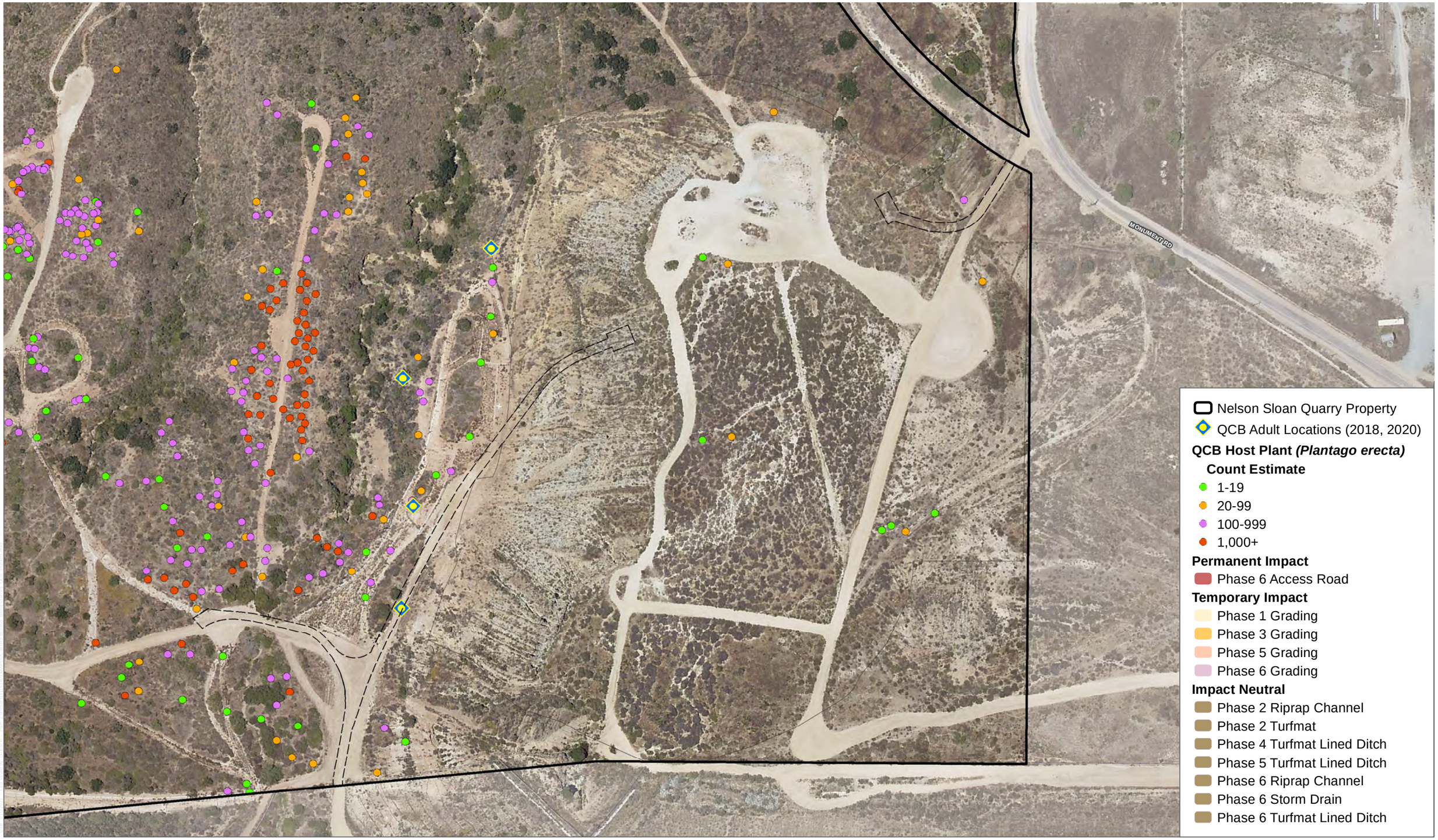

SOURCE: SANGIS 2017

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FIGURE 5D

Biological Resources and Proposed Phased Impacts - Quino Checkerspot Butterfly Adults and Host Plants

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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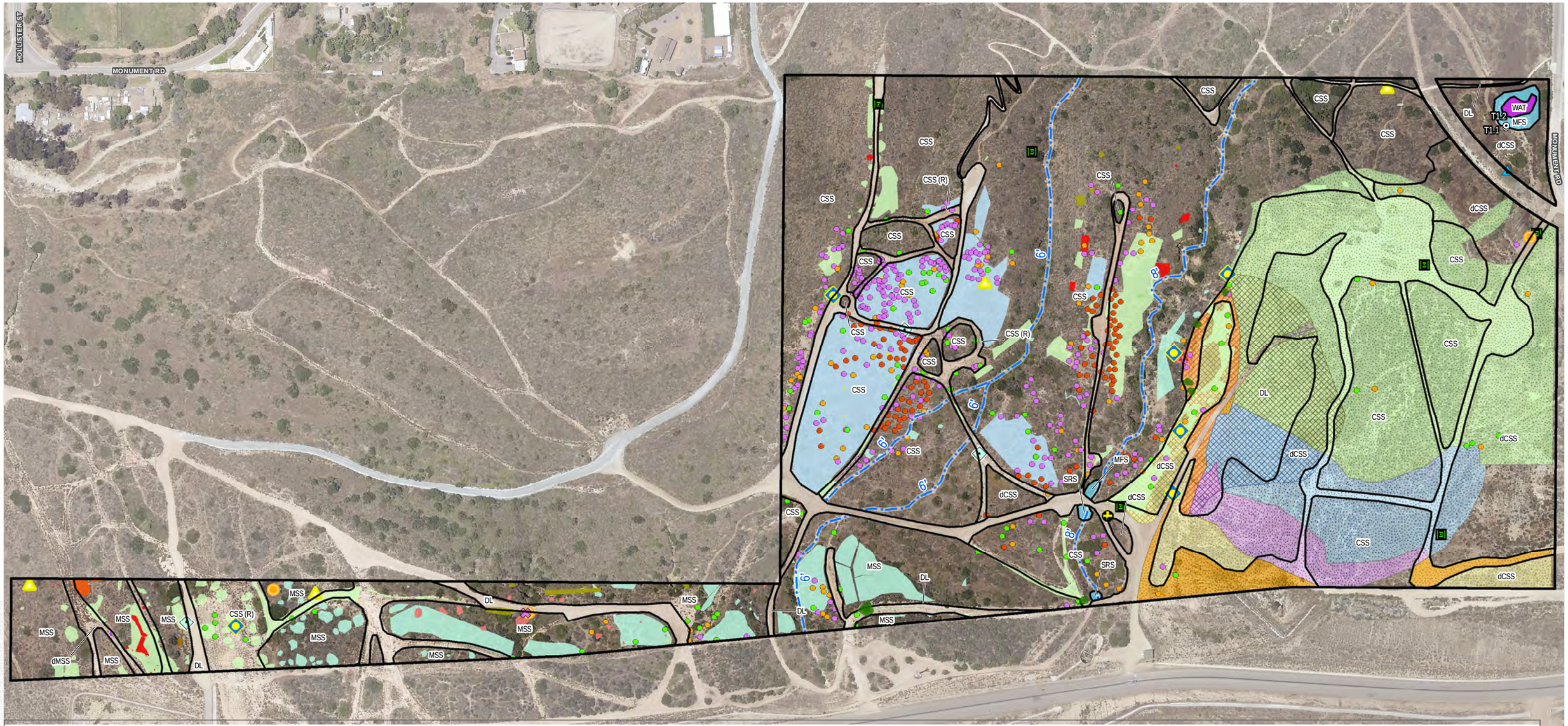

Nelson Sloan Quarry Property
Vegetation Communities
CSS (R), Diegan Coastal Sage Scrub Revegetated
CSS, Diegan Coastal Sage Scrub
DL, Disturbed Land
MFS, Mule Fat Scrub
MSS, Maritime Succulent Scrub
SRS, Southern Riparian Scrub
WAT, Open Water
dCSS, Disturbed Diegan Coastal Sage Scrub
dMSS, Disturbed Maritime Succulent Scrub

Jurisdictional Delineation

Non-wetland Waters - Ephemeral
USACE/RWQCB/CDFW/CCC

Wetland or Riparian Area
CDFW/CCC/City

Jurisdictional Waters (# = width)
USACE/RWQCB/CDFW/CCC
Wetland Sampling Point

Special-Status Plants
Baja California birdbush
California adder's tongue
California desert thorn
Lewis' evening-primrose
Orcutt's bird's-beak
San Diego County needle grass
San Diego County viguiera
San Diego barrel cactus
San Diego bur-sage
ashy spike-moss
cliff spurge
golden-spined cereus
northern adder's-tongue
sea dahlia
seaside cistanthe
wart-stemmed ceanothus
western dichondra

Special-Status Wildlife
American peregrine falcon
Cooper's hawk
San Diego black-tailed jackrabbit
coastal California gnatcatcher, individual
coastal California gnatcatcher, pair
least Bell's vireo
northern harrier
woodrat midden

QCB Adult Locations (2018, 2020)

QCB Host Plant *(Plantago erecta)*
Count Estimate
1-19
20-99
100-999
1,000+

Proposed Phased Restoration
Phase 1, Coastal Sage Scrub Enhancement Type 'A'
Phase 1, Coastal Sage Scrub Enhancement Type 'B'
Phase 1, Coastal Sage Scrub Restoration Type 'A'
Phase 1, Coastal Sage Scrub Restoration Type 'B'
Phase 3, Coastal Sage Scrub Restoration Type 'A'
Phase 3, Coastal Sage Scrub Restoration Type 'B'
Phase 5, Coastal Sage Scrub Restoration Type 'A'
Phase 5, Coastal Sage Scrub Restoration Type 'B'
Phase 6, Coastal Sage Scrub Restoration Type 'A'
Phase 6, Coastal Sage Scrub Restoration Type 'B'

SOURCE: SANGIS 2017

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FIGURE 6

Biological Resources and Proposed Phased Restoration Map

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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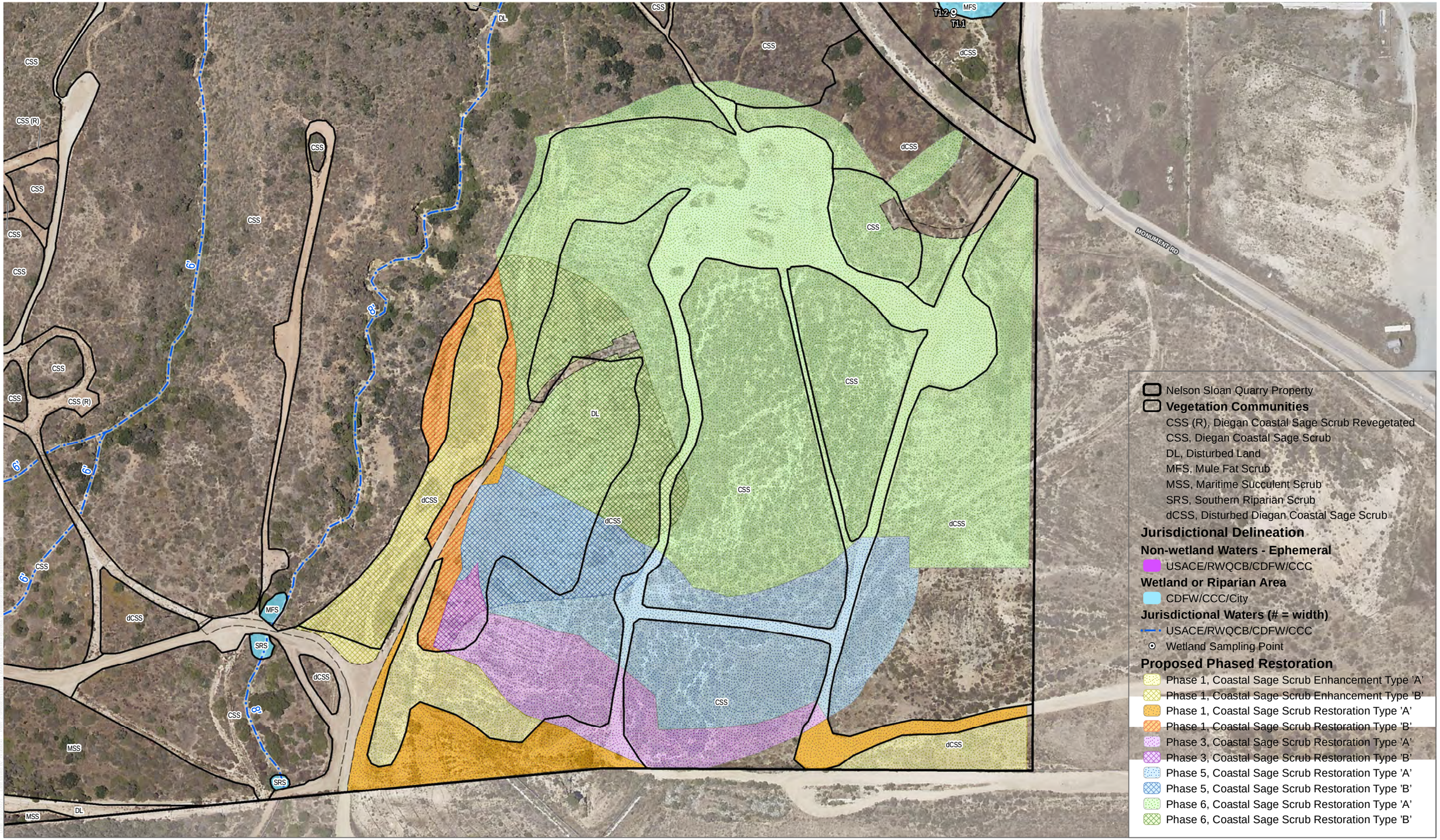

SOURCE: SANGIS 2017

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FIGURE 6A

Biological Resources and Proposed Phased Restoration - Vegetation Communities and Jurisdictional Delineation

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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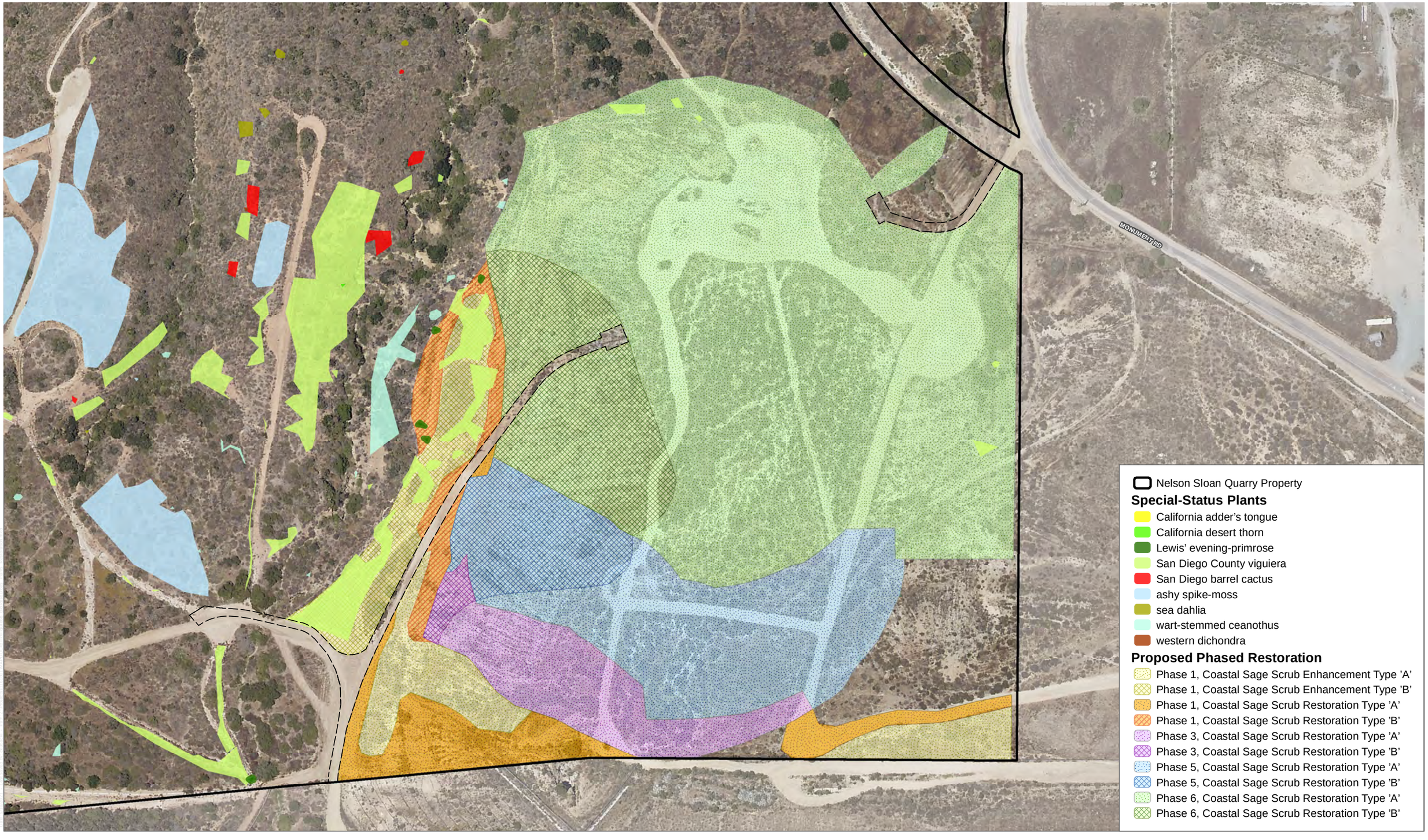

SOURCE: SANGIS 2017

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FIGURE 6B

Biological Resources and Proposed Phased Restoration - Special-Status Plants

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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SOURCE: SANGIS 2017

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FIGURE 6C

Biological Resources and Proposed Phased Restoration - Special-Status Wildlife

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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SOURCE: SANGIS 2017

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FIGURE 6D

Biological Resources and Proposed Phased Restoration - Quino Checkerspot Butterfly Adults and Host Plants

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project

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A pre-Phase 1 restoration phase (establishment of new CSS on existing disturbed land and enhancement of disturbed CSS) will be implemented outside of the proposed sediment placement areas (Figure 6). This will reduce the level of impact from Phase 1 and provide some replacement habitat early in the Project. While Phase 1 of the Project encompasses the smallest area and requires the least amount of sediment (i.e., approximately 6,500 cubic yards), site preparation including establishment of a material processing area would require a larger vegetation clearing area (Figure 5A). This initial clearing area would be overlain by sediment in subsequent phases and would not be fully restored until the completion of Phase 6. Restoration would occur after Phases 3, 5, and 6 as final grading is completed, with most CSS establishment requiring approximately 12 to 14 years between impact and final restoration (i.e., completion of all site grading and 5-year establishment period).The next largest area of impact occurs in Phase 5 of Project implementation with an approximately 8-year gap between impact and final restoration. The net result is that coastal sage scrub habitat available on site will be reduced by approximately 5 to 7 acres through the initial phases of the Project but ultimately will be increased by over 9 acres after sediment placement is complete.

Indirect Impacts are difficult to quantify but may be as significant as direct impacts. They primarily result from adverse "edge effects," either short-term indirect impacts related to construction or long-term indirect impacts associated with the operation and maintenance of facilities in proximity to biological resources.

Short-term indirect impacts that could potentially result from grading include dust, which could affect plant growth and insect activity; noise, which could disrupt wildlife communication, including bird breeding behavior; lighting, which could disrupt behavior of nocturnal reptiles, mammals, and raptors; sedimentation, siltation, and erosion, which could affect water quality of on-site streams; and pollutant runoff, including chemicals used during construction and machinery maintenance, which could contaminate soil and water.

Long-term indirect impacts are not expected to occur because the long-term condition of the site will be revegetated coastal sage scrub. Appropriate grading and revegetation techniques are necessary to ensure that adverse drainage conditions do not form on the site and result in erosion or sedimentation.

Cumulative Impacts refer to incremental individual environmental effects of the proposed Project and other past, present, and reasonably foreseeable future projects when combined. Taken individually, these impacts may be minor, but may be collectively significant as they occur over a period of time. These effects are described in the Project's environmental impact report.

5.2.1 Direct Impacts

Direct impacts will occur from clearing of existing vegetation to allow for sediment placement and ultimate restoration of topography and habitat on the site. As described above, clearing and restoration will occur in phases to minimize temporary loss of habitat, while allowing for efficient operation of the site. Final topography of the site will include two mesa top "lobes" with north and east-facing slopes. Existing dirt roads will be highly reduced in the final Project condition with a single mesa-top road and a single access road at the bottom of the created slope. The footprint of these proposed access roads is considered a permanent impact. Following restoration of site topography, several permanent drainage structures are required to control runoff from the site. These structures are designed to be plantable to the extent feasible. Turf reinforcement mat ditches will collect runoff from the mesa tops and convey flows to riprap channels in the south and north portion of the site. A buried storm drain pipe is also proposed in the northern portion of the site, to safely convey storm water. These drainage features are included as temporary impacts in the analysis below because they will be restored, but they do not count towards the 1.5:1 habitat replacement to impact ratio.

Implementation of the restoration plan would remove habitat for several special-status species utilizing coastal sage scrub, including California gnatcatcher. The total phased impacts to coastal sage scrub are 13.65 acres. However, restoration will also occur in areas that current support habitat (i.e., disturbed land) thus allowing for a net gain in coastal sage scrub upon completion of the Project. Restoration will provide a minimum 1.5:1 ratio (restoration acreage: impact acreage). Due to the extended period of sediment placement on site, restoration will be phased to correspond to construction phases.

5.2.1.1 Direct Impacts to Vegetation Communities and Land Cover Types

Direct impacts are shown in Figure 6 and quantified in terms of impacts to vegetation communities in Table 9.

Table 9
Impacts to On-site Vegetation Communities and Land Cover Types within the Reclamation Area (Acres)

Vegetation Community/ Land Cover	City Habitat Designation	Phase 1 Impacts		Phase 3 Impacts		Phase 5 Impacts		Phase 6 Impacts		Not Impacted (Restored)	Total Acres
		Perm	*Temp*	*Perm*	*Temp*	*Perm*	*Temp*	*Perm*	*Temp*		
Diegan coastal sage scrub	Coastal Sage Scrub (Tier II)	0.03	5.82	--	--	--	0.23	--	<0.00	<0.00	6.09
Diegan coastal sage scrub (disturbed)	Coastal Sage Scrub (Tier II)	0.03	2.67	0.03	0.27	0.03	2.44	--	0.14	1.95	7.56
Disturbed land	Disturbed (Tier IV)	0.04	2.93	--	1.07	0.05	1.61	--	--	1.61	7.31
Total*		**0.10**	**11.42**	**0.03**	**1.34**	**0.08**	**4.28**	**--**	**0.14**	**3.57**	**20.95**

[1] Numbers may not sum precisely due to rounding.

5.2.1.2 Direct Impacts to Special-Status Plant Species

There are impacts to 2 San Diego County viguiera individuals in Phase 1 and 63 individuals in Phase 5 as a result of grading from sediment placement.

A total of 5 Lewis' evening-primrose individuals and 591 San Diego County viguiera individuals are located within the pre-Phase 1 restoration area. These plants are located on the eastern edge of the mesa top that is proposed for revegetation as part of the Project. Most of these are located in existing disturbed coastal sage scrub targeted for enhancement and will therefore not be impacted.

5.2.1.3 Direct Impacts to Special-Status Wildlife Species

A number of special-status wildlife species are either documented as occurring within the Reclamation Area or have a moderate to high potential to occur. Each of these species has the potential to be directly impacted by the proposed construction activities of each Project through the permanent loss of 0.12 acres and temporary loss of 11.57 acres of coastal sage scrub habitat. These species include:

- six special-status species observed within the Reclamation Area or study area and have high potential to occur within the Reclamation Area: coastal California gnatcatcher, Quino checkerspot butterfly, Cooper's hawk, northern harrier, American peregrine falcon, least Bell's vireo, and San Diego black-tailed jackrabbit;

- five reptile species with a moderate or high potential to occur: southern California legless lizard (*Anniella stebbinsi*), California glossy snake (*Arizona elegans occidentalis*), orange-throated whiptail *(Aspidoscelis hyperythra)*, red diamond rattlesnake *(Crotalus ruber*), Blainville's horned lizard *(Phrynosoma blainvillii]*);
- four bird species with a moderate or high potential to nest on site: Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), Bell's sage sparrow (*Amphispiza belli belli*), California horned lark *(Eremophila alpestris actia)*, loggerhead shrike *(Lanius ludovicianus)*,
- three mammal species with a moderate or high potential to occur (not including those species that would only forage over the site): Dulzura pocket mouse *(Chaetodipus californicus femoralis)*, Northwestern San Diego pocket mouse *(Chaetodipus fallax fallax)*, and San Diego desert woodrat *(Neotoma lepida intermedia*).

Coastal California Gnatcatcher

Based on these survey results, it appears that all of the coastal sage scrub within the study area is occupied by California gnatcatcher, although the specific location of gnatcatcher pairs will change from year to year. The Project site is expected to support one pair of California gnatcatcher, given the presence of coastal sage scrub and the results of the focused survey. Coastal sage scrub would be impacted during Phases 1, 3, 5 and 6 (Figure 5A), and during restoration activities in Phases 1, 3, 5 and 6 (Figure 6A). Therefore, the proposed Project could result in temporary impacts to one pair of nesting California gnatcatcher. California gnatcatcher is a covered species under the MSCP and the Project will comply with the conditions of coverage.

Quino Checkerspot Butterfly

The impacts associated with Phase 5 grading are located where Quino checkerspot butterfly was observed in April 2019. The impacts associated with Phase 1 and Phase 5 are adjacent to the locations where Quino checkerspot butterfly was observed in April 2019 and March 2020. The pre-Phase 1 restoration activities will occur within an area where Quino checkerspot butterfly was observed in March 2020. The restoration activities during Phases 1 and 6 are located within, and adjacent to, the locations where Quino checkerspot butterfly was observed in April 2019 and March 2020.

Upland Special-Status Species

San Diego black-tailed jackrabbit, special-status reptiles (e.g., southern California legless lizard, California glossy snake, orange-throated whiptail, red diamond rattlesnake, Blainville's horned lizard), and special-status mammals (e.g., Dulzura pocket mouse, Northwestern San Diego pocket

mouse, and San Diego desert woodrat) can occur throughout the Reclamation Area. There are permanent impacts to 0.21 acres and temporary impacts to 17.18 acres of habitat that could be occupied by these species.

Other Special-Status Species

Although Cooper's hawk, northern harrier, American peregrine falcon and least Bell's vireo were observed within the Project Area, nesting habitat for these species does not existing within the Reclamation Area. Sharp-shinned hawk does not nest in this region. There is no suitable nesting habitat for burrowing owl or yellow warbler within the Reclamation Area. Suitable foraging habitat exists for some of these species in addition to several additional species of birds and mammals described in Table 5. These species would be impacted only in terms of the temporary loss of foraging habitat.

One visual observation of fairy shrimp (Branchiopods) was detected in a non-vegetated temporary basin road rut along the mesa. However, the species was not identified and the non-vegetated temporary basin was dried up during the visit the following week.

5.2.1.4 Direct Impacts to Wildlife Corridors and Habitat Linkages

The Reclamation Area does not function as a wildlife corridor or habitat linkage, as discussed in Section 4.3.4, and, therefore, no direct impacts would occur.

5.2.1.5 Direct Impacts to Jurisdictional Wetlands and Waters

No jurisdictional wetlands or waters will be directly affected by the Project. All of the jurisdictional resources are located outside of the Reclamation Area.

5.2.2 Indirect Impacts

The types of short-term indirect impacts associated with the Project are listed in Section 5.1.3. As also discussed in Section 5.1.3, there are no long-term indirect impacts associated with the Project. Short-term indirect impacts may affect biological resources adjacent to the reclamation grading and habitat restoration footprint. These resources include coastal sage scrub, southern maritime chaparral, mulefat scrub, and an unvegetated drainages west of the impact area and coastal sage scrub and non-native grassland north of the impact area. There is limited habitat east of the impact area and no habitat south of the impact area. Riparian vegetation is approximately 850' north of the impact area and is not expected to be indirectly impacted by the Project.

5.2.2.1 Indirect Impacts to Special-Status Vegetation Communities, Jurisdictional Waters, and Special-Status Plant Species

Construction-related dust, sedimentation, siltation, erosion, or pollutant runoff could indirectly impact growth of vegetation in special-status vegetation communities, plant species, and jurisdictional water adjacent to the impact area. Special-status plant species adjacent to the impact area include Baja California birdbush, California adder's tongue, California desert thorn, Lewis's evening primrose, Orcutt's bird's beak, San Diego needle grass, San Diego County viguiera, San Diego barrel cactus, San Diego bur-sage, ashy spike-moss, cliff spurge, golden spined cereus, sea dahlia, seaside cistanthe, western dichondra, and wart-stemmed ceanothus. These sensitive biological resources occur west of the Project and are separated by an existing mesa. Prevailing winds in this area are in an easterly direction which would minimize the potential for dust to adversely affect these resource. In total, potential adverse indirect effects are expected to be largely avoided and minimized through implementation of the PDFs including dust and runoff control and ESA fencing.

5.2.2.2 Indirect Impacts to Special-Status Wildlife Species and Wildlife Corridor/Habitat Linkages

Project construction will result in an increase in noise, dust, and artificial lighting levels, which may disrupt wildlife usage in adjacent habitat areas. Chemical spills or other pollution discharges could also result in adverse impacts to special-status wildlife species. These impacts would also potentially adversely affect wildlife corridor function within adjacent area. Effects stemming from dust, polluted runoff, and artificial lighting, are expected to be largely avoided and minimized through implementation of the PDFs including dust and runoff control and ESA fencing. The Project would result in indirect noise disturbance where levels exceed 60 dB(A) hourly average. Based on modeling of worse-case operation conditions, these noise levels would affect adjacent native upland habitats north and west of the Project site, but are not expected to effect riparian habitats north of the Project site because the noise models' worst-case scenario extends just over the boundary to the north, south and east.

5.3 Regional Resource Planning

5.3.1 MSCP Consistency Analysis

Mine reclamation itself is not identified as compatible land use within the MHPA, as listed in Section 1.4.1 of the MSCP Subarea Plan. However, the section does state that "some disturbed lands within the MHPA may be targeted for enhancement and restoration in order to more fully contribute to the

functioning of the MHPA." Also certain "roads and utilities" and "mining, extraction, and processing facilities" identified in the Subarea Plan that are in compliance with general planning policies and design guidelines in stated in Section 1.4.2, are also allowed. Finally, Section 1.4.1 acknowledges that some portion of the MHPA have existing approved development areas and since the quarry was approved development, the proposed Project is a continuation and completion of that existing approval, with an end result that is compatible with the goals of the MSCP. Therefore, the proposed Project is considered a compatible use within the MHPA, given that it is primarily a restoration Project and that any temporary adverse impacts are more than offset by the regional benefit the Project provides in terms of sediment reuse that allows for restoration and maintenance of multiple habitats, as well as a remediation of prior mining activity on site.

The proposed Project is compliant with the applicable sections of the MSCP Subarea Plan and Tijuana River Valley LCP/LUP as documented in Table 10.

Table 10
Compliance with Applicable MSCP Subarea Plan and Tijuana River Valley LCP/LUP Sections

Policy Language	Project Compliance
MSCP Subarea Plan Section 1.4.2 General Planning Policies and Design Guidelines	
Roads and Utilities - Construction and Maintenance Policies	Not applicable
Fencing, Lighting, and Signage	
1. Fencing or other barriers will be used where it is determined to be the best method to achieve conservation goals and adjacent to land uses incompatible with the MHPA. For example, use chain link or cattle wire to direct wildlife to appropriate corridor crossings, natural rocks/boulders or split rail fencing to direct public access to appropriate locations, and chain link to provide added protection of certain sensitive species or habitats (e.g., vernal pools).	Habitat protection fencing is required as part of the Project (see Section 5.2.2).
2. Lighting shall be designed to avoid intrusion into the MHPA and effects on wildlife. Lighting in areas of wildlife crossings should be of low-sodium or similar lighting. Signage will be limited to access and litter control and educational purposes.	The installation of shielded night lighting may be considered near the processing screen for security purposes and would be designed to minimize glare and reflection onto off-site properties (see Section 5.2.2). If installed, Project-lighting would be removed upon Project completion.
Materials Storage	
Prohibit storage of materials (e.g., hazardous or toxic, chemicals, equipment, etc.) within the MHPA and ensure appropriate storage per applicable regulations in any areas that may impact the MHPA, especially due to potential leakage.	Construction equipment maintenance and storage as well as the sediment stockpile will be subject to BMPs to ensure that adjacent habitat areas are protected from adverse effects (see Section 5.2.2).
Flood Control	
3. No riprap, concrete, or other unnatural material shall be used to stabilize river, creek, tributary, and channel banks within the MHPA. River, stream, and channel	The Project does propose the use of riprap to stabilize the edge of grading within the

Table 10
Compliance with Applicable MSCP Subarea Plan and Tijuana River Valley LCP/LUP Sections

Policy Language	Project Compliance
banks shall be natural, and stabilized where necessary with willows and other appropriate native plantings. Rock gabions may be used where necessary to dissipate flows and should incorporate design features to ensure wildlife movement.	MHPA. Since these structures are not being used in a "river, creek, tributary" … "channel bank", it is considered permissible.
MSCP Subarea Plan Section 1.4.3 Land Use Adjacency Guidelines	
Drainage	
1. All new and proposed parking lots and developed areas in and adjacent to the preserve must not drain directly into the MHPA. All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials and other elements that might degrade or harm the natural environment or ecosystem processes within the MHPA. This can be accomplished using a variety of methods including natural detention basins, grass swales or mechanical trapping devices. These systems should be maintained approximately once a year, or as often as needed, to ensure proper functioning. Maintenance should include dredging out sediments if needed, removing exotic plant materials, and adding chemical-neutralizing compounds (e.g., clay compounds) when necessary and appropriate.	Drainage structures have been designed to control against adverse drainage impacts to the MHPA (see Section 5.2.2).
Toxics	
2. Land uses, such as recreation and agriculture, that use chemicals or generate by-products such as manure, that are potentially toxic or impactive to wildlife, sensitive species, habitat, or water quality need to incorporate measures to reduce impacts caused by the application and/or drainage of such materials into the MHPA. Such measures should include drainage/detention basins, swales, or holding areas with non-invasive grasses or wetland-type native vegetation to filter out the toxic materials. Regular maintenance should be provided. Where applicable, this requirement should be incorporated into leases on publicly owned property as leases come up for renewal.	BMPs will be incorporated into the Project to control the potential release of toxins (see Section 5.2.2).).
Lighting	
3. Lighting of all developed areas adjacent to the MHPA should be directed away from the MHPA. Where necessary, development should provide adequate shielding with non-invasive plant materials (preferably native), berming, and/or other methods to protect the MHPA and sensitive species from night lighting.	The installation of shielded night lighting may be considered near the processing screen for security purposes and would be designed to minimize glare and reflection onto off-site properties (see Section 5.2.2).
Noise	
4. Uses in or adjacent to the MHPA should be designed to minimize noise impacts. Berms or walls should be constructed adjacent to commercial areas, recreational areas, and any other use that may introduce noises that could impact or interfere with wildlife utilization of the MHPA. Excessively noisy uses or activities adjacent to breeding areas must incorporate noise reduction measures and be curtailed during the breeding season of sensitive species. Adequate noise reduction measures should also be incorporated for the remainder of the year.	Noise-generating activities will occur on site; however, the majority of the noise models show noise levels do not exceed 60 dBA within the coastal sage scrub areas where California gnatcatcher were documented. Activities that may result in excessive noise during the nesting season for those species that would occupy potentially effected habitat (i.e., upland species similar to California gnatcatcher)

Table 10
Compliance with Applicable MSCP Subarea Plan and Tijuana River Valley LCP/LUP Sections

Policy Language	Project Compliance
	shall be conducted outside the nesting season for coastal California gnatcatcher and other birds protected under the MBTA and Fish and Game Code (see Section 7).
Barriers	
5. New development adjacent to the MHPA may be required to provide barriers (e.g., non-invasive vegetation, rocks/boulders, fences, walls, and/or signage) along the MHPA boundaries to direct public access to appropriate locations and reduce domestic animal predation.	Habitat protection fencing is required as part of the Project (see Section 5.2.2). A permanent barrier is not appropriate as the Project is part of the MHPA and the TRVRP.
Invasives	
6. No invasive non-native plant species shall be introduced into areas adjacent to the MHPA.	The Project prohibits the use of invasive plant species for erosion control or final revegetation.
Brush Management	Not applicable
Grading/Land Development	
8. Manufactured slopes associated with site development shall be included within the development footprint for projects within or adjacent to the MHPA.	All manufactured slopes would be contained within the development footprint, as described in the EIR Project Description. No manufactured slopes are proposed off site. is The intent of the Project is to restore existing terrain to near historic (pre-mine operations) conditions.
MSCP Subarea Plan Section 1.5.2 General Management Directives	
Mitigation	
Mitigation, when required as part of Project approvals, shall be performed in accordance with the City of San Diego Environmentally Sensitive Lands Ordinance and Biology Guidelines.	The Project has been planned and designed in accordance with this directive.
Restoration	
Restoration or revegetation undertaken in the MHPA shall be performed in a manner acceptable to the City. Where covered species status identifies the need for reintroduction and/or increasing the population, the covered species will be included in restoration/revegetation plans, as appropriate. Restoration or revegetation proposals will be required to prepare a plan that includes elements addressing financial responsibility, site preparation, planting specifications, maintenance, monitoring and success criteria, and remediation and contingency measures. Wetland restoration/revegetation proposals are subject to permit authorization by federal and state agencies.	The Project has been planned and designed in accordance with this directive.

Table 10
Compliance with Applicable MSCP Subarea Plan and Tijuana River Valley LCP/LUP Sections

Policy Language	Project Compliance
MSCP Subarea Plan Section 1.5.5 Specific Management Policies and Directives for the Tijuana River Valley	
Goals and Objectives	
The optimum future condition for the Tijuana River Valley is a broad natural floodplain containing riparian and wetland habitats, and bounded by high mesas and deep canyons with chaparral, sage scrub, and grasslands. The natural habitat would be intermixed with compatible agricultural, recreational, and water quality improvement activities, all functioning in concert to maintain and enhance natural ecosystems and processes, water quality, and the full range of native species, and to generally improve the local quality of life and the environment.	The Project is ultimately a habitat restoration Project which meets the goals and objectives listed in this section.
Mesa Areas	
2. Restore disturbed areas on the Border Highlands area to the east of Spooner's Mesa to coastal sage, maritime succulent scrub, possibly some grasslands and/or chaparral. Restoration opportunities should be determined by a biologist familiar with the habitats in this area. The border patrol should be involved in exploring limiting vehicle access to well-defined roads through the area.	The Project is ultimately a habitat restoration Project which meets the goals and objectives listed in this section.
4. Over the long term, restore areas of the mesas that have been mined and excavated. Restoration should include reconfiguration to the natural landform, with the surrounding natural areas as reference. Restoration of these areas may present research opportunities if not already required as part of existing CUPs.	The Project is ultimately a habitat restoration Project which meets the goals and objectives listed in this section.
Tijuana River Valley Local Coastal Plan/Land Use Plan	
Goals and Objectives	
Restore the Tijuana River Valley to a broad natural floodplain containing riparian and wetland habitats, bounded by high mesas and deep canyons with chaparral, sage scrub, and grasslands.	The Project is ultimately a habitat restoration Project which results in the restoration and creation of sage scrub, which meets the goals and objectives listed in this section.
Maintain a buffer around all wetland areas, while accommodating approved trail plans.	The Project incorporates an approximately 200' buffer to wetlands.
Specific Recommendations	
D. Mining, Extraction, and Processing Facilities	
Mining operations include mineral extraction, processing and other related mining activities (e.g., asphaltic processing). Currently permitted mining operations that have approved restoration plans may continue operating in the MHPA.	The mining operation was permitted at the time of the LCP/LUP adoption. The Nelson Sloan Quarry has an approved reclamation plan.
New or expanded mining operations on lands conserved as part of the MHPA are incompatible with Local Coastal Program goals for covered species and their habitats unless otherwise agreed to by the wildlife agencies at the time the parcel is conserved. New operations are permitted in the MHPA if: 1) impacts have been assessed and conditions incorporated to mitigate biological and restore mined areas; 2) adverse impacts to covered species in the MHPA have	The Project does not propose the expansion of the previously authorized mining operation.

Table 10
Compliance with Applicable MSCP Subarea Plan and Tijuana River Valley LCP/LUP Sections

Policy Language	Project Compliance
been mitigated consistent with the Subarea Plan; and 3) requirements of other City land use policies and regulations (e.g., Adjacency Guidelines, Conditional Use Permit, Coastal Development Permit, Environmentally Sensitive Lands Ordinance) have been satisfied.	
Existing and any newly permitted operations adjacent to or within the MHPA shall meet noise, air quality and water quality regulation requirements, as identified in the conditions of any existing or new permit, in order to adequately protect adjacent preserved areas and covered species. Such facilities shall also be appropriately restored upon cessation of mining activities.	The Project is designed to meet noise, air quality, and water quality regulations and will be restored as part of the Project.
All mining and other related activities must be consistent with the objectives, guidelines and recommendations in all land use policy documents and zoning regulations adopted by the City of San Diego and certified by the California Coastal Commission, as well as with the State Surface Mining and Reclamation Act (SMARA) of 1975.	The Project is designed consistent with this requirement.
Monitor any sand removal activities for noise impacts to surrounding sensitive habitats, and all new sediment removal or mining operations proposed in proximity to the MHPA, or changes in existing operations, must include noise reduction methods that take into consideration the breeding and nesting seasons of sensitive bird species.	No noise-generating activities will occur during the breeding season for those species that would occupy potentially effected habitat (i.e., upland species similar to California gnatcatcher) (see Section 7).
All existing and future mined lands adjacent to or within the MHPA shall be reclaimed pursuant to SMARA. Ponds are considered compatible uses where they provide native wildlife and wetland habitats and do not conflict with conservation goals of this Local Coastal Program Land Use Plan.	The Project is designed consistent with this requirement.
Any permitted mining activity including reclamation of sand must consider changes and impacts to water quality, water table level, fluvial hydrology, flooding, and wetlands and habitats upstream and downstream, and provide adequate mitigation.	Not applicable.
E. Environmentally Sensitive Habitat Areas	
A wetland buffer shall be maintained around all wetlands as necessary and as appropriate to protect the functions and values of the wetland. Wetland buffers should be provided at a minimum 100-foot distance adjacent to all identified wetlands and a 50-foot distance adjacent to riparian areas. The width of the buffer may be either increased or decreased as determined on a case-by-case basis, in consultation with the California Department of Fish and Game, taking into consideration the type and size of development, the sensitivity of the wetland resources to detrimental edge effects, natural features, such as topography, and the function and values of the wetland. Developments permitted in wetland buffer areas shall be limited to access paths, passive recreational areas, fences and similar improvements necessary to protect the wetland, and such improvements shall be restricted to the upper/inland half of the buffer zone.	The Project incorporates an approximately 200' buffer to wetlands.

Table 10
Compliance with Applicable MSCP Subarea Plan and Tijuana River Valley LCP/LUP Sections

Policy Language	Project Compliance
G. Grading/Sediment Control/Water Quality	
Sediment control measures (debris basins, desilting basins or silt traps) shall be installed in conjunction with any new development in which grading is proposed. The prevention and control of runoff of fertilizers, pesticides and other urban pollutants into riparian and floodplain areas should be required	Drainage structures have been designed to control against adverse drainage impacts to the MHPA both during the reclamation process and following completion of final grading (see Section 5.2.2).
Special Conditions for Covered Species	
Covered Wildlife Species	
Area-specific management directives for the coastal California gnatcatcher 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 within the cities' MHPAs and within the County's Biological Resource Core Areas may occur between March 1 and August 15.	Protocol surveys will be required for potential impacts to coastal California gnatcatcher habitat that may be subject to construction noise levels exceeding 60 decibels hourly. If present, no clearing of occupied habitat shall occur between March 1 and August 15 according to MM-BIO-3. Additionally, mitigation ratios and associated mitigation proposed for impacts to coastal California gnatcatcher habitat will be mitigated in accordance with MM-BIO-1.
Area-specific management directives for least Bell's vireo must include measures to provide appropriate successional habitat, upland buffers for all known populations, cowbird control, and specific measures to protect against detrimental edge effects to these species. Any clearing of occupied habitat must occur between September 15 and March 15 for vireo (i.e., outside of the specie's nesting seasons).	There is no nesting habitat for this species within the study area and the least Bell's vireo observation was assumed to be a migrant individual. However, nesting bird surveys will be conducted for clearing, grubbing, or other ground-disturbing activities between January 15 and September 15 and avoid active bird nests in accordance with MM-BIO-5.
Area-specific management directives for Cooper's hawk must include a 300-foot impact avoidance area around any active nests as well as the minimization of disturbance in oak woodlands and oak riparian forests.	Nesting bird surveys will be conducted for clearing, grubbing, or other ground-disturbing activities between January 15 and September 15 and avoid active bird nests, with appropriate buffers consistent with the City's Biology Guidelines, in accordance with MM-BIO-5.
Area specific management directives for northern harrier must manage agricultural and disturbed lands (which become part of the preserve) within four miles of nesting habitat to provide foraging habitat; and include an impact avoidance area (900 foot or maximum possible within the preserve) around active nests. The preserve management coordination group shall coordinate	Nesting bird surveys will be conducted for clearing, grubbing, or other ground-disturbing activities between January 15 and September 15 and avoid active bird nests, with appropriate buffers consistent

Table 10
Compliance with Applicable MSCP Subarea Plan and Tijuana River Valley LCP/LUP Sections

Policy Language	Project Compliance
efforts to manage for wintering northern harriers' foraging habitat within the preserve.	with the City's Biology Guidelines, in accordance with MM-BIO-5.
There are no area specific management directives for American peregrine falcon. Participating jurisdictions' guidelines and ordinances and state and federal wetland regulations will provide additional habitat protection resulting in no net loss of wetlands.	None required. There are no impacts to nesting habitat for American peregrine falcon or wetlands.
Area specific management directives for San Diego fairy shrimp and Riverside fairy shrimp must include specific measures to protect against detrimental edge effects to this species.	None required. Fairy shrimp have low potential to occur within the Reclamation Area.

5.3.2 Cumulative Impacts/Regional Plan Compliance

Implementation of the proposed Project is consistent with regional resource planning documents that were developed to address biological resource conservation on a cumulative scale, including MSCP and the Tijuana River Valley LCP/LUP. As an allowed use within the MHPA, mining and reclamation is considered to be an activity that will not cumulatively result in substantial impacts to biological resources intended for preservation within the MHPA.

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6 ANALYSIS OF SIGNIFICANCE

6.1 Explanation of Findings of Significance

Impacts to biological resources must be quantified and analyzed to determine whether such impacts are significant under CEQA. For purposes of this report, the proposed Project may have a significant effect on the environment if the Project has the potential to directly, indirectly, or cumulatively impact the following: (1) sensitive habitats; (2) special-status species; (3) raptor foraging habitat or wildlife movement; (4) conformance with applicable ordinances, policies, and the existing NCCP/HCP.

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 are not considered 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.

6.2 Direct Impacts

6.2.1 Special-Status Vegetation Communities

The Project will result in direct permanent and temporary impacts to coastal sage scrub and disturbed coastal sage scrub. A typical impact within the MHPA would require 1:1 mitigation through the preservation of like habitat within the MHPA. This Project is unique however, in that impacts are related to restoration and would primarily result in temporary loss of habitat within the MHPA. The City's Biology Guidelines define "temporary disruptions of habitat" as those that do not alter landform and that will be revegetated (City of San Diego 2018). The Reclamation Area was mined, and the current baseline is the altered landform. Through implementation of the Project, the land will be restored to close to pre-mine conditions. Therefore, the Project would be consistent with the City's definition of "temporary disruptions of habitat" because the land will be restored and revegetated close to its conditions prior to the alteration and damage caused by mining.

The City considers most temporary impacts be mitigated at the MSCP's mitigation ratios, which would be 1:1 ratio for impacts to coastal sage scrub with mitigation inside the MHPA. However, due to the temporary loss of habitat over the 15-year Project, the Project includes the re-establishment of coastal sage scrub habitat at a minimum 1.5:1 ratio and the ultimate restoration results in a net-gain of habitat area (Figure 6A). Furthermore, the restoration of slope stability to

the site and the monitored, maintained, and managed revegetation effort, will result in coastal sage scrub habitat that has higher functions and values when compared with the current habitat on site. Temporary loss of habitat has been minimized through Project phasing, including restoration outside of the sediment placement areas. Without this phasing, an approximately 20-year gap between impact and restoration would occur. Instead, on average, the temporary loss of coastal sage scrub would be approximately 10 years.

Impacts to 11.69 acres of Tier II coastal sage scrub, while temporary in nature, are considered significant **(Impact BIO-1)** and would require mitigation in the form of a minimum of 17.53 acres of on-site coastal sage scrub replacement (Table 11). Approximately 19.33 acres of coastal sage scrub enhancement/restoration will occur on site, resulting in more than the 1.5:1 ratio goal, with an additional 1.42 acres of "impact neutral" areas that may have reduced function as habitat because they are planted structures (turfmat lined channel, turf reinforced mat ditch, riprap channel, buried storm drain) (Table 12). Mitigation measure MM-BIO-1 will reduce this impact to less than significant through demonstration of successful restoration of impacts to coastal sage scrub at a 1.5:1 mitigation ratio.

Table 11
MSCP Habitat Replacement for Impacts to On-site Vegetation Communities and Land Cover Types within the Reclamation Area (Acres)

Vegetation Community/Land Cover	City Habitat Designation	Total Impacts	Ratio	CSS Required
Diegan coastal sage scrub (Tier II)	Coastal Sage Scrub (Tier II)	6.08	1.5:1	9.13
Diegan coastal sage scrub (disturbed) (Tier II)	Coastal Sage Scrub (Tier II)	5.61	1.5:1	8.41
	Total*	**11.69**	**—**	**17.53**

* Numbers may not sum precisely due to rounding.

Table 12
Restored Habitat for Impacts to On-site Vegetation Communities and Land Cover Types within the Reclamation Area (Acres)

Vegetation Community/ Land Cover	City Habitat Designation/ Target Species	CSS Required	Pre-Project Enhancement	Pre-Phase 1 Restoration	Restoration of Temporary Impact	Total Restoration Provided	Impact Neutral
Diegan coastal sage scrub – Type A (Slope)	Coastal Sage Scrub/California Gnatcatcher	17.53	0.99	1.02	13.49	*15.50*	0.71
Diegan coastal sage scrub – Type B (Mesa)	Coastal Sage Scrub/Quino Checkerspot Butterfly		1.03	0.53	2.27	*3.83*	0.71
	Total*	**17.53**	**2.02**	**1.55**	**15.76**	***19.33***	**1.42**

* Numbers may not sum precisely due to rounding.

6.2.2 Special-Status Plant Species

The Project will result in direct impacts to Lewis' evening-primrose (within the pre-Phase 1 restoration area only) and San Diego County viguiera (within the pre-Phase 1 restoration and sediment placement/grading areas). Impacts to Lewis' evening-primrose (CRPR 3) and San Diego County viguiera (CRPR 4.2) are not considered significant because they are a relatively common species. San Diego County viguiera is readily restored using standard revegetation techniques and the species has been incorporated into the revegetation plan for the Project which will result in a net gain of habitat area and suitability for the species.

6.2.3 Special-Status Wildlife Species

Direct impacts to special-status wildlife will occur through the loss of habitat and potential mortality of individual species, particularly special-status reptiles and small mammals that may not be able to escape impacts during construction. The loss of habitat that would result from the Project is not considered significant because sufficient adjacent habitat is present for these species to persist during the average 10-years of temporary habitat loss and, following restoration of the site will support a greater extent and quality of suitable habitat and, therefore, provide a net benefit to these species. The potential direct mortality of special-status species is considered a significant impact (**Impact BIO-2**). Mitigation measure MM-BIO-2 will reduce this impact to less than significant through take avoidance surveys for special-status terrestrial reptiles, Dulzura pocket mouse, Northwestern San Diego pocket mouse, and San Diego desert woodrat.

Coastal California Gnatcatcher

There are permanent impacts to 0.12 acres and temporary impacts to 11.57 acres of coastal sage scrub habitat. The Reclamation Area is expected to support one pair of California gnatcatcher, given the presence of coastal sage scrub and the results of the focused survey. Therefore, the proposed Project could result in temporary impacts to one pair of nesting California gnatcatcher (**Impact BIO-3)**. Mitigation measure MM-BIO-3 will reduce this impact to less than significant through avoiding clearing of occupied habitat between March 1 and August 15 and limiting activities within areas outside the disturbance footprint but where noise levels may exceed 60 dB(A) hourly average. This complies with the Conditions of Coverage outlined in the Subarea Plan (City of San Diego 1997). These conditions 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, management measures to maintain or improve habitat quality including vegetation structure, and no clearing of occupied habitat within the MHPA may occur between March 1 and August 15. Regarding fire protection, MM-AQ-1 would be implemented during construction and would prohibit the idling of vehicles on the Reclamation Area when not in use. Further, the Project would be subject to standard San Diego Fire Department protocol such as limiting or ceasing construction work during high-wind weather events and would implement MM-WF-1 that includes the incorporation of pre-construction requirements including proper clearing of flammable vegetation around the sediment processing plant staging area.

Quino Checkerspot Butterfly

There are direct impacts to the areas where Quino checkerspot butterfly were observed associated with the pre-Phase 1 restoration and Phase 5 grading. High-quality (i.e., dense host plants) Quino checkerspot habitat occurs on the western and central mesas, located entirely outside of the impact areas (Figure 6D). The observations of adults in the Reclamation Area was limited to the far western edge adjacent and within the pre-Phase 1 Restoration area (Figure 6D). The Quino checkerspot butterfly observed near the impact areas demonstrated hill-topping behaviors only. Typically, Quino checkerspot butterfly will move to areas of higher elevation to find a mate; this behavior was observed on site during surveys. The Project would result in substantial net gain of suitable habitat for Quino checkerspot butterfly through restoration of mesa topography and habitat supporting host and nectar plants. Nonetheless, some activities have the potential to result in take of Quino checkerspot butterfly if they were present on site which would be a **potentially significant impact** (**Impact BIO-4**). Varying levels of potential take could result from the following activities.

1. Phase 1 grading would impact 8 locations and Phase 5 grading could impact 2 locations where low-density, isolated host plants were mapped (1-19 and 20-99 counts of dotseed plantain) and have very low potential to support Quino checkerspot butterfly.

2. Pre-Phase 1 restoration activities would occur in areas where 10 low-density host plant populations were mapped (1-19 and 20-99 counts of dotseed plantain) and 9 medium-density host plant populations were mapped (100-999 counts of dotseed plantain). Take could occur if these host plants support eggs or larvae during restoration activities.
3. Collision with vehicles and equipment on site during the Quino checkerspot flight season (generally February through May). Based on the topographic separation between host plants on the mesa/ridge landform and flat portions of the Project site where sediment processing and staging would occur, the potential impact for collision is low.

Restoration of the existing mesa top is expected to be conducted in a manner that minimizes potential impacts to diapause larvae by requiring host plant mapping prior to pre-restoration activities and avoidance of host plants and associated buffers (see MM-BIO-1). Quino checkerspot butterfly impacts would also be reduced through mitigation measure MM-BIO-4 that requires consultation with USFWS to determine if take authorization is required.

Other Special-Status Birds

Cooper's hawk, northern harrier, burrowing owl, and American peregrine falcon were observed within the study area, and American peregrine falcon and northern harrier were observed within the Reclamation Area. However, but there is no nesting habitat for these species within the Reclamation Area.

San Diego Black-Tailed Jackrabbit

San Diego black-tailed jackrabbit can occur throughout the Reclamation Area. It is a highly mobile species that would not be impacted by the proposed Project.

Migratory Birds

Birds protected under the MBTA and Fish and Game Code 3503 and 3503.5 could be impacted during clearing and grubbing activities. The take of any active nests or the young of nesting bird species would result in a significant impact (**Impact BIO-5**). This impact will be reduced to less than significant through mitigation measure MM-BIO-5 which requires nesting bird surveys and avoidance measures for active nests.

6.2.4 Wildlife Corridors and Habitat Linkages

The Reclamation Area does not function as a wildlife corridor or habitat linkage, as discussed in Section 4.3.4, and, therefore, no direct impacts would occur.

6.2.5 Jurisdictional Wetlands and Waters

No jurisdictional wetlands or waters will be directly affected by the Project. All of the jurisdictional resources are located outside of the Reclamation Area.

6.3 Indirect Impacts

6.3.1 Coastal California Gnatcatcher

For occupied California gnatcatcher habitat within the MHPA, construction or operational noise levels exceeding 60 dB(A) (or exceeding the existing ambient noise level if already above 60 dB(A)) during the nesting season is considered significant (**Impact BIO-6**). This impact would be reduced to less than significant through avoidance of clearing habitat between their breeding season (i.e., March 1 and August 15) and limiting activities within areas outside the disturbance footprint but where noise levels may exceed 60 dB(A) hourly average (MM-BIO-3).

6.3.2 Other Biological Resources

As discussed in Section 5.3, indirect impacts of the Project are expected to be short-term in nature (during the 15-year grading period) and are expected to be minimized to the extent feasibly through the Project design which include incorporation of BMPs to reduce erosion, control pollutants including dust, chemicals, and adverse drainage conditions; restrict hours of operation and lighting; and provide fencing around restoration areas. With incorporation of these measures, indirect impacts are considered reduced to a level which is less than significant.

6.4 Project Environmental Compliance

The proposed Project has been designed and evaluated in terms of compliance with the City of San Diego MSCP Subarea Plan and the Tijuana River Valley LCP/LUP (see Section 5.3). The Project does not result in impacts regulated under the federal Clean Water Act or state Fish and Game Code. The MSCP and LCP/LUP provide coverage under the state and federal Endangered Species Act, Natural Communities Conservation Planning Act, and California Coastal Act and as such the Project is compliant with these regulations, with the exception of potential impacts to federally listed Quino checkerspot butterfly (**Impact BIO-4**). Mitigation measure MM-BIO-3 requires consultation with USFWS to determine if take authorization is required.

7 MITIGATION MEASURES

This section describes proposed mitigation measures that would mitigate significant impacts to biological resources resulting from the Project. The following mitigation measures address the Project's significant direct and indirect effects on special-status and other protected species. With implementation of the proposed measures, the identified direct and indirect impacts would be reduced to less than significant.

MM-BIO-1: Restoration of Vegetation. Temporary impacts to Diegan coastal sage scrub shall require restoration. Restoration shall be provided at a minimum 1.5:1 ratio (restoration acreage: impact acreage). Due to the extended period of sediment placement on site, restoration will be phased to correspond to construction phases. The Restoration Plan shall include the responsible parties, revegetation implementation plan, 5-year maintenance plan, monitoring plan, contingency measures, and notification of completion of the restoration.

To avoid impacts to high-quality host plants for Quino checkerspot butterfly, the Restoration Plan requires a biologist to survey the mesa for Quino checkerspot butterfly host plants prior to the pre-restoration phase activities. All host plant populations shall be flagged and a 20-foot buffer established around the host plant populations. Restoration activities within this avoidance area shall be restricted to hand weeding and/or herbicide application only. No mechanical work shall be done in this avoidance area. Highly compacted soils that are not suitable for Quino checkerspot larvae within the 20-foot buffer can be excluded from the avoidance area as determined by the Project biologist.

MM-BIO-2: Special-Status Species Take Avoidance Surveys. Prior to initiation of each phase of site clearing, the applicant shall develop a relocation and exclusion plan for special-status terrestrial reptiles, Dulzura pocket mouse, Northwestern San Diego pocket mouse, and San Diego desert woodrat with the potential to occur on site. The relocation and exclusion plan shall be submitted to the California Department of Parks and Recreation (and/or designee or Responsible Agency) for review and approval prior to initiation of clearing for each phase of the Project. The plan shall at minimum include the timing and locations where surveys should be conducted, the habitat and conditions in the proposed relocation site(s), the methods that would be used for trapping and relocating the individual species, the method for documentation/recordation of the species and number of animals relocated, and the method of exclusion so that species cannot re-enter active construction areas.

Pre-Construction Surveys. No more than 7 days prior to each phase of site clearing, a qualified biologist shall conduct a preconstruction survey within areas of suitable habitat for special-status species wildlife. The biologist shall survey for special-status species that may be located within or immediately adjacent to the Project work areas, as permitted by access. If determined by the qualified biologist that based on the construction activities, time of year, and location of the special-status wildlife species relocation is necessary to occur, relocation will occur to nearby undisturbed areas within suitable habitat in the open space preserve as specified in the plan and a California scientific collecting permit (SCP) (if applicable), but as close to their origin as possible (consistent with the approved plan). The biologist relocating the species shall possess a California SCP to handle these species if required by applicable California Department of Fish and Wildlife regulations.

Monitoring. A qualified biologist shall be present during each phase of initial ground-disturbing activities (i.e., vegetation removal) immediately adjacent to or within the vegetation communities and/or disturbed habitats that could support populations of special-status wildlife species to monitor vegetation and topsoil removal. If special-status species reptiles or small mammals are detected in the work area during biological monitoring, the individual(s) will be documented and relocated as per the approved plan and in accordance with the SCP conditions as applicable. Periodic monitoring shall also be conducted by a qualified biologist following initial ground-disturbing activities, to ensure that exclusion fencing remains in place to minimize the potential for special-status species to re-enter active construction area.

MM-BIO-3: Coastal California Gnatcatcher Avoidance and Surveys.

No clearing, grubbing, grading, or other ground-disturbing activities shall occur during the coastal California gnatcatcher breeding season (March 1 through August 15) on Multi-Habitat Planning Area (MHPA) lands, until the following requirements have been met to the satisfaction of the the California Department of Parks and Recreation (CDPR) (and/or designee or Responsible Agency:

A Qualified Biologist (possessing a valid Endangered Species Act Section 10[a][1][a] Recovery Permit) shall survey those habitat areas within the MHPA that would be subject to construction noise levels exceeding 60 A-weighted decibels (dBA) hourly average for the presence of the coastal California gnatcatcher. Surveys for coastal California gnatcatcher shall be conducted pursuant to the

protocol survey guidelines established by the U.S. Fish and Wildlife Service within the breeding season prior to the commencement of any construction.

1. If coastal California gnatcatchers are present, then the following conditions must be met:

    a. March 1 through August 15 on MHPA lands, no clearing, grubbing, or grading of occupied coastal California gnatcatcher habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; and

    b. March 1 through August 15 on MHPA lands, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dBA hourly average at the edge of occupied coastal California gnatcatcher habitat. An analysis showing that noise generated by construction activities would not exceed 60 dBA hourly average at the edge of occupied habitat must be completed by a Qualified Acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by CDPR (and/or designee or Responsible Agency) at least 2 weeks prior to the commencement of construction activities. Prior to the commencement of construction activities during the nesting season, areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; or

    c. At least 2 weeks prior to the commencement of construction activities, under the direction of a Qualified Acoustician, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities would not exceed 60 dBA hourly average at the edge of habitat occupied by the coastal California gnatcatcher. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dBA hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the Qualified Acoustician or Biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the nesting season (August 16). Construction noise shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60

dBA hourly average or to the ambient noise level if it already exceeds 60 dBA hourly average. If not, other measures shall be implemented in consultation with the biologist and CDPR, (and/or designee or Responsible Agency), as necessary, to reduce noise levels to below 60 dBA hourly average or to the ambient noise level if it already exceeds 60 dBA hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

2. If coastal California gnatcatchers are not detected during the protocol survey, the Qualified Biologist shall submit substantial evidence to CDPR (and/or designee or Responsible Agency) and applicable resource agencies that demonstrates whether or not mitigation measures such as noise walls are necessary from March 1 through August 15 on MHPA lands as follows:

   a. If this evidence indicates that the potential is high for coastal California gnatcatcher to be present based on historical records or site conditions, then Condition 1(a) shall be adhered to as specified above.

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

MM-BIO-4: **Quino Checkerspot Butterfly Take Authorization.** The California Department of Parks and Recreation (CDPR) (and/or designee or Responsible Agency) shall consult with the U.S. Fish and Wildlife Service (USFWS) to determine if take authorization is required for impacts to Quino checkerspot. If such take authorization is required, CDPR (and/or designee or Responsible Agency) shall demonstrate to the satisfaction of the City of San Diego that it has secured from any necessary take authorization prior to the issuance of the first grading permit that impacts suitable Quino checkerspot butterfly habitat. Take authorization may be obtained through the Section 7 Consultation or Section 10 incidental take permit requirements. The Project applicant will comply with any and all conditions, including preconstruction surveys, that USFWS may require for take of Quino checkerspot butterfly pursuant to the Endangered Species Act. If required as a permit condition, preconstruction survey will be conducted in accordance with USFWS protocols unless USFWS authorizes a deviation from those protocols.

MM-BIO-5: **Nesting Bird Surveys.** To avoid direct impacts to nesting birds (exclusive of coastal California gnatcatcher; see MM-BIO-3), removal of habitat that supports active nests in the proposed area of disturbance should occur outside of the nesting

season for these species (January 15 to September 15). If removal of habitat in the proposed area of disturbance must occur during the nesting season, the Qualified Biologist shall conduct a pre-construction survey to determine the presence or absence of nesting birds on the proposed area of disturbance. The pre-construction survey shall be conducted within 10 calendar days prior to removal of vegetation. The California Department of Parks and Recreation (CDPR) (and/or designee or Responsible Agency) shall submit the results of the pre-construction survey to the City and/or County of San Diego 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 City of San Diego's Biology Guidelines and applicable 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 nesting activities is avoided. The report or mitigation plan shall be submitted to the City and/or County of San Diego for review and approval and implemented to the satisfaction of the City and/or County of San Diego. A CDPR (and/or designee or Responsible Agency) 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 more than 14 days lapse between clearing, grubbing, grading, or other ground-disturbing activities, nesting bird surveys should be reinitiated prior to commencing activities and follow the methods described above.

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8 REFERENCES

AOS (American Ornithological Society). 2018. "Check-List of North and Middle American Birds." Accessed October 24, 2018. http://checklist.aou.org/.

Atwood, J.L. 1990. *Status Review of the California Gnatcatcher (*Polioptila californica*)*. Manomet, Massachusetts: Manomet Bird Observatory. December 1990.

Atwood, J.L. 1993. "California Gnatcatchers and Coastal Sage Scrub: The Biological Basis for Endangered Species Listing." In *Interface between Ecology and Land Development in California*, edited by J.E. Keeley, 149–169. Los Angeles, California; Southern California Academy of Science.

Atwood, J.L., and J.S. Bolsinger. 1992. "Elevational distribution of California Gnatcatchers in the United States." *Journal of Field Ornithology* 63: 159–168.

Atwood, J.L., S.H. Tsai, C.H. Reynolds, and M.R. Fugagli. 1998a. "Distribution and Population Size of California Gnatcatchers on the Palos Verdes Peninsula, 1993–1997." *Western Birds* 29:340–350.

Atwood, J.L., S.H. Tsai, C.H. Reynolds, J.C. Luttrell, and M.R. Fugagli. 1998b. "Factors Affecting Estimates of California Gnatcatcher Territory Size." *Western Birds* 29:269–279.

Bontrager, D.R. 1991. *Habitat Requirements, Home Range Requirements, and Breeding Biology of the California Gnatcatcher (*Polioptila californica*) in South Orange County, California*. Prepared for Santa Margarita Company, Ranch Santa Margarita, California. April 1991.

Braden, G.T., R.L. McKernan, and S.M. Powell. 1997. "Association of Within-Territory Vegetation Characteristics and Fitness Components of California Gnatcatchers." *Auk* 114:601–609.

Burger, J.C., M.A. Patten, J.T. Rotenberry, and R.A. Redak. 1999. "Foraging Ecology of the California Gnatcatcher Deduced from Fecal Samples." *Oecologia* 120:304–310.

Calflora. 2019. The Calflora Database. Information on California plants for education, research, and conservation, with data contributed by public and private institutions and individuals, including the Consortium of California Herbaria. Berkeley, California: Calflora. Accessed March 2019. https://www.calflora.org/.

CCH (Consortium of California Herbaria). 2019. CCH1: Featuring California Vascular Plant Data from the Consortium of California Herbaria and Other Sources. Online database with specimen records from 36 institutions. Accessed March 2019. http://ucjeps.berkeley.edu/consortium/.

CDFG (California Department of Fish and Game). 2000. *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities*. December 9, 1983. Revised May 8, 2000.

CDFW. 2019. California Natural Diversity Database (CNDDB). RareFind Version 5.0 (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data.

CDFW (California Department of Fish and Wildlife). 2020a. "California Natural Community list." Sacramento, California: CDFW. September 9, 2020. Accessed September 2020 at https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities.

CDFW. 2020b. Special Animals. Biannual publication, mimeo. July 2020.

City of San Diego. 1982a. Conditional Use Permit (CUP) 497-PC. Granted by the Planning Commission to Nelson & Sloan.

City of San Diego. 1997. *Multiple Species Conservation Program (MSCP) Subarea Plan.* Community and Economic Development Department, City of San Diego.

City of San Diego. 1999. *The Tijuana River Valley Local Coastal Plan/Land Use Plan*. City of San Diego.

City of San Diego. 2018. City of San Diego Municipal Code, Land Development Code—Biology Guidelines. February 2018.

CNPS (California Native Plant Society). 2001. *CNPS Botanical Survey Guidelines*. December 9, 1983. Revised June 2, 2001. Accessed April 15, 2011 at http://cnps.org/cnps/rareplants/pdf/cnps_survey_guidelines.pdf.

CNPS (California Native Plant Society). 2019. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). Sacramento, California: California Native Plant Society. Accessed January 2019 at www.rareplants.cnps.org.

County of San Diego. 2010. Biological Monitoring Report for the Tijuana River Valley Regional Park (Monitoring Year 2009). Prepared for County of San Diego Department of Parks and Recreation. Prepared by Technology Associates International Corporation (TAIC). February 26.

Crother, B.I. 2017. Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in our Understanding. 8th ed. Herpetological Circular No. 43. Ed. J.J. Moriarty. Shoreview, Minnesota: Society for the Study of Amphibians and Reptiles.

Curtis, K.E., and R.W. Lichvar. 2010. Updated Data Sheet for the identification of Ordinary High Water Mark in the arid West Region of the western United States. Wetland Regulatory Assistance Program. July 2010.

Diffendorfer, J.E., R.E. Chapman, J.M. Duggan, G.M. Fleming, M. Mitrovitch, M.E. Rahn, and R. del Rosario. 2002. *Coastal Sage Scrub Response to Disturbance: A Literature Review and Annotated Bibliography*. Prepared for the California Department of Fish and Game. February 28, 2002.

Dudek. 2012a. Final Biological Technical Report Nelson Sloan Quarry – Tijuana River Valley. Prepared for: City of San Diego Transportation and Storm Water Department. October.

Dudek. 2012b. Conceptual Mitigation and Mine Reclamation Plan. Prepared for: City of San Diego Transportation and Storm Water Department. October.

Field, J.J, and R.W. Lichvar. 2007. Review and Synopsis of Natural Human Controls on Fluvial Channel Process in the Arid West Channels. U.S. Army Corps of Engineers Engineer Research and Development Center. September 2007.

Fisher, R., and T. Case. 2000. Final Report on Herpetofauna Monitoring in the Tijuana Estuary National Estuarine Research Reserve. February 2000.

Google Earth. 2019. Digital maps and aerial images. Accessed March 2019.

Gray, J, and D. Bramlet. 1992. Habitat Classification System. Natural Resources Geographic Information Systems (GIS) Project. County of Orange Environmental Management Agency. May 1992.

Greystone. 2005. Biological Resources Technical Report for County of San Diego Tijuana River Valley Regional Park Trails and Habitat Enhancement Project.

Hall, E.R. 1981. *The Mammals of North America*. 2nd ed. New York, New York: John Wiley and Sons.

Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Nongame-Heritage Program, California Department of Fish and Game. 156 pp.

Jepson Flora Project. 2019. Jepson eFlora. Berkeley, California: University of California. Accessed January 3, 2019 at http://ucjeps.berkeley.edu/interchange/index.html.

Klutz K. 2020. Quino Biologists United. Retrieved April 15, 2020. https://www.linkedin.com/groups/3801513/

Lefebvre, L., R. Lichvar, K. Curtis, and J. Gillrich. 2013. Channel Classification Across Arid West Landscapes in Support of OHW Delineation. US Army Corps of Engineers Engineer Research and Development Center. January 2013.

Lichvar, R.W., D.C. Finnegan, M.P. Ericsson, and W. Ochs. 2006. Distribution of Ordinary High Water Mark (OHWM) Indicators and their Reliability in Identifying the Limits of "Waters of the United States" in the Arid Southwestern Channels. US Army Corps of Engineers Engineer Research and Development Center. February 2006.

Macwhirter, R.B., and K.L. Bildstein. 2011. "Northern Harrier (*Circus cyaneus*)," revised by K.G. Smith and S.R. Wittenberg. In *The Birds of North America Online*, edited by A. Poole. Ithaca, New York: Cornell Lab of Ornithology. doi: 10.2173/bna.210.

Microsoft. 2019. Digital maps and aerial imagery. Accessed March 2019.

NABA (North American Butterfly Association). 2016. "Checklist of North American Butterflies Occurring North of Mexico." Adapted from North American Butterfly Association (NABA) Checklist and English Names of North American Butterflies, eds. B. Cassie, J. Glassberg, A. Swengel, and G. Tudor. 2nd ed. Morristown, New Jersey: NABA. Accessed February 23, 2017. http://www.naba.org/pubs/enames2_3.html

NETROnline. 2019. Historical Aerials. https://www.historicaerials.com/

Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County*. March 2008. http://www.sdcanyonlands.org/pdfs/veg_comm_sdcounty_2008_doc.pdf.

Preston, K.L., P.J. Mock, M.A. Grishaver, E.A. Bailey, and D.F. King. 1998. "California Gnatcatcher Territorial Behavior." *Western Birds* 29:242–257.

Reiser, C.H. 2001. *Rare Plants of San Diego County*. 2001 ed. Imperial Beach, California: Aquafir Press.

Roberts, F.M. 1995. Illustrated Guide to the Oaks of the Southern Californian Floristic Province: The Oaks of Coastal Southern California and Northwestern Baja California, Mexico. F.M. Roberts Publications, 1995

SANDAG. 2014. Digital maps and aerial imagery. Accessed March 2019.

SanGIS (San Diego Geographic Information Source). 2013. SanBIOS Database, including USGS 7.5-minute Imperial Beach quadrangles and Vegetation.

SDNHM (San Diego Natural History Museum). 2002. "Butterflies of San Diego County. Revised September 2002." Accessed October 14, 2016. http://www.sdnhm.org/archive/research/entomology/sdbutterflies.html.

SDNHM. 2019a. Data retrieved from Herbarium and Plant Atlas databases. San Diego County Plant Atlas Project. Online ed. http://www.sdplantatlas.org/publicsearch.aspx.

SDNHM. 2019b. Data retrieved from San Diego Bird Atlas databases. The Birds of San Diego County. Online ed. http://sdplantatlas.org/BirdAtlas/BirdPages.aspx.

SDRWQCB (San Diego Regional Water Quality Control Board). 2002. Appendix A: Overview of San Diego Watershed Management Areas. Watershed Management Approach for the San Diego Region. Eighth Edition. California Regional Water Quality Control Board San Diego Region. January 25, 2002.

SMARA (State Surface Mining and Reclamation Act). 1975. https://www.conservation.ca.gov/dmr/lawsandregulations/Pages/SMARA.aspx. Accessed November 2019.

URS (URS Corporation). 2010. *Land Use Options for the Nelson Sloan Property*. Prepared for the City of San Diego. June 30, 2010.

USACE (U.S. Army Corps of Engineers). 1987. *Corps of Engineers Wetlands Delineation Manual.* Wetlands Research Program Technical Report Y-87-1 (online edition). Vicksburg, MS: USACE, Waterways Experiment Station, Environmental Laboratory. January 1987.

USACE. 2008a. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. TR-06-016. September.

USACE. 2008b. *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*. ERDC/CRREL TR-08-12. Prepared by R.W. Lichvar and S.M. McColley, USACE Research and Development Center, Cold Regions Research and Engineering Laboratory. August 2008. http://www.spk.usace.army.mil/Portals/12/documents/regulatory/pdf/Ordinary_High_Watermark_Manual_Aug_2008.pdf.

USDA. 2020. "California." State PLANTS Checklist. Accessed March 2020. http://plants.usda.gov/dl_state.html.

USDA. 2019. Web Soil Survey. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed March 2019. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

USFWS (U.S. Fish and Wildlife Service). 2000. *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants*.

USFWS. 1997. Coastal California Gnatcatcher *(Polioptila californica californica)* Presence/Absence Survey Guidelines. Carlsbad, CA. February 28.

USFWS. 2003. *Recovery Plan for the Quino Checkerspot Butterfly (*Euphydras editha quino*)*. Portland, Oregon: USFWS, Region 1. August 11, 2003. http://ecos.fws.gov/docs/recovery_plan/030917.pdf.

USFWS. 2008. Brancinecta sandiegonensis San Diego Fairy Shrimp 5-Year Review: Summary and Evaluation. Carlsbad, CA

USFWS. 2019a. "Critical Habitat and Occurrence Data" [map]. Accessed May 2019. http://www.fws.gov/data.

USFWS. 2019b. National Wetlands Inventory. Accessed May 2019. https://www.fws.gov/wetlands/

USFWS. 2020a. FWS-Listed U.S. Species by Taxonomic Group – All Plants. Accessed September 2020. https://www.fws.gov/endangered/

USFWS. 2020b. FWS-Listed U.S. Species by Taxonomic Group – All Animals. Accessed September 2020. https://www.fws.gov/endangered/

USFWS. 2014. Quino Checkerspot Butterfly Survey Guidelines.

USGS. 2019. "Flow lines, water points, watershed boundaries" [digital GIS data]. National Hydrography Dataset website. Accessed March 2019. http://nhd.usgs.gov/.

Weaver, K.L. 1998. "Coastal Sage Scrub Variations of San Diego County and Their Influence on the Distribution of the California Gnatcatcher." *Western Birds* 29:392–405.

Wilson, D.E., and D.M. Reeder, eds. 2005. Mammal Species of the World: A Taxonomic and Geographic Reference. 3rd ed. Baltimore, Maryland: Johns Hopkins University Press.

Zeiner, D.C., W.F. Laudenslayer Jr., K.E. Mayer, and M. White, eds. 1990. *California's Wildlife: Volume II. Birds.* Sacramento, California: California Department of Fish and Game.

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APPENDIX A

List of Plant Species Observed on Site

Lycophytes [=Lycopods]

SELAGINELLACEAE – SPIKE-MOSS FAMILY

Selaginella cinerascens – mesa spike-moss

Ophioglossoid Ferns

OPHIOGLOSSACEAE – ADDER'S TONGUE FAMILY

Ophioglossum californicum – California adder's tongue

Leptosporangiate Ferns

POLYPODIACEAE – POLYPODY FAMILY

Polypodium californicum – California polypody

PTERIDACEAE – BRAKE FAMILY

Pellaea mucronata var. *mucronata* – bird's foot cliff-brake

Pentagramma triangularis ssp. *triangularis* – California goldback fern

Pellaea andromedifolia – coffee fern

Pentagramma glanduloviscida – San Diego silverback fern

Gnetales

EPHEDRACEAE – EPHEDRA FAMILY

Ephedra californica – California ephedra

Angiosperms: Eudicots

ADOXACEAE – ADOXA FAMILY

Sambucus nigra ssp. caerulea – blue elderberry

AIZOACEAE – FIG-MARIGOLD FAMILY

* *Mesembryanthemum crystallinum* – crystalline iceplant

* *Mesembryanthemum nodiflorum* – slender-leaf iceplant

AMARANTHACEAE – AMARANTH FAMILY

Malosma laurina – laurel sumac

Rhus integrifolia – lemonadeberry

* *Schinus molle* – Peruvian pepper tree

* *Schinus terebinthifolius* – Brazilian pepper tree

APIACEAE – CARROT FAMILY

Apiastrum angustifolium – mock-parsley
Bowlesia incana – American bowlesia
Daucus pusillus – rattlesnake weed
* *Foeniculum vulgare* – sweet fennel

ASTERACEAE – SUNFLOWER FAMILY

Acourtia microcephala – sacapellote
Ambrosia acanthicarpa – annual bur-sage
Ambrosia chenopodiifolia – San Diego bur-sage
Ambrosia psilostachya – western ragweed
Artemisia californica – coastal sagebrush
Baccharis salicifolia ssp. *salicifolia* – mule-fat, seep-willow
Baccharis sarothroides – broom baccharis
Chaenactis glabriuscula var. *glabriuscula* – yellow pincushion
Chloracantha spinosa var. *spinosa* – Mexican devil-weed
Deinandra fasciculata – fascicled tarweed
Encelia californica – California encelia
Eriophyllum confertiflorum var. *confertiflorum* – long-stem golden-yarrow
Isocoma menziesii var. *menziesii* – spreading goldenbush
Laennecia coulteri – Coulter's fleabane
Lasthenia coronaria – southern goldfields
Lasthenia gracilis – common goldfields
Leptosyne maritima – San Diego sea-dahlia
Logfia arizonica – Arizona cottonrose
Logfia filaginoides – California cottonrose
Porophyllum gracile – odora
Pseudognaphalium beneolens – fragrant everlasting
Pseudognaphalium californicum – California everlasting
Pseudognaphalium microcephalum – white everlasting
Pseudognaphalium stramineum – cotton-batting plant
Psilocarphus tenellus – slender woolly-marbles
Rafinesquia californica – California chicory
Stephanomeria diegensis – San Diego wreath-plant
Uropappus lindleyi – silver puffs
* *Bidens pilosa* – common beggar's tick, Spanish needles
* *Centaurea melitensis* – tocalote
* *Cotula australis* – Australian brass-buttons
Cotula coronopifolia – African brass-buttons
* *Glebionis coronaria* – garland/crown daisy

* *Hypochaeris glabra* – smooth cat's ear
* *Lactuca serriola* – prickly lettuce
* *Matricaria discoidea* – common pineapple-weed
* *Senecio vulgaris* – common groundsel
* *Sonchus oleraceus* – common sow-thistle

Bahiopsis laciniata – San Diego sunflower

Corethrogyne filaginifolia var. *filaginifolia* – California sand-aster

BORAGINACEAE – BORAGE FAMILY

Amsinckia intermedia – rancher's fiddleneck

Amsinckia menziesii – rigid fiddleneck

Emmenanthe penduliflora var. *penduliflora* – whispering bells

Eucrypta chrysanthemifolia var. *bipinnatifida* – spotted hideseed

Heliotropium curassavicum var. *oculatum* – salt heliotrope

Pectocarya linearis ssp. *ferocula* – slender combseed

Phacelia cicutaria var. *hispida* – caterpillar phacelia

Pholistoma membranaceum – San Diego fiesta flower

Pholistoma racemosum – white fiesta flower

Plagiobothrys collinus var. *californicus* – California popcornflower

Plagiobothrys collinus var. *gracilis* – San Diego popcornflower

Eucrypta chrysanthemifolia – common eucrypta

Johnstonella micromeres – minute-flower Johnstonella

Phacelia ramosissima – branching phacelia

BRASSICACEAE – MUSTARD FAMILY

Caulanthus heterophyllus – San Diego jewelflower

Descurainia pinnata ssp. *brachycarpa* – western tansy-mustard

Lepidium nitidum – shining peppergrass

Lepidium oblongum var. *insulare* – veiny peppergrass

* *Brassica tournefortii* – Sahara mustard
* *Eruca vesicaria* ssp. *sativa* – garden rocket
* *Hirschfeldia incana* – short-pod mustard
* *Lepidium didymum* – lesser wart-cress
* *Raphanus sativus* – wild radish
* *Sisymbrium irio* – London rocket
* *Sisymbrium orientale* – hare's-ear cabbage

Descurainia pinnata – western tansy-mustard

CACTACEAE – CACTUS FAMILY

Bergerocactus emoryi – velvet/golden-club cactus

Cylindropuntia prolifera – coast cholla
Opuntia littoralis – coast prickly-pear
Opuntia oricola – chaparral prickly-pear
Ferocactus viridescens var. *viridescens* – coast barrel cactus

CARYOPHYLLACEAE – PINK FAMILY

Cardionema ramosissimum – tread lightly
Polycarpon depressum – California polycarp
* *Cerastium glomeratum* – mouse-ear chickweed
* *Silene gallica* – common catchfly
* *Stellaria media* – common chickweed
* *Stellaria pallida* – pale starwort
* *Polycarpon tetraphyllum* ssp. *tetraphyllum* – four-leaf allseed

CHENOPODIACEAE – GOOSEFOOT FAMILY

Chenopodium californicum – California goosefoot
* *Atriplex semibaccata* – Australian saltbush
* *Chenopodium album* – lamb's quarters
Atriplex canescens – four-wing saltbush/shadscale

CISTACEAE – ROCK-ROSE FAMILY

Crocanthemum scoparium – peak rush-rose

CLEOMACEAE – SPIDERFLOWER FAMILY

Peritoma arborea var. *arborea* – desert badderpod

CONVOLVULACEAE – MORNING-GLORY FAMILY

Dichondra occidentalis – western dichondra/ponyfoot

CRASSULACEAE – STONECROP FAMILY

Crassula connata – pygmyweed
Dudleya edulis – ladies' fingers
Dudleya lanceolata – lance-leaf dudleya
Dudleya pulverulenta – chalk dudleya

CUCURBITACEAE – GOURD FAMILY

Marah macrocarpa – manroot, wild-cucumber

ERICACEAE – HEATH FAMILY

Ornithostaphylos oppositifolia – Baja California birdbush
Xylococcus bicolor – mission manzanita

EUPHORBIACEAE – SPURGE FAMILY

Euphorbia misera – cliff spurge
Euphorbia polycarpa – small-seed sandmat
* *Ricinus communis* – castor bean

FABACEAE – LEGUME FAMILY

Acmispon americanus var. *americanus* – Spanish-clover
Acmispon glaber var. *glaber* – coastal deerweed
Acmispon micranthus – grab lotus
Acmispon strigosus – Bishop's/strigose lotus
Astragalus trichopodus var. *lonchus* – ocean locoweed
Lupinus bicolor – miniature lupine
Lupinus succulentus – arroyo lupine
Lupinus truncatus – collar lupine
Trifolium willdenovii – valley clover
* *Melilotus indicus* – Indian sweetclover

GENTIANACEAE – GENTIAN FAMILY

Zeltnera venusta – canchalagua

GERANIACEAE – GERANIUM FAMILY

* *Erodium botrys* – long-beak filaree/storksbill
* *Erodium cicutarium* – red-stem filaree/storksbill
* *Erodium moschatum* – white-stem filaree/storksbill

LAMIACEAE – MINT FAMILY

Salvia apiana – white sage
Salvia mellifera – black sage
* *Marrubium vulgare* – horehound

MALVACEAE – MALLOW FAMILY

Malacothamnus fasciculatus var. *fasciculatus* – chaparral bushmallow
* *Malva parviflora* – cheeseweed

MONTIACEAE – MONTIA FAMILY

Calandrinia menziesii – red maids
Cistanthe maritima – sea kisses, seaside calandrinia
Claytonia parviflora ssp. *parviflora* – narrow-leaf miner's-lettuce
Claytonia perfoliata ssp. *mexicana* – Mexican miner's-lettuce

NYCTAGINACEAE – FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia* – coastal wishbone plant

* *Mirabilis jalapa* var. *jalapa* – four o'clock

Mirabilis laevis – wishbone plant

ONAGRACEAE – EVENING-PRIMROSE FAMILY

Camissoniopsis bistorta – California sun cup

Camissoniopsis cheiranthifolia ssp. *suffruticosa* – beach sun cup

Camissoniopsis lewisii – Lewis's evening-primrose

Camissoniopsis robusta – robust sun cup

OROBANCHACEAE – BROOM-RAPE FAMILY

Dicranostegia orcuttiana – Orcutt's bird's beak

OXALIDACEAE – OXALIS FAMILY

* *Oxalis pes-caprae* – bermuda-buttercup

PAPAVERACEAE – POPPY FAMILY

Eschscholzia californica – California poppy

Papaver heterophyllum – wind poppy

PLANTAGINACEAE – PLANTAIN FAMILY

Nuttallanthus texanus – large blue toadflax

Plantago erecta – dot-seed plantain

* *Plantago lanceolata* – English plantain, rib-grass

Antirrhinum nuttallianum – Nuttall's snapdragon

POLEMONIACEAE – PHLOX FAMILY

Linanthus dianthiflorus – farinose ground pink

Navarretia hamata – hooked skunkweed

POLYGONACEAE – BUCKWHEAT FAMILY

Chorizanthe fimbriata var. *fimbriata* – fringed spineflower

Eriogonum fasciculatum var. *fasciculatum* – coast California buckwheat

Lastarriaea coriacea – lastarriaea

Pterostegia drymarioides – granny's hairnet, g. c. p.

PORTULACACEAE – PURSLANE FAMILY

* *Portulaca oleracea* – common purslane

RANUNCULACEAE – BUTTERCUP FAMILY

Clematis pauciflora – ropevine clematis

RESEDACEAE – MIGNONETTE FAMILY

Oligomeris linifolia – narrow-leaf oligomeris

RHAMNACEAE – BUCKTHORN FAMILY

Ceanothus verrucosus – wart-stem-lilac

Rhamnus crocea – spiny redberry

ROSACEAE – ROSE FAMILY

Heteromeles arbutifolia – toyon, Christmas berry

Adenostoma fasciculatum – chamise

RUBIACEAE – MADDER OR COFFEE FAMILY

Galium aparine – common bedstraw, goose grass

Galium nuttallii ssp. *nuttallii* – San Diego bedstraw

Galium porrigens var. *porrigens* – climbing/oval-leaf bedstraw

RUTACEAE – RUE OR CITRUS FAMILY

Cneoridium dumosum – coast spice bush, bush-rue

SALICACEAE – WILLOW FAMILY

Salix laevigata – red willow

Salix lasiandra var. *lasiandra* – shining willow

Salix lasiolepis – arroyo willow

SAXIFRAGACEAE – SAXIFRAGE FAMILY

Jepsonia parryi – coast jepsonia

Lithophragma affine – woodland star

SOLANACEAE – NIGHTSHADE FAMILY

Lycium californicum – California desert thorn

Solanum douglasii – Douglas's nightshade

Solanum parishii – Parish's nightshade

* *Nicotiana glauca* – tree tobacco

TAMARICACEAE – TAMARISK FAMILY

* Tamarix ramosissima – saltcedar

URTICACEAE – STINGING NETTLE FAMILY

Parietaria hespera var. *californica* – California pellitory

Urtica dioica ssp. *holosericea* – hoary nettle

Parietaria hespera var. *hespera* – western pellitory

* *Urtica urens* – dwarf nettle

VERBENACEAE – VERVAIN FAMILY

Verbena menthifolia – mint-leaf vervain

VIOLACEAE – VIOLET FAMILY

Viola pedunculata – Johnny jump-up

Angiosperms: Monocots

AGAVACEAE – AGAVE FAMILY

Yucca schidigera – Mohave yucca

ARECACEAE – PALM FAMILY

* *Washingtonia robusta* – Mexican fan palm

IRIDACEAE – IRIS FAMILY

Sisyrinchium bellum – blue-eyed-grass

JUNCACEAE – RUSH FAMILY

Juncus bufonius – toad rush

LILIACEAE – LILY FAMILY

Calochortus splendens – splendid mariposa lily

MELANTHIACEAE – BUNCH FLOWER OR CAMAS FAMILY

Toxicoscordion fremontii – Fremont's camas

POACEAE – GRASS FAMILY

Bromus carinatus var. *carinatus* – California brome
Melica imperfecta – coast range melic
Muhlenbergia microsperma – little-seed muhly
Stipa diegoensis – San Diego needle grass
Stipa lepida – foothill needle grass
Stipa pulchra – purple needle grass

* *Bromus diandrus* – ripgut grass
* *Bromus hordeaceus* – soft chess
* *Festuca bromoides* – brome fescue
* *Festuca myuros* – rat-tail fescue
* *Festuca perennis* – perennial rye grass
* *Lamarckia aurea* – golden-top
* *Poa annua* – annual blue grass
* *Schismus barbatus* – Mediterranean schismus

* *Stipa miliacea* var. *miliacea* – smilo grass
* *Bromus rubens* – foxtail chess, red brome

THEMIDACEAE – BRODIAEA FAMILY

Dichelostemma capitatum ssp. *capitatum* – blue dicks, school bells

CLEOMACEAE – SPIDERFLOWER FAMILY

Peritoma arborea – badderpod

Liverwort

AYTONIACEAE – LIVERWORT

Asterella palmeri – liverwort

* signifies introduced (non-native) species

INTENTIONALLY LEFT BLANK

APPENDIX B

List of Wildlife Species Observed on Site

Bird

Bushtits

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

Falcons

FALCONIDAE—CARACARAS AND FALCONS

Falco peregrinus anatum—American peregrine falcon

Falco sparverius—American kestrel

Finches

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch

Spinus psaltria—lesser goldfinch

Flycatchers

TYRANNIDAE—TYRANT FLYCATCHERS

Sayornis nigricans—black phoebe

Sayornis saya—Say's phoebe

Tyrannus vociferans—Cassin's kingbird

Hawks

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii—Cooper's hawk

Buteo jamaicensis—red-tailed hawk

Circus hudsonius—northern harrier

Hummingbirds

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird

Jays, Magpies and Crows

CORVIDAE—CROWS AND JAYS

Corvus brachyrhynchos—American crow

Corvus corax—common raven

Mockingbirds and thrashers

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Toxostoma redivivum—California thrasher

New World Vultures

CATHARTIDAE—NEW WORLD VULTURES

Cathartes aura—turkey vulture

Old world Warblers and Gnatcatchers

SYLVIIDAE—SYLVIID WARBLERS

Polioptila californica californica—coastal California gnatcatcher

Pigeons and Doves

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

Roadrunners and Cuckoos

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

Swallows

HIRUNDINIDAE—SWALLOWS

Petrochelidon pyrrhonota—cliff swallow

Terns and Gulls

LARIDAE—GULLS, TERNS, AND SKIMMERS

Larus occidentalis—western gull

Waterfowl

ANATIDAE—DUCKS, GEESE, AND SWANS

Anas platyrhynchos—mallard

Wood Warblers and Allies

PARULIDAE—WOOD-WARBLERS

Setophaga coronata—yellow-rumped warbler

Woodpeckers

PICIDAE—WOODPECKERS AND ALLIES

Colaptes auratus—northern flicker

Wrens

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren

Wrentits

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

New World Sparrows

PASSERELLIDAE—NEW WORLD SPARROWS

Melospiza melodia—song sparrow
Melozone crissalis—California towhee
Pipilo maculatus—spotted towhee
Zonotrichia leucophrys—white-crowned sparrow

Vireos

VIREONIDAE—VIREOS

Vireo bellii pusillus—least Bell's vireo

Invertebrate

Butterflies

LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS

Callophrys dumetorum—bramble hairstreak
Glaucopsyche lygdamus australis—southern blue
Leptotes marina—marine blue
Strymon melinus—gray hairstreak
Blue sp.—no common name

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Euphydryas editha quino—quino checkerspot butterfly
Junonia coenia—common buckeye
Nymphalis antiopa—mourning cloak
Vanessa annabella—west coast lady
Vanessa cardui—painted lady

Lady sp.—no common name

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark

HESPERIIDAE—SKIPPERS

Erynnis funeralis—funereal duskywing

PAPILIONIDAE—SWALLOWTAILS

Papilio rutulus—western tiger swallowtail

Papilio zelicaon—anise swallowtail

PIERIDAE—WHITES AND SULFURS

Anthocharis sara sara—Pacific sara orangetip

Pontia protodice—checkered white

Mammal

Hares and Rabbits

LEPORIDAE—HARES AND RABBITS

Lepus californicus bennettii—San Diego black-tailed jackrabbit

Rats, Mice, and Voles

CRICETIDAE—RATS, MICE, AND VOLES

Neotoma sp.—woodrat

Reptile

Lizards

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

Uta stansburiana—common side-blotched lizard

ANGUIDAE—ALLIGATOR LIZARDS

Elgaria multicarinata—southern alligator lizard

SCINCIDAE—SKINKS

Plestiodon skiltonianus—western skink

Snakes

COLUBRIDAE—COLUBRID SNAKES

Coluber lateralis—striped racer

APPENDIX C

Jurisdictional Delineation Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nelson-Sloan City/County: San Diego/San Diego Sampling Date: 03/13/19

Applicant/Owner: State: CA Sampling Point: T1.1

Investigator(s): E. Bergman Section, Township, Range: S3 T19S R2W

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave Slope (%): 6

Subregion (LRR): C - Mediterranean California Lat: 32.543289 Long: -117.071523 Datum: NAD 83

Soil Map Unit Name: Olivenhain cobbly loam, 2 to 9 percent slopes NWI classification: N/A

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 (●)	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Upland confirmation point depressional pond feature. Field data point is taken within nonnative grassland transitioning to freshwater marsh. Upper bank portion of depressional pond feature is populated by nonnative grassland, scattered mulefat shrubs and disturbed coastal sage scrub. Please photo X in Attachment X.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus madritensis ssp. rubens*	45	Yes	UPL
2. *Bromus hordeaceus*	25	Yes	UPL
3. *Avena barbata*	10	No	FACU
4. *Heliotropium curassavicum*	5	No	FAC
5. *Helminthotheca echioides*	≤5	No	
6.			
7.			
8.			
Total Cover:	85 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	5	x 3 =	15
FACU species	10	x 4 =	40
UPL species	70	x 5 =	350
Column Totals:	85 (A)		405 (B)

Prevalence Index = B/A = 4.76

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: Nonnative grassland is contained by abrupt grade change (bank) above ponded feature.

SOIL

Sampling Point: T1.1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/3	100	N/A	N/A			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: Soil unit mapped at the point of investigation is Olivenhain cobbly loam, 2 to 9 percent slopes (which is listed as hydric [and found in depressional areas within the region] by the NRCS). Although no hydric soil indicators or features have been observed at the point of investigation, soil will be considered 'hydric by definition'.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ 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): Unknown
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks: No wetland hydrology indicators observed. Surface water input at the point of investigation is related to down-gradient sheetflow.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nelson-Sloan City/County: San Diego/San Diego Sampling Date: 03/13/19

Applicant/Owner: State: CA Sampling Point: T1.2

Investigator(s): E. Bergman Section, Township, Range: S3 T19S R2W

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave Slope (%): 6

Subregion (LRR): C - Mediterranean California Lat: 32.543302 Long: -117.071520 Datum: NAD 83

Soil Map Unit Name: Olivenhain cobbly loam, 2 to 9 percent slopes NWI classification: N/A

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 ( )	
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area within a Wetland?** Yes (•) No ( )
Wetland Hydrology Present?	Yes (•)	No ( )	

Remarks: Wetland confirmation point depressional pond/basin feature. Field data point is taken within outer edge of freshwater marsh and mulefat scrub wetland communities. Please photo X in Attachment X.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	10	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Heliotropium curassavicum*	15	Yes	FACU
2. *Juncus bufonius*	5	Yes	FACW
3. *Anemopsis californica*	5	Yes	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	25 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 65 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species	10	x 3 =	30
FACU species	15	x 4 =	60
UPL species		x 5 =	0
Column Totals:	35 (A)		110 (B)

Prevalence Index = B/A = 3.14

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks: Outer edge of freshwater marsh/muefat scrub within ponded basin feature.

SOIL

Sampling Point: T1.2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/3	100	N/A	N/A			Loamy sand/silt	

[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: Soil unit mapped at the point of investigation is Olivenhain cobbly loam, 2 to 9 percent slopes (which is listed as hydric [and found in depressional areas within the region] by the NRCS). Guidance for soil lacking hydric indicators is found in the 2008 Supplement Chapter 3, page 27 and states that "a soil that meets the definition of a hydric soil is hydric whether or not it exhibits indicators". Guidance used for problem wetland situations in the Arid West for a soil considered hydric (or considered "hydric by definition"), but lacking hydric indicators, is found in the 2008 Supplement: Chapter 5, page 96, which outlines that a soil can be considered as hydric with faint or no hydric soil indicators. This soil can also be considered hydric by definition because is underlies an area where both hydrophytic vegetation & and wetland hydrology are simultaneously present at the point of investigation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☒ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☒ 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):	0
Water Table Present?	Yes ◉	No ○	Depth (inches):	Unknown
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

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

N/A.

Remarks: The point of investigation occurs within the influence of the the basin impounding precipitation inputs and stormwater runoff (down-gradient sheetflow) which supports the development of distinct hydrophytic vegetation community.

APPENDIX D

2020 Focused Quino Checkerspot Butterfly Survey Report for the Nelson Sloan Quarry Restoration Project, San Diego County, California

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ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

June 5, 2020 11618

U.S. Fish and Wildlife Service
Attention: Stacey Love, Recovery Permit Coordinator
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: 2020 Focused Quino Checkerspot Butterfly Survey Report for the Nelson Sloan Quarry Restoration Project, San Diego County, California

Dear Ms. Love:

This letter report documents the spring 2020 results of a focused survey conducted by Dudek for the federally listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*) (Quino). This survey was conducted in support of proposed quarry restoration project in the southern portion of the Tijuana River Valley in San Diego County, California. This report is intended to satisfy reporting requirements for the following Quino-permitted biologists: Callie Amoaku (TE-36118B-1), Erin Bergman (TE-53771B-2), Vipul Joshi (TE-019949-3), Patricia Schuyler (TE-27502B-1), and Erin McKinney (permitted under Brock Ortega's Recovery Permit TE-813545-9).

Study Area and Existing Conditions

The study area is located southeast of Imperial Beach in San Diego, California (Figure 1, Project Location). The study area consisted of all parcels within the project boundary, totaling 71 acres, which includes the proposed Reclamation Area that consists of 2 parcels, totaling 20-acres, where mining actually occurred (Figure 1).

The study area is situated southwest of the intersection of Dairy Mart Road and Monument Road an elevation between approximately 30 feet and 440 feet above mean sea level. The landscape is generally flat in the eastern half, with a steep cut slope bisecting the middle of the site. The western half of the study area has two steep canyons draining north toward the Tijuana River. The eastern portion of the study area was used as a quarry.

Adjacent land uses include open space and agricultural operations. The U.S. Border Patrol uses all open areas throughout the site to patrol the border. The South Bay International Wastewater Treatment Plant is located to the northeast of the study area.

The study area is within the U.S. Geological Survey's 7.5-minute Imperial Beach quadrangle map within Township 19 South, Range 2 West, Sections 02, 03, 10, and 11.

According to the U.S. Department of Agriculture, Natural Resources Conservation Service, the following five soil series were mapped within the study area: Olivenhain cobbly loam (2% to 9% slopes), Olivenhain cobbly loam (9% to 30% slopes), Olivenhain cobbly loam (30% to 50%), Huerhuero loam (5% to 9% slopes, eroded), and terrace escarpment (USDA 2019).

Vegetation Communities

Five plant community types and two land cover types were identified within the study area: Diegan coastal sage scrub, disturbed Diegan coastal sage scrub, maritime succulent scrub, mulefat scrub, and southern riparian scrub. Land cover types included open water and disturbed land-xeric cliff face, escarpment, ruderal land.

Quino Checkerspot Butterfly Survey

Background Information

The Quino subspecies was added to the federal Endangered Species List by the U.S. Fish and Wildlife Service (USFWS) on January 16, 1997 (62 FR 2313–2322). The species, Edith's checkerspot (*E. editha*), has a range extending from British Columbia and Alberta, Canada, south through Colorado and Utah, and west along the coast to northern Baja California. It is divided into 20 subspecies, each of which has its own range and biological and morphological characteristics. In California, there are 12 subspecies (Garth and Tilden 1986), 3 of which are currently known to occur in Southern California. The Quino is the southwestern-most subspecies of *E. editha* (Mattoni et al. 1997).

The Quino is known to occur in association with a variety of plant communities, soil types, and elevations (up to 5,000 feet above mean sea level). The plant communities include clay soil meadows, open grasslands, coastal sage scrub, chamise chaparral, red shank chaparral, juniper woodlands, and semi-desert scrub (Ballmer et al. 2001). The Quino is also associated with clay soils that possess cryptogamic crusts and vernal pools (USFWS 2002).

The Quino is a medium-sized butterfly (approximately 0.8-inch to 1.1-inch wingspan) belonging to the family Nymphalidae. The adults are primarily orange-red with white and black markings on the dorsal wing surface. They are active primarily in March and April, but this active period may vary depending on weather conditions (Ballmer et al. 2001). The adult butterfly feeds on nectar, which it obtains from spring annuals such as popcorn flower (*Plagiobothrys* spp., *Cryptantha* spp.), whitedaisy tidytips (*Layia glandulosa*), goldenbush (*Ericameria* spp.), pincushion (*Chaenactis* spp.), fiddleneck (*Amsinckia* spp.), chia (*Salvia columbariae*), and bluedicks (*Dichelostemma capitatum*), among others.

Adult males and virgin females sometimes "hilltop," or travel to elevated locations to find mates. While waiting for females to arrive, the males will often exhibit territorial behavior and will chase other butterflies that approach them. Frequently, the butterflies are observed in meadows or clearings where their host plants occur (Ballmer et al. 2001).

A female may lay 20 to 75 eggs at one time and may produce up to 1,200 eggs in her lifetime. The eggs hatch in approximately 10 days under favorable weather conditions and the young larvae will immediately begin to feed upon a host plant. As of 2014, the USFWS considers the following as larval host plants: dwarf plantain (*Plantago erecta*), woolly plantain (*P. patagonica*), Coulter's snapdragon (*Antirrhinum coulterianum*), purple Chinese houses (*Collinsia heterophylla*), stiffbranch bird's beak (*Cordylanthus rigidus*), and exserted Indian paintbrush (*Castilleja exserta*) (USFWS 2014). In addition, Chinese houses (*Collinsia concolor*) is a potential larval host plant (Pratt and Pierce 2009).

After feeding, the early larva enters an obligatory aestival diapause (dormant stage), which may be broken after fall or winter rains (Murphy and White 1984; Osborne 1998). If adverse weather conditions occur, the emergent larva may reenter a diapause stage repeatedly, for up to 5 or 6 years, until favorable weather conditions permit sufficient growth of the host plant to allow the larva to complete its development.

The Quino was once common in Southern California. It ranged north into Ventura County, west to the Pacific Ocean, east to the deserts, and south into northern Baja California. Currently, it is known to occur only in a few, potentially isolated, colonies in southwestern Riverside County, San Diego County, and northern Baja California.

Reasons for the butterfly's reduction in population are not well understood. Habitat loss due to degradation and fragmentation caused by urban and rural development, agricultural conversion, off-road vehicular use, the invasion of non-native plants and insects, fire management practices, over collecting, and adverse weather conditions have likely contributed to the species' decline (62 FR 2313–2322).

Methods – Habitat Assessment and Host Plant Mapping

Prior to the 2020 focused surveys, Dudek biologists conducted a habitat assessment in April 2019 within the study area in order to identify suitable habitat and exclude unsuitable habitat for focused surveys. While host plant surveys were performed in concert with the habitat assessment, surveyors also looked for host plants during the 2020 focused surveys to document any changes from the initial host plant mapping effort.

Dudek biologists conducted one pass of Quino host plant mapping surveys on April 10, 2019, as shown the schedule provided in Table 1. Botanical surveys were conducted by biologists Kathleen Dayton and Mackenzie Forgey. All surveys were conducted on foot. Approximately 2 person-days were spent conducting host plant mapping within the study area.

The host plant mapping surveys focused on the identification and location of six recognized host plants and one potential host plant for Quino: dwarf plantain, woolly plantain, Coulter's snapdragon, stiffbranch bird's beak, exserted Indian paintbrush, purple Chinese houses, and Chinese houses (USFWS 2014; Pratt and Pierce 2009). Nectar plants were recorded each week of surveys.

Table 1. Schedule of 2019 Host Plant Mapping Surveys

Date	Hours	Personnel	Conditions (temperature, cloud cover, wind speed)
2019-04-10	8:30 a.m.–4:20 p.m.	Kathleen Dayton, Mackenzie Forgey	59°F–66°F; 0% cloud cover; 2–15 mph wind

Dudek biologists recorded locations of Quino host plants using a mobile application for data collection and mapping. Data collected included the surveyor(s) date, species of host plant, and density of the host plant where the host plant was observed. All host plant occurrences were mapped as points. Density was collected using the following classes:

- Very Low: 1–19 plants
- Low: 20–99 plants

- Medium: 100–999 plants
- High: 1,000+ plants

Points were collected within patches of host plant at least as close as every 3 meters (10 feet). At the conclusion of surveys, Dudek geographic information systems (GIS) analysts created a GIS coverage map for host plants. After review by a biologist, a geodatabase was created to ensure these data are topologically correct and met final quality control and assurance procedures.

Methods – Quino Protocol Surveys

The 2014 USFWS protocol states that focused Quino surveys should begin the third week of February and end the second Saturday in May, unless otherwise approved by USFWS. Surveys are to be conducted during the adult flight season by biologists possessing a recovery permit for this species pursuant to Section 10(a)(1)(A) of the federal Endangered Species Act (USFWS 2014). The 2020 focused surveys followed the 2014 USFWS protocol with the exception of an approved amendment discussed in the 2020 notification. The amendment allowed surveys to begin in February after a reference check was conducted near Otay on BLM land by Erin Bergman and submitted to USFWS on February 4, 2020 (Dudek 2020).

The survey area consisted of suitable habitat for Quino within the entire study area, including the anticipated Reclamation Area (Figure 1; see Project Site). Surveys were conducted by Quino-permitted biologists Callie Amoaku (TE-36118B-1), Erin Bergman (TE-53771B-2), Vipul Joshi (TE-019949-3), Patricia Schuyler (TE-27502B-1), and Erin McKinney (permitted under Brock Ortega's Recovery Permit TE-813545-9). Focused Quino surveys were conducted over seven visits from February 7, 2020, through April 22, 2020 (see Table 2). Per the 2014 USFWS protocol, the first five visits met the minimum protocol requirements based on a positive observation of Quino on March 3, 2020. Additional surveys were conducted to maximize the potential for Quino detections and understanding of the on-site occurrences. Focused Quino surveys were paused between March 15 and April 22, 2020 due to the Executive Order N-33-20 of the California State Public Health Officer and Director of the California Department of Public Health canceling non-essential work statewide. Based on the lack of positive Quino observations on April 22, 2020 and given the limited number of Quino detections noted by others (Quino Biologist United 2020), surveys were discontinued.

Table 2. Schedule of 2020 Focused Quino Checkerspot Butterfly Surveys

Survey Pass	Survey Date	Biologist	Survey Time	Conditions (temperature, cloud cover, wind speed)
1	2020-02-07	Erin Bergman, Vipul Joshi	10:18 a.m.–4:03 p.m.	Air Temp: 62°F–66°F; Ground Temp: 64°F–68°F; 0% cloud cover; 0–3 mph wind; Clear
2	2020-02-14	Callie Amoaku, Erin Bergman	9:53 a.m.–3:21 p.m.	Air Temp: 61°F–67°F; Ground Temp: 64°F–69°F; 0% cloud cover; 0–2 mph wind; Clear
3	2020-02-21	Callie Amoaku, Erin Bergman	9:54 a.m.–2:18 p.m.	Air Temp: 65°F–68°F; Ground Temp: 66°F–75°F; 0–10% cloud cover; 0–3 mph wind; Clear
4	2020-02-28	Callie Amoaku, Erin Bergman	9:38 a.m.–2:24 p.m.	Air Temp: 68°F–80°F; Ground Temp: 70°F–82°F; 30–60% cloud cover; 0–3 mph wind; Clear
5	2020-03-03	Callie Amoaku, Erin Bergman	9:56 a.m.–1:55 p.m.	Air Temp: 65°F–75°F; Ground Temp: 70°F–82°F; 0–10% cloud cover; 0–2 mph wind

Table 2. Schedule of 2020 Focused Quino Checkerspot Butterfly Surveys

Survey Pass	Survey Date	Biologist	Survey Time	Conditions (temperature, cloud cover, wind speed)
6	2020-03-15	Callie Amoaku, Erin Bergman	11:01 a.m.–4:00 p.m.	Air Temp: 70°F–73°F; Ground Temp: 74°F–78.7°F; 50–90% cloud cover; 0–2 mph wind; Clear
7	2020-04-22	Erin McKinney, Patricia Schuyler	9:28 a.m.–1:50 p.m.	Air Temp: 69.4°F–79.3°F; Ground Temp: 76°F–83.5°F; 0% cloud cover; 0–2 mph wind; Clear

Notes: Callie Amoaku (TE-36118B-1); Erin Bergman (TE-53771B-2); Vipul Joshi (TE-019949-3); Patricia Schuyler (TE-27502B-1); Erin McKinney (permitted under Brock Ortega's Recovery Permit TE-813545-9).

Dudek biologists were provided with 200-scale (1 inch = 200 feet) aerial maps of the study area. Binoculars were used to aid in detecting and identifying butterfly and other wildlife species.

The survey methods consisted of slowly walking roughly parallel transects spaced approximately 30 feet (10 meters) apart throughout all suitable habitats within the 71-acre study area. Survey routes were arranged to thoroughly cover the survey area at a rate of no more than 10 acres per person-hour. All wildlife species were recorded and are included in Appendix A.

Surveys were conducted only during acceptable weather conditions (i.e., surveys were not conducted during fog, drizzle, or rain; winds greater than 15 miles per hour measured 4 to 6 feet above ground level for more than 30 seconds; temperature in the shade at ground level less than 60°F on a clear, sunny day; or temperature in the shade at ground level less than 70°F on an overcast or cloudy day). Survey times, personnel, and conditions during the Quino survey are shown in Table 2. Copies of the surveyors' field notes are included as Appendix B.

Results – Quino Protocol Survey

A total of three Quino were observed during the 2020 focused surveys by Ms. Callie Amoaku and Ms. Erin Bergman on March 3, 2020 within the study area (Figure 2, Survey Results) (Appendix C). The Quino were observed in an area with open decomposed granite soils, hilltops, ridges, numerous granitic rock outcrops, and various nectar sources. One Quino larval host plant species, dwarf plantain, was observed within the immediate area of the observation locations. One Quino observed looked to have just emerged from a chrysalis as the wing was slightly bent. Two additional Quino were observed flying from near the U.S./Mexico International border. These two Quino performed hilltopping behaviors. A gust of wind moved the two butterflies further north. These Quino were only observed during this one survey week on this one day. No other Quino were observed during the protocol surveys.

A total of 19 butterfly species were observed during the surveys. The weeks in which these butterflies were observed are shown in Table 3.

Table 3. Butterflies Observed Within the Study Area During Weeks 1–7

Scientific Name	Common Name	Week						
		1	2	3	4	5	6	7
Hesperiidae **Skippers**								
Erynnis funeralis	funereal duskywing	–	–	X	X	X	X	–
Nymphalidae **Brush Footed Butterflies**								
Euphydryas editha quino	quino checkerspot butterfly	–	–	–	–	X	–	–
Junonia coenia	common buckeye	X	–	–	–	–	–	X
Nymphalis antiopa	mourning cloak	X	–	–	–	–	–	–
Vanessa annabella	west coast lady	X	–	–	–	–	–	–
Vanessa cardui	painted lady	X	X	X	X	X	X	X
	lady sp.	X	–	X	–	X	–	–
Lycaenidae **Blues and Hairstreaks**								
Brephidium exile	western pygmy-blue	–	–	–	–	–	–	X
Callophrys dumetorum	bramble hairstreak	–	–	–	X	–	–	–
Glaucopsyche lygdamus australis	southern blue	–	X	X	X	X	X	–
Leptotes marina	marine blue	X	–	–	X	–	X	–
Strymon melinus	gray hairstreak	–	X	–	X	X	X	–
	blue sp.	X	–	–	–	–	–	–
Papilionidae **Swallowtails**								
Papilio rutulus	western tiger swallowtail	–	–	X	X	X	–	X
Papilio zelicaon	anise swallowtail	–	–	–	X	X	–	X
Pieridae **Whites and Sulfurs**								
Anthocharis sara sara	Pacific Sara orangetip	X	X	X	X	X	X	X
Pieris rapae	Cabbage white	–	–	–	–	–	–	X
Pontia protodice	checkered white	–	–	–	–	–	X	–
Riodinidae **Metalmarks**								
Apodemia mormo virgulti	Behr's metalmark	X	X	X	X	X	X	X

Results – Host Plant Mapping

One Quino larval host plant, dwarf plantain, was observed within the study area during the focused surveys (Figure 3, Host Plant Mapping). Dwarf plantain was mapped throughout the study area with Very Low, Low, Medium, and High densities (Figure 3). Table 4 includes the known and observed adult Quino nectar plants (according to Mattoni et al. 1997; USFWS 2002, 2003; 67 FR 18355–18395). Larval host plants are also included in Table 4 and are shown in bold print. All plant species that were in bloom during the 2019 and 2020 surveys were documented in the field notes.

Table 4. Quino Adult Nectar Plants and Larval Food Plants

Scientific Name	Common Name	Observed During Focused Survey
Apiaceae **Carrot Family**		
Lomatium dasycarpum ssp. *dasycarpum*	woollyfruit desertparsley	—
Lomatium utriculatum	common lomatium	—
Asteraceae **Sunflower Family**		
Achillea millefolium	common yarrow, milfoil	—
Lasthenia californica or *Lasthenia gracilis*	California goldfields or needle goldfields	—
Lasthenia coronaria	royal goldfields	—
Layia platyglossa	coastal tidytips, common tidytips	—
Boraginaceae **Borage Family**		
Amsinckia menziesii	Menzies' fiddleneck, rancher's fireweed	X
Amsinckia menziesii var. *intermedia*	rancher's fiddleneck	—
Amsinckia menziesii var. *menziesii*	rigid fiddleneck	—
Cryptantha spp. or *Plagiobothrys* spp.	cryptantha or popcorn flower	—
Phacelia distans	distant phacelia, wild-heliotrope	—
Fabaceae **Pea Family**		
Acmispon (=Lotus) spp.	deerweed, spanishclover, lotus	X
Hydrophyllaceae **Waterleaf Family**		
Eriodictyon crassifolium var. *crassifolium*	thickleaf yerba santa	—
Eriodictyon trichocalyx var. *trichocalyx*	hairy yerba santa	—
Lamiaceae **Mint Family**		
Salvia columbariae	chia	—
Plantaginaceae **Plantain Family**		
Antirrhinum coulterianum	**Coulter's snapdragon**	—
Collinsia heterophylla	**Purple Chinese houses**	—
Collinsia concolor	**Chinese houses**	—
Keckiella antirrhinoides var. *antirrhinoides*	snapdragon penstemon	—
Keckiella cordifolia	heartleaf keckiella, climbing bush penstemon	—
Plantago erecta	**dwarf plantain**	X
Plantago patagonica	**woolly plantain**	—
Polemoniaceae **Phlox Family**		
Gilia angelensis	chaparral gilia	—
Gilia capitata ssp. *abrotanifolia*	bluehead gilia	—
Linanthus spp.	ground pink	X
Polygonaceae **Buckwheat Family**		
Eriogonum fasciculatum	California buckwheat	X

Table 4. Quino Adult Nectar Plants and Larval Food Plants

Scientific Name	Common Name	Observed During Focused Survey
Orobanchaceae Broom Rape Family		
Castilleja exserta	**exserted Indian paintbrush, common owl's-clover**	—
Scrophulariaceae Figwort Family		
Cordylanthus rigidus	**stiffbranch bird's beak**	—
Liliaceae Lily Family		
Allium haematochiton	redskin onion	—
Allium peninsulare	Mexicali onion, red-flower onion	—
Allium praecox	early onion	—
Bloomeria clevelandii	San Diego goldenstar	—
Dichelostemma capitatum	bluedicks	X
Muilla maritima	sea muilla, common muilla	—

Sources: List derived from Mattoni et al. 1997; USFWS 2002, 2003; 67 FR 18355–18395 (for *Euphydryas editha*).
Note: Plants listed in **bold print** are known Quino larval host plant species.

Dudek certifies that the information in this survey report and the attached figures and appendices fully and accurately represents the work conducted by the Quino-permitted biologists who conducted this focused survey.

Please feel free to contact Erin Bergman at ebergman@dudek.com if you have any questions regarding the contents of this report.

Sincerely,

Callie Amoaku
Permit #TE-36118B-1

Erin Bergman
Permit #TE-53771B-2

Vipul Joshi
Permit #TE-019949-3

Patricia Schuyler
Permit #TE-27502B-1

Erin McKinney
Permitted under Brock Ortega's Recovery Permit #TE-813545-9

Att: *Figure 1, Project Location*
Figure 2, Survey Results
Figure 3, Host Plant Mapping
Appendix A – List of Wildlife Species Observed during the 2020 Quino Survey for the Nelson-Sloan Quarry Restoration Project
Appendix B – Field Notes Collected during the 2020 Quino Survey for the Nelson-Sloan Quarry Restoration Project
Appendix C – Notification of Observation of Quino Checkerspot Butterfly for the Nelson-Sloan Quarry Restoration Project

cc: *Callie Amoaku, Dudek*
Vipul Joshi, Dudek
Patricia Schuyler, Dudek
Erin McKinney, Dudek

References Cited

62 FR 2313–2322. Final rule: "Determination of Endangered Status for the Laguna Mountains Skipper and Quino Checkerspot Butterfly." January 16, 1997.

67 FR 18355–18395. Final rule: "Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Quino Checkerspot Butterfly (*Euphydryas editha quino*)."

Ballmer, G.R., D.C. Hawks, K.H. Osborne, and G.F. Pratt. 2001. "The Quino Checkerspot Butterfly (*Euphydryas editha quino*)." Year 2000 Quino Workshop.

Dudek. 2020. Notification of Observation of Quino Checkerspot Butterfly on BLM Land off Main road (Otay Mountain Truck Trail) County of San Diego, California. Prepared for U.S. Fish and Wildlife Service. February 4, 2020.

Garth, J.S., and J.W. Tilden. 1986. *California Butterflies.* Berkeley, California: University of California Press.

Mattoni, R., G.F. Pratt, T.R. Longcore, J.F. Emmel, and J.N. George. 1997. "The Endangered Quino Checkerspot Butterfly, *Euphydryas editha quino* (Lepidoptera: Nymphalidae)." *Journal of Research on the Lepidoptera* 34:99–118.

Murphy, D.D., and R.R. White. 1984. "Rainfall, Resources, and Dispersal in Southern Populations of *Euphydryas editha* (Lepidoptera: Nymphalidae)." *Pan-Pacific Entomologist* 60:350–354.

Osborne, K.H. 1998. "Chapter 4: Microhabitat Conditions Associated with the Distribution of Post-Diapause Larvae of *Euphydryas editha quino* and Its Host, *Plantago erecta*." In "A Description of Arthropod Community Structure in Southern Californian Coastal Sage Scrub." Master's thesis; University of California, Riverside.

Pratt, G.F., and C.L. Pierce. 2009. "A New Larval Food Plant, *Collinsia concolor*, for the Endangered Quino Checkerspot, *Euphydryas editha quino*." *Journal of the Lepidopterists' Society* 64(1):36–37. https://doi.org/10.18473/lepi.v64i1.a6.

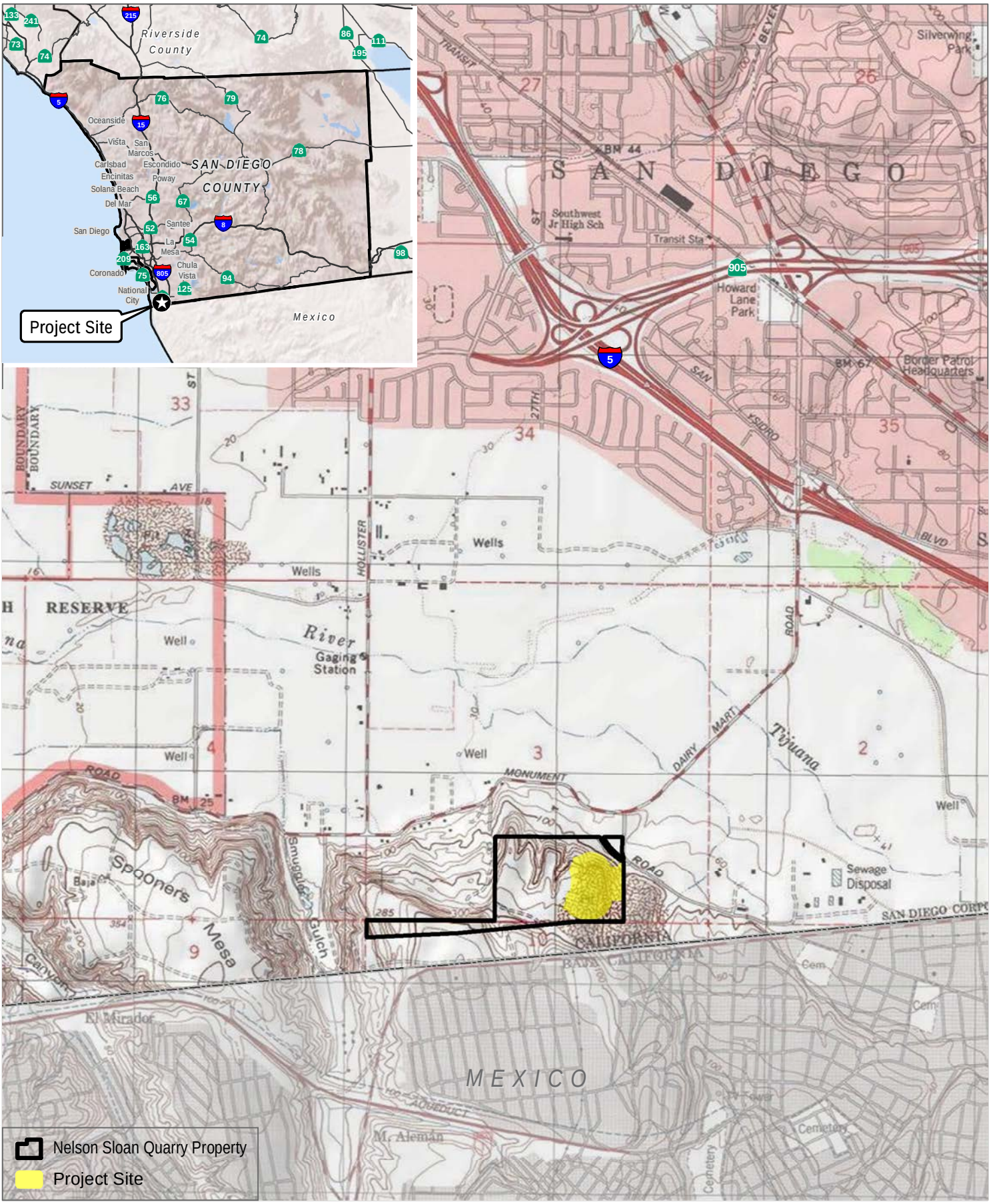
Quino Biologist United. 2020. Communication per Korey Klutz. April 3, 2020. Via LinkedIn

USDA (U.S. Department of Agriculture). 2019. Web Soil Survey [web application]. USDA, Natural Resources Conservation Service. http://websoilsurvey.nrcs.usda.gov/app/.

USFWS (U.S. Fish and Wildlife Service). 2002. *Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey Protocol Information*. USFWS, Carlsbad Field Office. Carlsbad, California: USFWS. February 2002.

USFWS. 2003. *Recovery Plan for the Quino Checkerspot Butterfly (*Euphydryas editha quino*)*. Portland, Oregon: USFWS. August 2003.

USFWS. 2014. *Quino Checkerspot Butterfly Survey Guidelines.* USFWS, Carlsbad Field Office. Carlsbad, California: USFWS. December 15, 2014.



SOURCE: USGS 7.5-Minute Series Imperial Beach Quadrangle

FIGURE 1

Project Location

2020 focused Quino Checkerspot Butterfly Survey Report fo the Nelson-Sloan Quarry Restoration Project, San Diego County, California

DUDEK

0 1,000 2,000 Feet

SOURCE: SANGIS 2017

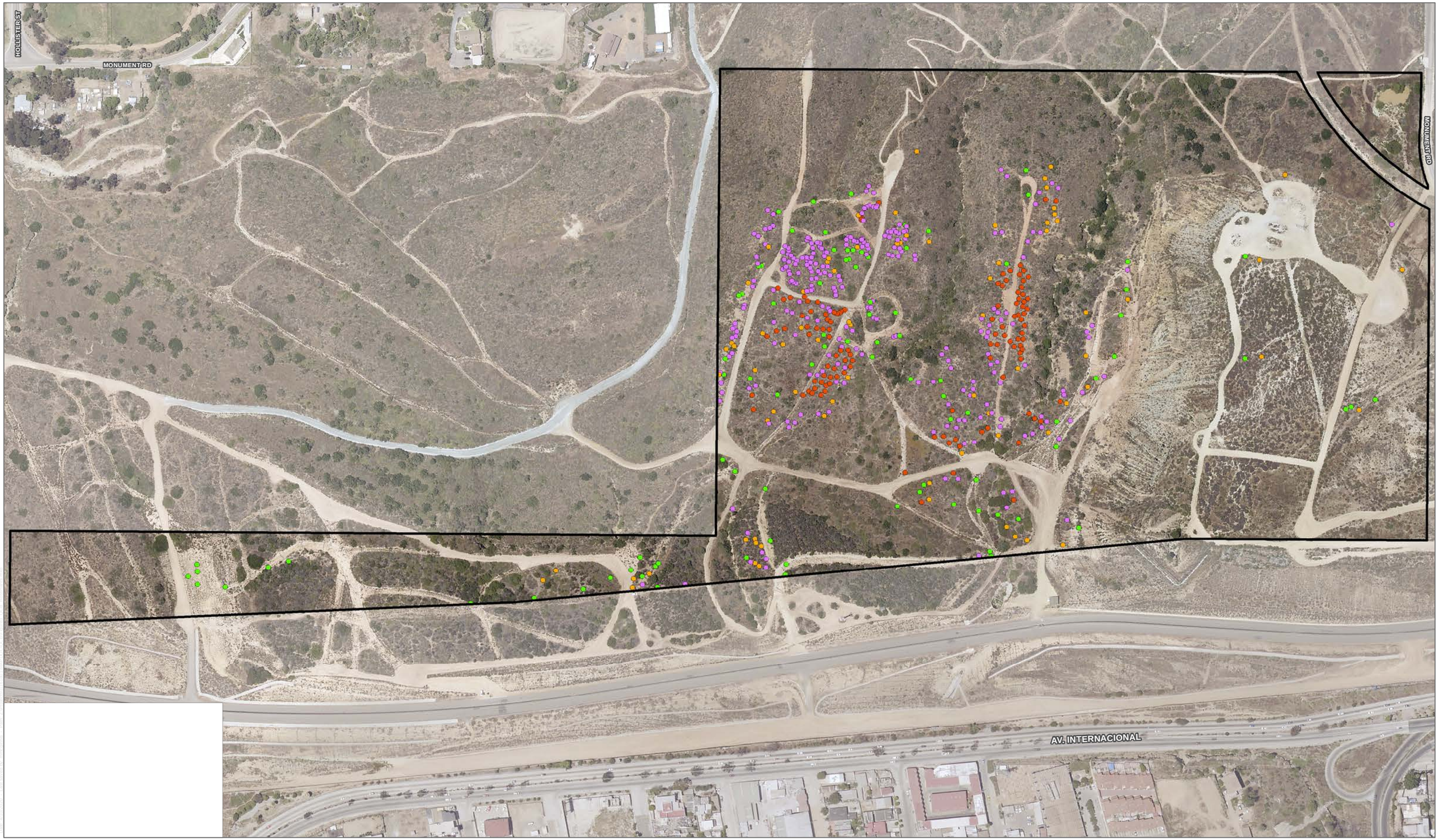
DUDEK

0 120 240 Feet

FIGURE 2

Survey Results

2020 focused Quino Checkerspot Butterfly Survey Report fo the Nelson-Sloan Quarry Restoration Project, San Diego County, California



SOURCE: SANGIS 2017

DUDEK

0 120 240 Feet

FIGURE 3

Host Plant Mapping

2020 focused Quino Checkerspot Butterfly Survey Report fo the Nelson-Sloan Quarry Restoration Project, San Diego County, California

Appendix A

List of Wildlife Species Observed during the 2020 Quino Survey for the Nelson-Sloan Quarry Restoration Project

BIRD

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

FALCONS

FALCONIDAE—CARACARAS AND FALCONS

Falco sparverius—American kestrel

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Sayornis saya—Say's phoebe

Tyrannus vociferans—Cassin's kingbird

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Buteo jamaicensis—red-tailed hawk

Circus hudsonius—northern harrier

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

Toxostoma redivivum—California thrasher

NEW WORLD VULTURES

CATHARTIDAE—NEW WORLD VULTURES

Cathartes aura—turkey vulture

NEW WORLD SPARROWS

PASSERELLIDAE—NEW WORLD SPARROWS

Melozone crissalis—California towhee
Zonotrichia leucophrys—white-crowned sparrow

TYPICAL WARBLERS, PARROTBILLS, WRENTIT

SYLVIIDAE—SYLVIID WARBLERS

Chamaea fasciata—wrentit

INVERTEBRATE

BUTTERFLIES

LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS

Brephidium exile—western pygmy-blue
Callophrys dumetorum—bramble hairstreak
Glaucopsyche lygdamus australis—southern blue
Leptotes marina—marine blue
Strymon melinus—gray hairstreak
—Blue sp.

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Euphydryas editha quino—quino checkerspot butterfly
Junonia coenia—common buckeye
Nymphalis antiopa—mourning cloak
Vanessa annabella—west coast lady
Vanessa cardui—painted lady
—Lady sp.

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark

HESPERIIDAE—SKIPPERS

Erynnis funeralis—funereal duskywing

PAPILIONIDAE—SWALLOWTAILS

Papilio rutulus—western tiger swallowtail
Papilio zelicaon—anise swallowtail

PIERIDAE—WHITES AND SULFURS

Anthocharis sara sara—Pacific sara orangetip
Pieris rapae—cabbage white
Pontia protodice—checkered white

MAMMAL

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Lepus californicus bennettii—San Diego black-tailed jackrabbit
Sylvilagus audubonii—desert cottontail

REPTILE

LIZARDS

ANGUIDAE—ALLIGATOR LIZARDS

Elgaria multicarinata—southern alligator lizard

SCINCIDAE—SKINKS

Plestiodon skiltonianus—western skink

Appendix B

Field Notes Collected During the 2020 Quino Survey for the Nelson-Sloan Quarry Restoration Project

FORMS FIELD DATA REPORT

Bio Field Data

Record: 11018	
Date	*2020-02-07*
Biologist	*Erin Bergman, Vipul Joshi*
Project	*Nelson Sloan*
Region	*San Diego*
Survey Area	*Entire Site*
Survey Type	*Quino Checkerspot Butterfly*
Time	*10:18 AM–4:03 PM*
Conditions	*Air Temp: 62–66°F; Ground Temp: 64–68°F; 0% cloud cover; 0–3 mph wind; Clear*
Wildlife Species Count Summary	*Pacific sara orangetip 42, painted lady 4, mourning cloak 1, Behr's metalmark 3, marine blue 4, west coast lady 2, Lady species 5, Blue species 3*
Notes	*First pass (1)* *Vipul's notes —-I added to the data already collected* *Nelson-Sloan 7Feb02 VRJ* *0945-1145* *Weather, nectar recorded by EB* *Sara's Orange-tip - 12* *West Coast lady - 1* *Blue sp. - 1* *Sent from my mobile.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*10:18:00*
TEMPERATURE	*°F*
Air Temp	*62*
Air Temp	*62*
Ground Temp	*64*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Sky	*Clear*

FORMS FIELD DATA REPORT

Survey Conditions	
Status	*End*
Time	*16:03:00*
TEMPERATURE	*°F*
Air Temp	*66*
Air Temp	*66*
Ground Temp	*68*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Sky	*Clear*

Quino	
Survey Pass	*1*
Other Nectar Plants	
Nectar Plants	
Nectar Plants	
Host/Nectar Plants	
Plant Communities and Habitat Information	*N/A*
Notes	*Vipul and Erin*

Wildlife List	
Species Name	*California thrasher (Toxostoma redivivum), B-CATH*
Observation ID (Copy and paste into Collector)	*02071003EB-01-01*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Pacific sara orangetip (Anthocharis sara sara), I-PSOR*
Observation ID (Copy and paste into Collector)	*02071010EB-02-02*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*painted lady (Vanessa cardui), I-PALA*
Observation ID (Copy and paste into Collector)	*02071021EB-03-03*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*white-crowned sparrow (Zonotrichia leucophrys), B-WCSP*
Observation ID (Copy and paste into Collector)	*02071023EB-04-04*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*mourning cloak (Nymphalis antiopa), I-MOCL*
Observation ID (Copy and paste into Collector)	*02071029EB-05-05*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*California towhee (Melozone crissalis), B-CALT*
Observation ID (Copy and paste into Collector)	*02071035EB-06-06*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*turkey vulture (Cathartes aura), B-TUVU*
Observation ID (Copy and paste into Collector)	*02071038EB-07-07*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Cassin's kingbird (Tyrannus vociferans), B-CAKI*
Observation ID (Copy and paste into Collector)	*02071102EB-08-08*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Anna's hummingbird (Calypte anna), B-ANHU*
Observation ID (Copy and paste into Collector)	*02071104EB-10-10*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*bushtit (Psaltriparus minimus), B-BUSH*
Observation ID (Copy and paste into Collector)	*02071110EB-11-11*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*San Diego black-tailed jackrabbit (Lepus californicus bennettii), M-SDJR*
Observation ID (Copy and paste into Collector)	*02071111EB-12-12*
Record Lat/Long	*Latitude:32.541586, Longitude:-117.074230, Altitude:71.314423, Speed:0.001749, Horizontal Accuracy:6.000906, Vertical Accuracy:3.000000, Time:02/07/2020 11:11:59 PST*
Federal and State Status	*None/ SSC*

Wildlife List	
Species Name	*red-tailed hawk (Buteo jamaicensis), B-RTHA*
Observation ID (Copy and paste into Collector)	*02071123EB-13-13*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Behr's metalmark (Apodemia mormo virgulti), I-BEME*
Observation ID (Copy and paste into Collector)	*02071123EB-14-14*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*desert cottontail (Sylvilagus audubonii), M-DECO*
Observation ID (Copy and paste into Collector)	*02071124EB-15-15*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*marine blue (Leptotes marina), I-MABL*
Observation ID (Copy and paste into Collector)	*02071125EB-16-16*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*common buckeye (Junonia coenia), I-COBU*
Observation ID (Copy and paste into Collector)	*02071205EB-17-17*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*west coast lady (Vanessa annabella), I-WCLA*
Observation ID (Copy and paste into Collector)	*02071510EB-18-18*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Lady species (), B-*
Observation ID (Copy and paste into Collector)	*02071510EB-19-19*
Record Lat/Long	

Wildlife List	
Species Name	*Blue species (), B-*
Observation ID (Copy and paste into Collector)	*02071512EB-20-20*
Record Lat/Long	

Wildlife List	
Species Name	*California towhee (Melozone crissalis), B-CALT*
Observation ID (Copy and paste into Collector)	*02071556EB-21-21*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*02071557EB-23-23*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Say's phoebe (Sayornis saya), B-SAPH*
Observation ID (Copy and paste into Collector)	*02071103EB-09-09*
Record Lat/Long	
Federal and State Status	*None/ None*

Plant List	
Species code	*Hirinc*
San Diego Species List	*Hirschfeldia incana (shortpod mustard), Hirinc*
Scientific Name	*Hirschfeldia incana*
Observation ID (Copy and paste into Collector)	*02070957EB-01-01*
Common Name	*shortpod mustard*
Synonyms	*syn: Brassica geniculata (Desf.) Benth.*

Plant List	
Species code	*Enccal*
San Diego Species List	*Encelia californica (California brittle bush), Enccal*
Scientific Name	*Encelia californica*
Observation ID (Copy and paste into Collector)	*02070958EB-02-02*
Common Name	*California brittle bush*

Plant List	
Species code	*Amsmen*
San Diego Species List	*Amsinckia menziesii (Menzies' fiddleneck), Amsmen*
Scientific Name	*Amsinckia menziesii*
Observation ID (Copy and paste into Collector)	*02070958EB-03-03*
Common Name	*Menzies' fiddleneck*
Synonyms	*syn: Amsinckia micrantha Suksd.; syn: Amsinckia menziesii var. menziesii*

Plant List	
Species code	*Solpar*
San Diego Species List	
Scientific Name	*Solanum parishii*
Observation ID (Copy and paste into Collector)	*02070959EB-04-04*
Common Name	*Parish's nightshade*

Plant List	
Species code	*Stemed*
San Diego Species List	*Stellaria media (common chickweed), Stemed*
Scientific Name	*Stellaria media*
Observation ID (Copy and paste into Collector)	*02071000EB-05-05*
Common Name	*common chickweed*

Plant List	
Species code	*Bacsal*
San Diego Species List	*Baccharis salicifolia (mulefat), Bacsal*
Scientific Name	*Baccharis salicifolia*
Observation ID (Copy and paste into Collector)	*02071001EB-06-06*
Common Name	*mulefat*

Plant List	
Species code	*Urtdio*
San Diego Species List	*Urtica dioica (stinging nettle), Urtdio*
Scientific Name	*Urtica dioica*
Observation ID (Copy and paste into Collector)	*02071001EB-07-07*
Common Name	*stinging nettle*

Plant List	
Species code	*Soldou*
San Diego Species List	*Solanum douglasii (greenspot nightshade), Soldou*
Scientific Name	*Solanum douglasii*
Observation ID (Copy and paste into Collector)	*02071002EB-08-08*
Common Name	*greenspot nightshade*

Plant List	
Species code	*Perarb*
Scientific Name	*Peritoma arborea*
Observation ID (Copy and paste into Collector)	*02071003EB-09-09*
Common Name	*bladderpod spiderflower*
Synonyms	*syn: Isomeris arborea Nutt.*

Plant List	
Species code	*Acmglagla*
San Diego Species List	
Scientific Name	*Acmispon glaber var. glaber*
Observation ID (Copy and paste into Collector)	*02071004EB-10-10*
Common Name	*common deerweed*
Synonyms	*syn: Lotus scoparius var. scoparius*

Plant List	
Species code	*Cnedum*
San Diego Species List	*Cneoridium dumosum (bush rue), Cnedum*
Scientific Name	*Cneoridium dumosum*
Observation ID (Copy and paste into Collector)	*02071008EB-11-11*
Common Name	*bush rue*

Plant List	
Species code	*Rhuint*
Scientific Name	*Rhus integrifolia*
Observation ID (Copy and paste into Collector)	*02071023EB-12-12*
Common Name	*lemonade berry*

Plant List	
Species code	*Psecal*
San Diego Species List	*Pseudognaphalium californicum (ladies' tobacco), Psecal*
Scientific Name	*Pseudognaphalium californicum*
Observation ID (Copy and paste into Collector)	*02071023EB-13-13*
Common Name	*ladies' tobacco*
Synonyms	*syn: Gnaphalium californicum DC.*

Plant List	
Species code	*Marmac*
San Diego Species List	*Marah macrocarpa (Cucamonga manroot), Marmac*
Scientific Name	*Marah macrocarpa*
Observation ID (Copy and paste into Collector)	*02071024EB-14-14*
Common Name	*Cucamonga manroot*
Synonyms	*syn: Marah macrocarpus var. major (Dunn) Stocking, orth. var.; syn: Marah macrocarpus, orth. var.; syn: Marah guadalupensis (S. Watson) Greene; syn: Marah macrocarpus var. macrocarpus, orth. var.; syn: Marah macrocarpa var. micrantha (Dunn) Stocking*

Plant List	
Species code	*Senvul*
San Diego Species List	
Scientific Name	*Senecio vulgaris*
Observation ID (Copy and paste into Collector)	*02071027EB-15-15*
Common Name	*old-man-in-the-Spring*

Plant List	
Species code	*Bahlac*
San Diego Species List	
Scientific Name	*Bahiopsis laciniata*
Observation ID (Copy and paste into Collector)	*02071125EB-16-16*
Common Name	*San Diego Viguiera*

Plant List	
Species code	*Atrcan*
San Diego Species List	*Atriplex canescens (fourwing saltbush), Atrcan*
Scientific Name	*Atriplex canescens*
Observation ID (Copy and paste into Collector)	*02071125EB-17-17*
Common Name	*fourwing saltbush*
Synonyms	*syn: Calligonum canescens Pursh; syn: Atriplex nuttallii S. Watson*

Plant List	
Species code	*Ceaver*
San Diego Species List	
Scientific Name	*Ceanothus verrucosus*
Observation ID (Copy and paste into Collector)	*02071126EB-18-18*
Common Name	*wart-stemmed ceanothus*

Plant List	
Species code	*Cracon*
Scientific Name	*Crassula connata*
Observation ID (Copy and paste into Collector)	*02071126EB-19-19*
Common Name	*sand pygmyweed*
Synonyms	*syn: Crassula connata var. connata; syn: Crassula connata var. erectoides M. Bywater & Wickens; syn: Crassula connata var. eremica (Jeps.) M. Bywater & Wickens; syn: Crassula connata var. subsimplex (S. Watson) M. Bywater & Wickens*

Plant List	
Species code	*Bratou*
San Diego Species List	
Scientific Name	*Brassica tournefortii*
Observation ID (Copy and paste into Collector)	*02071224EB-20-20*
Common Name	*Asian mustard*

Plant List	
Species code	*Ornopp*
San Diego Species List	
Scientific Name	*Ornithostaphylos oppositifolia*
Observation ID (Copy and paste into Collector)	*02071602EB-21-21*
Common Name	*Baja California birdbush*

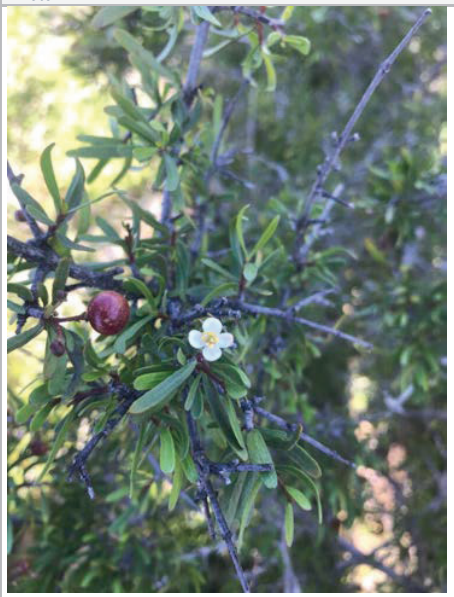
Photos	
Type	*Photo*
Photo	
Description	*Wart stemmed ceanothus in bloom*

Photos	
Type	*Photo*

Photo	
Description	*San Diego sunflower in bloom*

Photos	
Type	*Photo*
Photo	
Description	*Baja birdbush in bloom*

Photos

Type	*Photo*
Photo	
Description	*Spicebush In bloom*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 11072	
Date	*2020-02-14*
Biologist	*Callie Amoaku, Erin Bergman*
Project	*Nelson Sloan*
Region	*San Diego*
Survey Area	*Entire Site*
Survey Type	*Quino Checkerspot Butterfly*
Time	*9:53 AM–3:21 PM*
Conditions	*Air Temp: 61–67°F; Ground Temp: 64–69°F; 0% cloud cover; 0–2 mph wind; Clear*
Wildlife Species Count Summary	*Pacific sara orangetip 24, painted lady 2, southern blue 7, gray hairstreak 2, Behr's metalmark 2*
Notes	*Quino pass 2*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:53:00*
TEMPERATURE	*°F*
Air Temp	*61*
Air Temp	*61*
Ground Temp	*64*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Sky	*Clear*

Survey Conditions	
Status	*End*
Time	*15:21:00*
TEMPERATURE	*°F*
Air Temp	*67*
Air Temp	*67*
Ground Temp	*69*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Sky	*Clear*

Quino	
Survey Pass	*2*
Other Nectar Plants	
Nectar Plants	
Nectar Plants	
Host/Nectar Plants	
Plant Communities and Habitat Information	*N/A*

Wildlife List	
Species Name	*red-tailed hawk (Buteo jamaicensis), B-RTHA*
Observation ID (Copy and paste into Collector)	*02141008EB-01-01*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*wrentit (Chamaea fasciata), B-WREN*
Observation ID (Copy and paste into Collector)	*02141008EB-02-02*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*California towhee (Melozone crissalis), B-CALT*
Observation ID (Copy and paste into Collector)	*02141022EB-03-03*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Anna's hummingbird (Calypte anna), B-ANHU*
Observation ID (Copy and paste into Collector)	*02141022EB-04-04*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Pacific sara orangetip (Anthocharis sara sara), I-PSOR*
Observation ID (Copy and paste into Collector)	*02141032EB-05-05*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*painted lady (Vanessa cardui), I-PALA*
Observation ID (Copy and paste into Collector)	*02141118EB-06-06*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*southern alligator lizard (Elgaria multicarinata), R-SALI*
Observation ID (Copy and paste into Collector)	*02141222EB-07-07*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*southern blue (Glaucopsyche lygdamus australis), I-SOUB*
Observation ID (Copy and paste into Collector)	*02141225EB-08-08*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*gray hairstreak (Strymon melinus), I-GRHA*
Observation ID (Copy and paste into Collector)	*02141253EB-09-09*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*bushtit (Psaltriparus minimus), B-BUSH*
Observation ID (Copy and paste into Collector)	*02141329EB-10-10*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*northern harrier (Circus hudsonius), B-NOHA*
Observation ID (Copy and paste into Collector)	*02141329EB-11-11*
Record Lat/Long	*Latitude:32.540071, Longitude:-117.081938, Altitude:116.297680, Speed:0.060373, Horizontal Accuracy:6.000906, Vertical Accuracy:3.000000, Time:02/14/2020 13:29:20 PST*
Federal and State Status	*None/ SSC*

Wildlife List	
Species Name	*Say's phoebe (Sayornis saya), B-SAPH*
Observation ID (Copy and paste into Collector)	*02141330EB-12-12*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Behr's metalmark (Apodemia mormo virgulti), I-BEME*
Observation ID (Copy and paste into Collector)	*02141523EB-13-13*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*American kestrel (Falco sparverius), B-AMKE*
Observation ID (Copy and paste into Collector)	*02141524EB-14-14*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*desert cottontail (Sylvilagus audubonii), M-DECO*
Observation ID (Copy and paste into Collector)	*02141524EB-15-15*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*San Diego black-tailed jackrabbit (Lepus californicus bennettii), M-SDJR*
Observation ID (Copy and paste into Collector)	*02141525EB-16-16*
Record Lat/Long	
Federal and State Status	*None/ SSC*

Plant List	
Species code	*Bratou*
San Diego Species List	
Scientific Name	*Brassica tournefortii*
Observation ID (Copy and paste into Collector)	*02141006EB-01-01*
Common Name	*Asian mustard*

Plant List	
Species code	*Marmac*
San Diego Species List	*Marah macrocarpa (Cucamonga manroot), Marmac*
Scientific Name	*Marah macrocarpa*
Observation ID (Copy and paste into Collector)	*02141006EB-02-02*
Common Name	*Cucamonga manroot*
Synonyms	*syn: Marah macrocarpus var. major (Dunn) Stocking, orth. var.; syn: Marah macrocarpus, orth. var.; syn: Marah guadalupensis (S. Watson) Greene; syn: Marah macrocarpus var. macrocarpus, orth. var.; syn: Marah macrocarpa var. micrantha (Dunn) Stocking*

Plant List	
Species code	*Perarb*
San Diego Species List	
Scientific Name	*Peritoma arborea*
Observation ID (Copy and paste into Collector)	*02141007EB-03-03*
Common Name	*bladderpod spiderflower*
Synonyms	*syn: Isomeris arborea Nutt.*

Plant List	
Species code	*Acmglagla*
San Diego Species List	
Scientific Name	*Acmispon glaber var. glaber*
Observation ID (Copy and paste into Collector)	*02141009EB-04-04*
Common Name	*common deerweed*
Synonyms	*syn: Lotus scoparius var. scoparius*

Plant List	
Species code	*Solpar*
San Diego Species List	
Scientific Name	*Solanum parishii*
Observation ID (Copy and paste into Collector)	*02141010EB-05-05*
Common Name	*Parish's nightshade*

Plant List	
Species code	*Erifasfas*
San Diego Species List	
Scientific Name	*Eriogonum fasciculatum var. fasciculatum*
Observation ID (Copy and paste into Collector)	*02141011EB-06-06*
Common Name	*Eastern Mojave buckwheat*

Plant List	
Species code	*Lindia*
San Diego Species List	*Linanthus dianthiflorus (fringed linanthus), Lindia*
Scientific Name	*Linanthus dianthiflorus*
Observation ID (Copy and paste into Collector)	*02141014EB-07-07*
Common Name	*fringed linanthus*

Plant List	
Species code	*Cnedum*
San Diego Species List	*Cneoridium dumosum (bush rue), Cnedum*
Scientific Name	*Cneoridium dumosum*
Observation ID (Copy and paste into Collector)	*02141016EB-08-08*
Common Name	*bush rue*

Plant List	
Species code	*Mirlae*
San Diego Species List	
Scientific Name	*Mirabilis laevis*
Observation ID (Copy and paste into Collector)	*02141016EB-09-09*
Common Name	*desert wishbone-bush*
Synonyms	*syn: Oxybaphus laevis Benth.*

Plant List	
Species code	*Hirinc*
San Diego Species List	*Hirschfeldia incana (shortpod mustard), Hirinc*
Scientific Name	*Hirschfeldia incana*
Observation ID (Copy and paste into Collector)	*02141016EB-10-10*
Common Name	*shortpod mustard*
Synonyms	*syn: Brassica geniculata (Desf.) Benth.*

Plant List	
Species code	*Hypgla*
San Diego Species List	
Scientific Name	*Hypochaeris glabra*
Observation ID (Copy and paste into Collector)	*02141019EB-11-11*
Common Name	*smooth cat's ear*

Plant List	
Species code	*Marvul*
San Diego Species List	*Marrubium vulgare (horehound), Marvul*
Scientific Name	*Marrubium vulgare*
Observation ID (Copy and paste into Collector)	*02141026EB-12-12*
Common Name	*horehound*

Plant List	
Species code	*Stemed*
San Diego Species List	*Stellaria media (common chickweed), Stemed*
Scientific Name	*Stellaria media*
Observation ID (Copy and paste into Collector)	*02141026EB-13-13*
Common Name	*common chickweed*

Plant List	
Species code	*Ericoncon*
San Diego Species List	
Scientific Name	*Eriophyllum confertiflorum var. confertiflorum*
Observation ID (Copy and paste into Collector)	*02141100EB-14-14*
Common Name	*golden-yarrow*
Synonyms	*syn: Eriophyllum confertiflorum var. latum H.M. Hall*

Plant List	
Species code	*Lindia*
Scientific Name	*Linanthus dianthiflorus*
Observation ID (Copy and paste into Collector)	*02141146EB-15-15*
Common Name	*fringed linanthus*

Plant List	
Species code	*Enccal*
San Diego Species List	*Encelia californica (California brittle bush), Enccal*
Scientific Name	*Encelia californica*
Observation ID (Copy and paste into Collector)	*02141146EB-16-16*
Common Name	*California brittle bush*

Plant List	
Species code	*Diccapcap*
San Diego Species List	
Scientific Name	*Dichelostemma capitatum ssp. capitatum*
Observation ID (Copy and paste into Collector)	*02141146EB-17-17*
Common Name	*bluedicks*

Plant List	
Species code	*Senvul*
San Diego Species List	
Scientific Name	*Senecio vulgaris*
Observation ID (Copy and paste into Collector)	*02141249EB-18-18*
Common Name	*old-man-in-the-Spring*

Plant List	
Species code	*Cracon*
San Diego Species List	*Crassula connata (sand pygmyweed), Cracon*
Scientific Name	*Crassula connata*
Observation ID (Copy and paste into Collector)	*02141331EB-19-19*
Common Name	*sand pygmyweed*
Synonyms	*syn: Crassula connata var. connata; syn: Crassula connata var. erectoides M. Bywater & Wickens; syn: Crassula connata var. eremica (Jeps.) M. Bywater & Wickens; syn: Crassula connata var. subsimplex (S. Watson) M. Bywater & Wickens*

Plant List	
Species code	*Amsmen*
San Diego Species List	*Amsinckia menziesii (Menzies' fiddleneck), Amsmen*
Scientific Name	*Amsinckia menziesii*
Observation ID (Copy and paste into Collector)	*02141352EB-20-20*
Common Name	*Menzies' fiddleneck*
Synonyms	*syn: Amsinckia micrantha Suksd.; syn: Amsinckia menziesii var. menziesii*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 11078	
Date	*2020-02-21*
Biologist	*Callie Amoaku, Erin Bergman*
Project	*Nelson Sloan*
Region	*San Diego*
Survey Area	*Entire Site*
Survey Type	*Quino Checkerspot Butterfly*
Time	*9:54 AM–2:18 PM*
Conditions	*Air Temp: 65–68°F; Ground Temp: 66–75°F; 0–10% cloud cover; 0–3 mph wind; Clear*
Wildlife Species Count Summary	*Pacific sara orangetip 73, painted lady 20, Lady species 8, western tiger swallowtail 4, funereal duskywing 6, southern blue 74, Behr's metalmark 1*
Notes	*Pass 3*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:54:00*
TEMPERATURE	*°F*
Air Temp	*65*
Air Temp	*65*
Ground Temp	*66*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Sky	*Clear*

Survey Conditions	
Status	*End*
Time	*14:18:00*
TEMPERATURE	*°F*
Air Temp	*68*
Air Temp	*68*
Ground Temp	*75*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Sky	*Clear*

Quino	
Survey Pass	*3*
Other Nectar Plants	
Nectar Plants	
Nectar Plants	
Host/Nectar Plants	
Plant Communities and Habitat Information	*N/A*

Wildlife List	
Species Name	*Pacific sara orangetip (Anthocharis sara sara), I-PSOR*
Observation ID (Copy and paste into Collector)	*02211044EB-01-01*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*painted lady (Vanessa cardui), I-PALA*
Observation ID (Copy and paste into Collector)	*02211056EB-03-03*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Lady species (), B-*
Observation ID (Copy and paste into Collector)	*02211056EB-04-04*
Record Lat/Long	

Wildlife List	
Species Name	*western tiger swallowtail (Papilio rutulus), I-WTSW*
Observation ID (Copy and paste into Collector)	*02211100EB-05-05*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*funereal duskywing (Erynnis funeralis), I-FUDU*
Observation ID (Copy and paste into Collector)	*02211114EB-06-06*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*southern blue (Glaucopsyche lygdamus australis), I-SOUB*
Observation ID (Copy and paste into Collector)	*02211115EB-06-06*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Behr's metalmark (Apodemia mormo virgulti), I-BEME*
Observation ID (Copy and paste into Collector)	*02211315EB-07-07*
Record Lat/Long	
Federal and State Status	*None/ None*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 11081	
Date	*2020-02-28*
Biologist	*Callie Amoaku, Erin Bergman*
Project	*Nelson Sloan*
Region	*San Diego*
Survey Area	*Entire Site*
Survey Type	*Quino Checkerspot Butterfly*
Time	*9:38 AM–2:24 PM*
Conditions	*Air Temp: 68–80°F; Ground Temp: 70–82°F; 30–60% cloud cover; 0–3 mph wind; Clear*
Wildlife Species Count Summary	*southern blue 84, Pacific sara orangetip 51, Behr's metalmark 15, funereal duskywing 34, painted lady 9, western tiger swallowtail 4, marine blue 1, anise swallowtail 1, bramble hairstreak 1, gray hairstreak 2*
Notes	*Pass 4*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:38:00*
TEMPERATURE	*°F*
Air Temp	*68*
Air Temp	*68*
Ground Temp	*70*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*30*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Sky	*Clear*

Survey Conditions	
Status	*End*
Time	*14:24:00*
TEMPERATURE	*°F*
Air Temp	*80*
Air Temp	*80*
Ground Temp	*82*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*60*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Sky	*Clear*

Quino	
Survey Pass	*4*
Other Nectar Plants	
Nectar Plants	
Nectar Plants	
Host/Nectar Plants	
Plant Communities and Habitat Information	*N/A*

Wildlife List	
Species Name	*southern blue (Glaucopsyche lygdamus australis), I-SOUB*
Observation ID (Copy and paste into Collector)	*02281002EB-01-01*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Pacific sara orangetip (Anthocharis sara sara), I-PSOR*
Observation ID (Copy and paste into Collector)	*02281002EB-02-02*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Behr's metalmark (Apodemia mormo virgulti), I-BEME*
Observation ID (Copy and paste into Collector)	*02281004EB-03-03*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*funereal duskywing (Erynnis funeralis), I-FUDU*
Observation ID (Copy and paste into Collector)	*02281007EB-04-04*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*painted lady (Vanessa cardui), I-PALA*
Observation ID (Copy and paste into Collector)	*02281007EB-05-05*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*western tiger swallowtail (Papilio rutulus), I-WTSW*
Observation ID (Copy and paste into Collector)	*02281054EB-06-06*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*western skink (Plestiodon skiltonianus), R-WESK*
Observation ID (Copy and paste into Collector)	*02281120EB-07-07*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*marine blue (Leptotes marina), I-MABL*
Observation ID (Copy and paste into Collector)	*02281138EB-08-08*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*anise swallowtail (Papilio zelicaon), I-ANSW*
Observation ID (Copy and paste into Collector)	*02281236EB-09-09*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*bramble hairstreak (Callophrys dumetorum), I-BRHA*
Observation ID (Copy and paste into Collector)	*02281314EB-10-10*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*gray hairstreak (Strymon melinus), I-GRHA*
Observation ID (Copy and paste into Collector)	*02281331EB-11-11*
Record Lat/Long	
Federal and State Status	*None/ None*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 11188	
Date	*2020-03-03*
Biologist	*Callie Amoaku, Erin Bergman*
Project	*Nelson Sloan*
Region	*San Diego*
Survey Area	*Entire Site*
Survey Type	*Quino Checkerspot Butterfly*
Time	*9:56 AM–1:55 PM*
Conditions	*Air Temp: 65–75°F; Ground Temp: 0–82°F; 0–10% cloud cover; 0–2 mph wind*
Wildlife Species Count Summary	*Pacific sara orangetip 48, southern blue 94, Behr's metalmark 7, gray hairstreak 5, painted lady 5, Lady species 14, western tiger swallowtail 2, funereal duskywing 6, anise swallowtail 3, quino checkerspot butterfly 3*
Notes	*Pass 5*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:56:00*
TEMPERATURE	*°F*
Air Temp	*65*
Air Temp	*65*
Ground Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

Survey Conditions	
Status	*End*
Time	*13:55:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Ground Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

Quino	
Survey Pass	*5*
Other Nectar Plants	
Nectar Plants	
Nectar Plants	
Host/Nectar Plants	
Plant Communities and Habitat Information	*N/A*

Wildlife List	
Species Name	*Pacific sara orangetip (Anthocharis sara sara), I-PSOR*
Observation ID (Copy and paste into Collector)	*03031008EB-01-01*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*bushtit (Psaltriparus minimus), B-BUSH*
Observation ID (Copy and paste into Collector)	*03031009EB-02-02*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*southern blue (Glaucopsyche lygdamus australis), I-SOUB*
Observation ID (Copy and paste into Collector)	*03031009EB-03-03*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Behr's metalmark (Apodemia mormo virgulti), I-BEME*
Observation ID (Copy and paste into Collector)	*03031020EB-04-04*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*gray hairstreak (Strymon melinus), I-GRHA*
Observation ID (Copy and paste into Collector)	*03031021EB-05-05*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*painted lady (Vanessa cardui), I-PALA*
Observation ID (Copy and paste into Collector)	*03031021EB-06-06*
Record Lat/Long	
Federal and State Status	*None/ None*

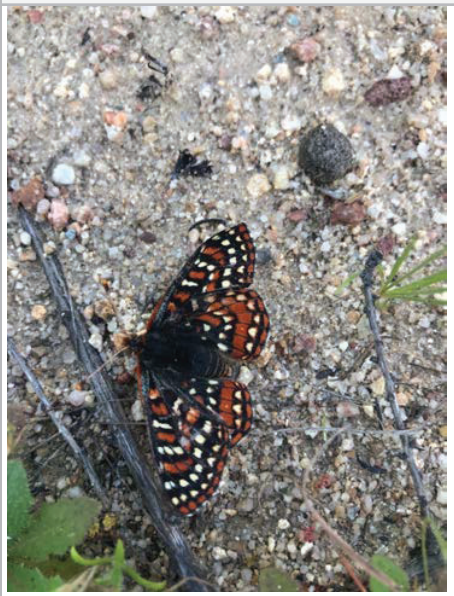
Wildlife List	
Species Name	*Lady species (), B-*
Observation ID (Copy and paste into Collector)	*03031023EB-07-07*
Record Lat/Long	

Wildlife List	
Species Name	*western tiger swallowtail (Papilio rutulus), I-WTSW*
Observation ID (Copy and paste into Collector)	*03031040EB-08-08*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*funereal duskywing (Erynnis funeralis), I-FUDU*
Observation ID (Copy and paste into Collector)	*03031056EB-09-09*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*anise swallowtail (Papilio zelicaon), I-ANSW*
Observation ID (Copy and paste into Collector)	*03031058EB-10-10*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*quino checkerspot butterfly (Euphydryas editha quino), I-QUCH*
Observation ID (Copy and paste into Collector)	*03031319EB-11-11*
Record Lat/Long	*Latitude:32.539655, Longitude:-117.082248, Altitude:112.587882, Speed:0.090080, Horizontal Accuracy:6.000906, Vertical Accuracy:3.000000, Time:03/03/2020 13:19:05 PST*
Federal and State Status	*FE/ None*

Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 11197	
Date	*2020-03-15*
Biologist	*Callie Amoaku, Erin Bergman*
Project	*Nelson Sloan*
Region	*San Diego*
Survey Area	*Entire Site*
Survey Type	*Quino Checkerspot Butterfly*
Time	*11:01 AM–4:00 PM*
Conditions	*Air Temp: 70–73°F; Ground Temp: 74–78.7°F; 50–90% cloud cover; 0–2 mph wind; Clear*
Wildlife Species Count Summary	*southern blue 51, Behr's metalmark 43, marine blue 23, Pacific sara orangetip 4, funereal duskywing 8, painted lady 3, gray hairstreak 2*
Notes	*Pass 6*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*11:01:00*
TEMPERATURE	*°F*
Air Temp	*73*
Air Temp	*73*
Ground Temp	*78.7*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*90*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Sky	*Clear*

Survey Conditions	
Status	*End*
Time	*16:00:00*
TEMPERATURE	*°F*
Air Temp	*70*
Air Temp	*70*
Ground Temp	*74*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*50*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Sky	*Clear*

Quino	
Survey Pass	*6*
Other Nectar Plants	
Nectar Plants	
Nectar Plants	
Host/Nectar Plants	
Plant Communities and Habitat Information	*N/A*

Wildlife List	
Species Name	*southern blue (Glaucopsyche lygdamus australis), I-SOUB*
Observation ID (Copy and paste into Collector)	*03151212EB-01-01*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Behr's metalmark (Apodemia mormo virgulti), I-BEME*
Observation ID (Copy and paste into Collector)	*03151219EB-02-02*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*marine blue (Leptotes marina), I-MABL*
Observation ID (Copy and paste into Collector)	*03151223EB-03-03*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*Pacific sara orangetip (Anthocharis sara sara), I-PSOR*
Observation ID (Copy and paste into Collector)	*03151224EB-04-04*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*funereal duskywing (Erynnis funeralis), I-FUDU*
Observation ID (Copy and paste into Collector)	*03151239EB-05-05*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*painted lady (Vanessa cardui), I-PALA*
Observation ID (Copy and paste into Collector)	*03151337EB-06-06*
Record Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Species Name	*gray hairstreak (Strymon melinus), I-GRHA*
Observation ID (Copy and paste into Collector)	*03151407EB-07-07*
Record Lat/Long	
Federal and State Status	*None/ None*

Plant List	
Species code	*Amsmen*
San Diego Species List	*Amsinckia menziesii (Menzies' fiddleneck), Amsmen*
Scientific Name	*Amsinckia menziesii*
Observation ID (Copy and paste into Collector)	*03151211EB-01-01*
Common Name	*Menzies' fiddleneck*
Synonyms	*syn: Amsinckia micrantha Suksd.; syn: Amsinckia menziesii var. menziesii*

Plant List	
Species code	*Glecor*
San Diego Species List	*Glebionis coronaria (crowndaisy), Glecor*
Scientific Name	*Glebionis coronaria*
Observation ID (Copy and paste into Collector)	*03151211EB-02-02*
Common Name	*crowndaisy*
Synonyms	*syn: Chrysanthemum coronarium L.*

Plant List	
Species code	*Enccal*
San Diego Species List	*Encelia californica (California brittle bush), Enccal*
Scientific Name	*Encelia californica*
Observation ID (Copy and paste into Collector)	*03151213EB-03-03*
Common Name	*California brittle bush*

Plant List	
Species code	*Psecal*
San Diego Species List	*Pseudognaphalium californicum (ladies' tobacco), Psecal*
Scientific Name	*Pseudognaphalium californicum*
Observation ID (Copy and paste into Collector)	*03151214EB-04-04*
Common Name	*ladies' tobacco*
Synonyms	*syn: Gnaphalium californicum DC.*

Plant List	
Species code	*Marvul*
San Diego Species List	*Marrubium vulgare (horehound), Marvul*
Scientific Name	*Marrubium vulgare*
Observation ID (Copy and paste into Collector)	*03151215EB-05-05*
Common Name	*horehound*

Plant List	
Species code	*Acmglagla*
San Diego Species List	
Scientific Name	*Acmispon glaber var. glaber*
Observation ID (Copy and paste into Collector)	*03151215EB-06-06*
Common Name	*common deerweed*
Synonyms	*syn: Lotus scoparius var. scoparius*

Plant List	
Species code	*Peclinfer*
San Diego Species List	
Scientific Name	*Pectocarya linearis ssp. ferocula*
Observation ID (Copy and paste into Collector)	*03151216EB-07-07*
Common Name	*sagebrush combseed*

Plant List	
Species code	*Melind*
San Diego Species List	*Melilotus indicus (annual yellow sweetclover), Melind*
Scientific Name	*Melilotus indicus*
Observation ID (Copy and paste into Collector)	*03151216EB-08-08*
Common Name	*annual yellow sweetclover*
Synonyms	*syn: Melilotus indica, orth. var.*

Plant List	
Species code	*Porole*
Scientific Name	*Portulaca oleracea*
Observation ID (Copy and paste into Collector)	*03151221EB-09-09*
Common Name	*little hogweed*

Plant List	
Species code	*Cracon*
San Diego Species List	*Crassula connata (sand pygmyweed), Cracon*
Scientific Name	*Crassula connata*
Observation ID (Copy and paste into Collector)	*03151223EB-10-10*
Common Name	*sand pygmyweed*
Synonyms	*syn: Crassula connata var. connata; syn: Crassula connata var. erectoides M. Bywater & Wickens; syn: Crassula connata var. eremica (Jeps.) M. Bywater & Wickens; syn: Crassula connata var. subsimplex (S. Watson) M. Bywater & Wickens*

Plant List	
Species code	*Hypgla*
San Diego Species List	
Scientific Name	*Hypochaeris glabra*
Observation ID (Copy and paste into Collector)	*03151227EB-11-11*
Common Name	*smooth cat's ear*

Plant List	
Species code	*Laecou*
San Diego Species List	
Scientific Name	*Laennecia coulteri*
Observation ID (Copy and paste into Collector)	*03151232EB-12-12*
Common Name	*Coulter's horseweed*
Synonyms	*syn: Conyza coulteri A. Gray*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 11464	
Date	*2020-04-22*
Biologist	*biologist, Patricia SchuylerErin M*
Project	*Nelson Sloan*
Region	*San Diego*
Survey Area	*Entire Site*
Survey Type	*Quino Checkerspot Butterfly*
Time	*9:28 AM–1:50 PM*
Conditions	*Air Temp: 69.4–79.3°F; Ground Temp: 76–83.5°F; 0% cloud cover; 0–2 mph wind; Clear*
Wildlife Species Count Summary	*9, 3, 2, 1, 1, 2, Lady sp 10, 4*
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:28:00*
TEMPERATURE	*°F*
Air Temp	*69.4*
Air Temp	*69.4*
Ground Temp	*76*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Sky	*Clear*

Survey Conditions	
Status	*End*
Time	*13:50:00*
TEMPERATURE	*°F*
Air Temp	*79.3*
Air Temp	*79.3*
Ground Temp	*83.5*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Sky	*Clear*

Quino	
Survey Pass	7
Other Nectar Plants	
Nectar Plants	
Nectar Plants	
Habitat	
Host/Nectar Plants	
Plant Communities and Habitat Information	N/A

Wildlife List	
Species Name	(), I-BEME
Observation ID (Copy and paste into Collector)	04220941TS-01-01
Record Lat/Long	
Federal and State Status	

Wildlife List	
Species Name	(), I-PSOR
Observation ID (Copy and paste into Collector)	04221048TS-02-02
Record Lat/Long	

Wildlife List	
Species Name	(), I-CAWH
Observation ID (Copy and paste into Collector)	04221049TS-03-03
Record Lat/Long	

Wildlife List	
Species Name	(), I-ANSW
Observation ID (Copy and paste into Collector)	04221143TS-04-04
Record Lat/Long	

Wildlife List	
Species Name	(), I-WTSW
Observation ID (Copy and paste into Collector)	04221144TS-05-05
Record Lat/Long	

Wildlife List	
Species Name	*(), I-COBU*
Observation ID (Copy and paste into Collector)	*04221144TS-06-06*
Record Lat/Long	

Wildlife List	
Species Name	*Lady sp (), I-PALA*
Observation ID (Copy and paste into Collector)	*04221204TS-07-07*
Record Lat/Long	

Wildlife List	
Species Name	*(), I-WPBL*
Observation ID (Copy and paste into Collector)	*04221238TS-08-08*
Record Lat/Long	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 8726	
Date	*2019-04-10*
Biologist	*Kathleen Dayton, Mackenzie Forgey*
Project	*Nelson Sloan*
Region	*San Diego*
Survey Area	*Entire Site*
Survey Type	*QCB host plant mapping*
Time	*8:30 AM–4:20 PM*
Conditions	*59–66°F; 0% cloud cover; 2–15 mph wind*
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*59*
Air Temp	*59*
Ground Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*2*

Survey Conditions	
Status	*End*
Time	*16:20:00*
TEMPERATURE	*°F*
Air Temp	*66*
Air Temp	*66*
Ground Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*10*

Appendix C

Notification of Observation of Quino Checkerspot Butterfly for the Nelson-Sloan Quarry Restoration Project

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

March 3, 2020 11618

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
2177 Salk Avenue; Suite 250
Carlsbad, CA 92008

Subject: Notification of Observation of Quino Checkerspot Butterfly Nelson Sloan Quarry Restoration Site, County of San Diego, California

Dear Recovery Permit Coordinator:

The purpose of this letter is to provide the U.S. Fish and Wildlife Service 24-hour written notification of Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) observations on the Nelson Sloan Quarry project site. The observation was made on March 3, 2020. A total of three Quino butterflies were identified by Callie Amoaku (TE-36118B-1) and Erin Bergman (TE-53771B-0). See attached map.

The first Quino was observed around 1:14 pm and looked to have just emerged from a chrysalis as the wing was slightly bent and by 1:20 had fully extended (see two captured photos of this). Two additional Quino were observed flying from near the border. These two Quino performed hilltopping behaviors. A gust of wind moved the two butterflies further north. All Quino observations ended at 1:55 pm.

Habitat onsite near the Quino observations consists of maritime succulent scrub and re-vegetated coastal sage scrub. However, the Quino butterflies were observed almost entirely within the road and on the edge of the re-vegetated coastal sage scrub habitat. The road is heavily used by border patrol and a border patrol truck was sitting approximately 30-40 feet from all the Quino observations.

A variety of butterflies were observed during the field survey. The most abundant butterflies observed during the day included southern blues (*Glaucopsyche lygdamus australis*) and pacific Sara's orangetips (*Anthocharis sara sara*).

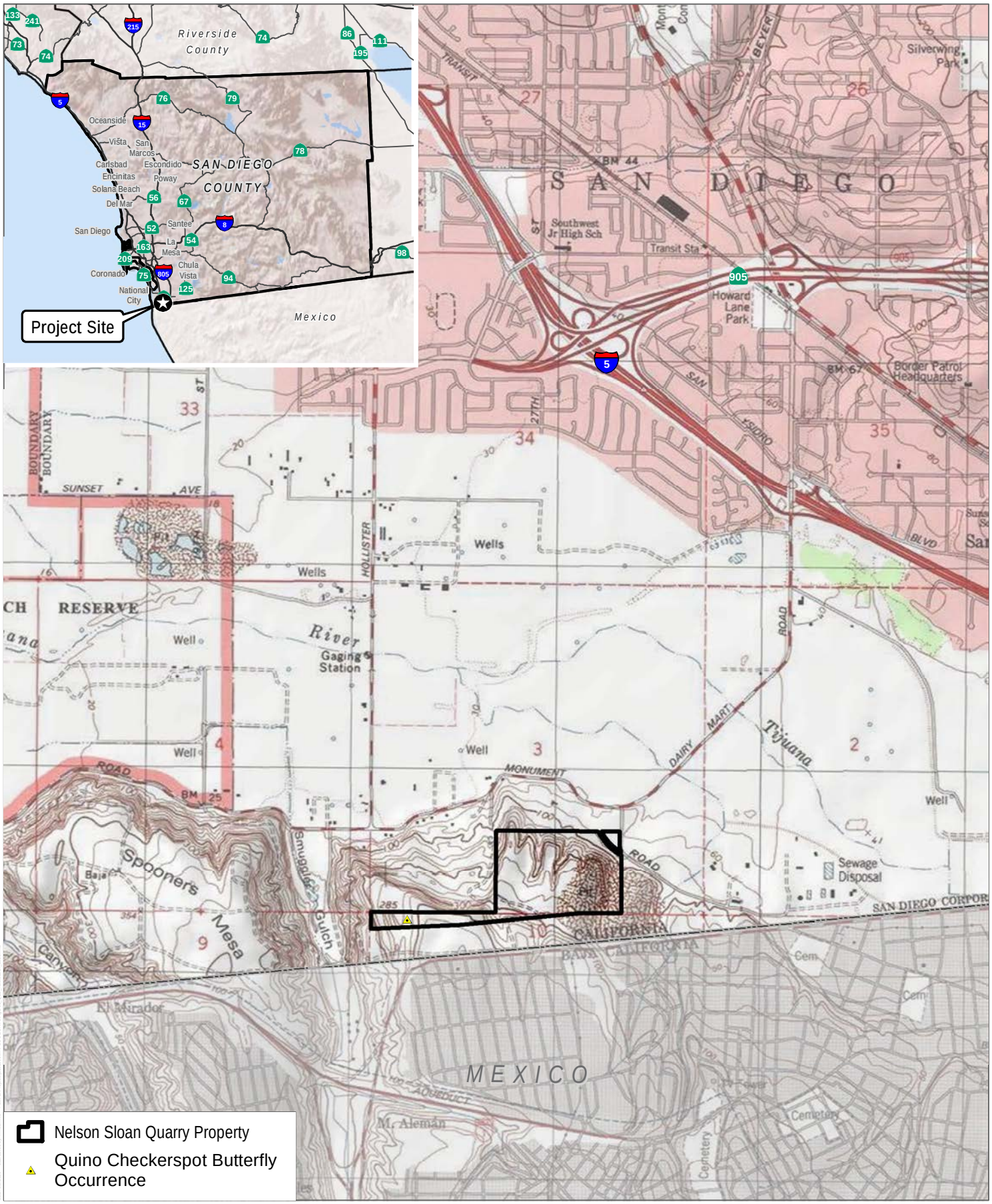
When Quino were observed weather conditions were approximately 75 degrees Fahrenheit; the sky was clear with 0 percent cloud cover and wind speeds were 0-5 miles per hour.

Please contact me at (760) 274-3927 if there are any questions concerning this observation.

Sincerely,

Erin Bergman
Biologist

Att.: *Figure 1; Photos*
cc: *Callie Amoaku, Dudek*



SOURCE: USGS 7.5-Minute Series Imperial Beach Quadrangle

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Nelson Sloan Quarry Restoration Project - 24-hour Quino Checkerspot Butterfly Notification

APPENDIX E

2019 Focused Coastal California Gnatcatcher Survey Report for the Proposed Nelson Sloan Quarry Project, County of San Diego, California

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

April 17, 2019 11618

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

Subject: 2019 Focused Coastal California Gnatcatcher Survey Report for the Proposed Nelson Sloan Quarry Project, 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 Nelson Sloan Quarry Project (project). The project is located on an approximately 72-acre area and was surveyed by Dudek Biologist Erin Bergman between February 12, 2019, and February 26, 2019. The surveys were conducted in areas of suitable coastal California gnatcatcher habitat on site.

The coastal California gnatcatcher is a federally listed threatened species and a California Department of Fish and Wildlife species of special concern. It is closely associated with coastal sage scrub habitat and, therefore, threatened primarily by loss, degradation, and fragmentation of this habitat. Coastal California gnatcatcher typically occurs below 820 feet above mean sea level 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 approximately 72-acre project site is located in the Tijuana River Valley Regional Park south of the Tijuana River and south of Monument Road, San Diego County, California (Figure 1). The project site is just north of the border between the United States and Mexico. The southern portion of the project is near the border wall and urban development in Mexico. North, east, and west of the site consists of generally open space with small portions of development. More development occurs in the northwestern portion adjacent to the project. The site occupies Township 19 south, Range 2 west, Sections 03 and 10, on the Imperial Beach U.S. Geological Survey 7.5 minute quadrangle maps (Figure 1). The study area includes Assessor's Parcel Numbers 664-011-030, 664-011-040, 664-011-050, and 664-020-040.

Elevations range from approximately 62 feet above mean sea level to approximately 430 feet above mean sea level. The western portion of the project and northeastern portion of the project consist of maritime succulent scrub. The majority of the project consists of high quality Diegan coastal sage scrub which is found throughout project (excluding the eastern portion). The dirt roads are considered disturbed habitat, and small pockets of mulefat and southern riparian scrub are also present in the project area. Topography of the project consists of rolling hills, steep slopes, and plateaus.

Areas of the eastern portion of the project (remnants of an abandoned quarry) consist of lower quality Diegan coastal sage scrub dominated by desert broom (*Baccharis sarothroides*), with numerous non-native species.

Vegetation Communities Suitable for Coastal California Gnatcatcher

Two plant communities were identified within the project site as highly suitable coastal California gnatcatcher habitat: Diegan coastal sage scrub and maritime succulent scrub. One plant community, disturbed Diegan coastal sage scrub, could have potential for coastal California gnatcatcher but is low quality based on the number and abundance of non-native plant species, including crown daisy (*Glebionis coronaria*), an invasive species from East Asia. Disturbed land mainly consisting of escarpment areas was steep and also included highly compacted dirt roads. Mulefat scrub and southern riparian scrub, typically not habitat for coastal California gnatcatcher, were small communities and were therefore included within the survey area for coastal California gnatcatcher. All vegetation communities were surveyed for coastal California gnatcatcher. Approximately 54 acres of coastal California gnatcatcher-suitable habitat was mapped on site in accordance with Holland (1986) and Oberbauer et al. (2008). Land cover types were mapped and described per Gray and Bramlet (1992) but applied to City of San Diego guidelines as described in Table 1; however, all 72 acres of the site were surveyed for coastal California gnatcatcher.

Maritime Succulent Scrub (32400)

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. The majority of growth occurs in the springtime (Oberbauer 2001).

Within the study area, numerous succulent species are present and in some areas abundant. Succulents are scattered around the plant community and include coastal barrel cactus (*Ferocactus viridescens*), golden spined cereus (*Bergerocactus emoryi*), coast cholla (*Cylindropuntia prolifera*), and coastal prickly pear (*Opuntia littoralis*). Larger shrubs growing with the succulents include wart-stemmed ceanothus (Ceanothus verrucosus), cliff spurge (*Euphorbia misera*), California encelia (*Encelia californica*), Mojave yucca (*Yucca schidigera*), and San Diego sunflower (*Bahiopsis laciniata*). Less commonly occurring species within the maritime succulent scrub include spiny redberry (*Rhamnus crocea*), laurel sumac (*Malosma laurina*), and chamise (*Adenostoma fasciculatum*). The majority of the maritime succulent scrub is high quality with few non-native species. Maritime succulent scrub is a dominant plant community within the study area. The highest quality maritime succulent scrub occurs on the western portion of the project.

Diegan Coastal Sage Scrub (32500)

Diegan coastal sage scrub (coastal sage scrub) is a native plant community composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*) and laurel sumac. It typically develops on south-facing slopes and other xeric locations (Holland 1986). Coastal sage scrub is recognized as a sensitive plant community by local, state, and federal resource agencies. It supports a rich diversity of sensitive plants and animals, and it is estimated that it has been reduced by 75% to 80% of its historical coverage throughout Southern California. It is the focus of the current State of California Natural Community Conservation Planning program (Oberbauer 2008).

Within the study area, dominant species include California sage scrub, California buckwheat, spreading goldenbush (*Isocoma menziesii* ssp. *menziesii*), deerweed (*Acmispon glaber*), black sage (*Salvia mellifera*), bladderpod (*Peritoma arborea*), and lemonadeberry. Less commonly occurring species include wild cucumber (*Marah macrocarpus*), pygmyweed (*Crassula connata*), white sage (*Salvia apiana*), mock parsley (*Apiastrum angustifolium*), and small flowered stipa (*Stipa lepida*). Diegan coastal sage scrub is a dominant plant community within the study area. The Diegan coastal sage scrub within the study area is high quality habitat for numerous species. Few non-native plant species are present within this community, and the floor consists of numerous bryophytes, spike mosses, small annuals and cryptogamic crusts.

Disturbed Diegan Coastal Sage Scrub (32500)

Disturbed coastal sage scrub is similar to coastal sage scrub but is dominated by desert broom with large patches of crown daisy. Disturbed coastal sage scrub typically occurs where soils are nutrient poor and disturbance is present. Disturbed coastal sage scrub typically fills in areas after high levels of disturbance (Oberbauer 2008; Gray and Bramlet 1992).

Within the study area, desert broom and crown daisy dominate the site. Less commonly occurring species within the understory of desert broom and crown daisy include annual yellow sweetclover (*Melilotus indicus*), slender leaf iceplant (*Mesembryanthemum nodiflorum*), pygmy weed (*Crassula connata*), California encelia, and combseeds (*Pectocarya* species). Large sections of this community are disturbed, and some portions consist of bare soils that have been graded.

Disturbed Land – Xeric cliff face, Escarpment, Ruderal Land (4.6, 10.1)

Ruderal land or waste ground includes invasive plant species that are the first to inhabit disturbed land due to human activity. Soils are heavily disturbed. Disturbed land offers no important attributes for wildlife (Gray and Bramlet 1992).

Within the study area, ruderal lands consist of old quarry lands. Leftover soil mounds, invasive plant species, wood piles, and trash describe the ruderal land within the study area. The most abundant plant within the ruderal disturbed land is crown daisy, a non-native invasive species from East Asia, which is having a detrimental impact on much of western San Diego County. This species has especially impacted coastal areas and the Otay region. Crown daisy covers over 80% of the ruderal disturbed lands within the study area. The Invasive Plant Council has described crown daisy as an invasive plant due to the dry dead remnants of crown daisy crowding out massive areas of land for numerous years and preventing the potential for native plants to recolonize. Crown daisy can reach up to 5 feet in height, also preventing the potential for native plants to recolonize.

Xeric cliff face or escarpment is described as a long, steep slope. The slope is often found on the edge of a plateau and is eroded. Xeric cliff face is described as having minimal attributes for wildlife but if vegetation is present, nesting bird habitat may occur (Gray and Bramlet 1992).

Within the study area, areas of escarpment are heavily eroded and lack the presence of vegetation except for a few non-native annual plant species. Perennial plant and scrub species are not present in escarpment areas. Therefore, potential nesting bird habitat is not present. Additionally, coastal California gnatcatcher, which is present within the survey area, avoid nesting in areas of steep terrain (Bontrager 1991). Escarpment areas continue to erode and during heavy rainfall periods (during the 2019 spring rare plant survey season) have continued to wash away.

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

Vegetation Community/Land Cover	Acres
Diegan Coastal Sage Scrub	31.11
Disturbed Diegan Coastal Sage Scrub	10.98
Disturbed Land	16.21
Mulefat Scrub	0.199
Maritime Succulent Scrub	13.27
Southern Riparian Scrub	0.041
Open Water	0.078
Total	72.0*

Note:
* Total may not sum due to rounding.

Methods

Three focused surveys for coastal California gnatcatcher were performed within suitable habitat, which included the entire project site between February 12, 2019, and February 26, 2019, by coastal California gnatcatcher-permitted Biologist Erin Bergman (TE-53771B-0) 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. Coastal California gnatcatchers were documented using a variety of features that helped distinguish individuals from one another in order to assist with determining the number of pairs/individuals. Some distinguishing features include male cap color (variation in the darkness of the black cap) and male cap thickness, width, and length. Coastal California gnatcatcher color patterns, unique markings, behaviors, pitch of call, and song variation were used to separate each observation.

Table 2. Survey Details and Conditions

Date	Time	Survey Effort (acres/hour)	Survey Conditions
2/12/2019	6:00 a.m.–12:00 p.m.	17	49°F –75°F; 0%–60% cloud cover; 0 mile per hour (mph) wind
2/19/2019	6:00 a.m.–12:00 p.m.	17	35F°–62°F; 0% cloud cover; 0–3 mph wind
2/26/2019	6:00 a.m.–12:00 p.m.	17	49°F–65°F; 10%–100% cloud cover; 0–3 mph wind

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

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

Results

During the survey efforts, coastal California gnatcatcher observations included one individual and four pairs. Juveniles were not found this early in the season. No nests were found during this time. The following discussion provides the description of the location and method of detection for each observation. The observations were assigned numbers, and they are described below as individuals or pairs.

Individual

One individual (uncapped) was heard and observed in the central portion of the study area during weeks 1 and 2. This individual is mapped as individual 1 and did not move far from this central location during weeks 1 and 2. This individual could not be located during week 3. Individual 1 was detected without playing the coastal California gnatcatcher call during weeks 1 and 2.

Pairs

Since surveys were started in the early breeding season, the males of each pair had plumage different and unique enough to be individually identified and mapped separately with confidence. Four separate pairs were detected.

Pair 1

The most western side of the site consisted of pair 1, which was not detected in week 1. Pair 1 was detected in weeks 2 and 3. The male in this pair had a very distinctive dark black cap that was thick, covering his entire head. The calls between this pair had a little higher pitch and consisted of a scratchy “mew” call, which was also characteristic of this pair. Pair 1 was detected both visually and acoustically.

Pair 2

Pair 2 was observed approximately 0.15 miles east of pair 1. Pair 2 was observed visually during weeks 1, 2, and 3. The pair called back and forth so much that playing the call was unnecessary. The male in this pair also had a

distinctive cap that was dark black and very thin, barely covering the top of his head. Pair 2 was very vocal and utilized a classic strong mew call that could be heard over a great distance when compared to pair 1. The male bird had a slim overall build that was distinctive. Pair 2 was detected both visually and acoustically.

Pair 3

Pair 3 was observed approximately 0.35 miles northeast of pair 2 during weeks 1, 2 and 3. Pair 3 was distinctive because the male's cap was in almost a perfect square shape on top of his head and the male had an overall plump build. This third pair was calling back and forth with a very loud clear classic "mew" call. Pair 3 was detected both visually and acoustically.

Pair 4

Pair 4 was observed approximately 0.22 miles northeast of pair 3 during weeks 1, 2, and 3. Pair 4 was distinctive because the male's cap was light and thin. It was not black. The pair 4 male was neither distinctively plump nor slim. The pair had a strong "mew" call similar to pairs 2 and 3. Pair 4 was detected both visually and acoustically.

The individual and pair locations during the three surveys are shown on Figure 3. No brown-headed cowbirds were detected.

In total, 40 wildlife species were recorded during the survey efforts and are included in Appendix A. Flora within the survey area was also recorded and is included in Appendix B. A total of 192 plant species were found within the study area.

Dudek certifies that the information in this survey report and attached exhibits fully and accurately represents the work conducted by the coastal California gnatcatcher–permitted biologist who conducted this focused survey. 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

Att: *Figure 1: Project Location*
Figure 2: Survey Routes
Figure 3: Survey Results
Appendix A: Wildlife Species Observed During the 2019 Nelson Sloan Quarry Coastal California Gnatcatcher Surveys
Appendix B: Plant Species Observed During the 2019 Nelson Sloan Quarry Coastal California Gnatcatcher Surveys
cc: *Erin Bergman, Dudek*
Anita Hayworth, Dudek
Vipul Joshi, Dudek
Brock Ortega, Dudek

References

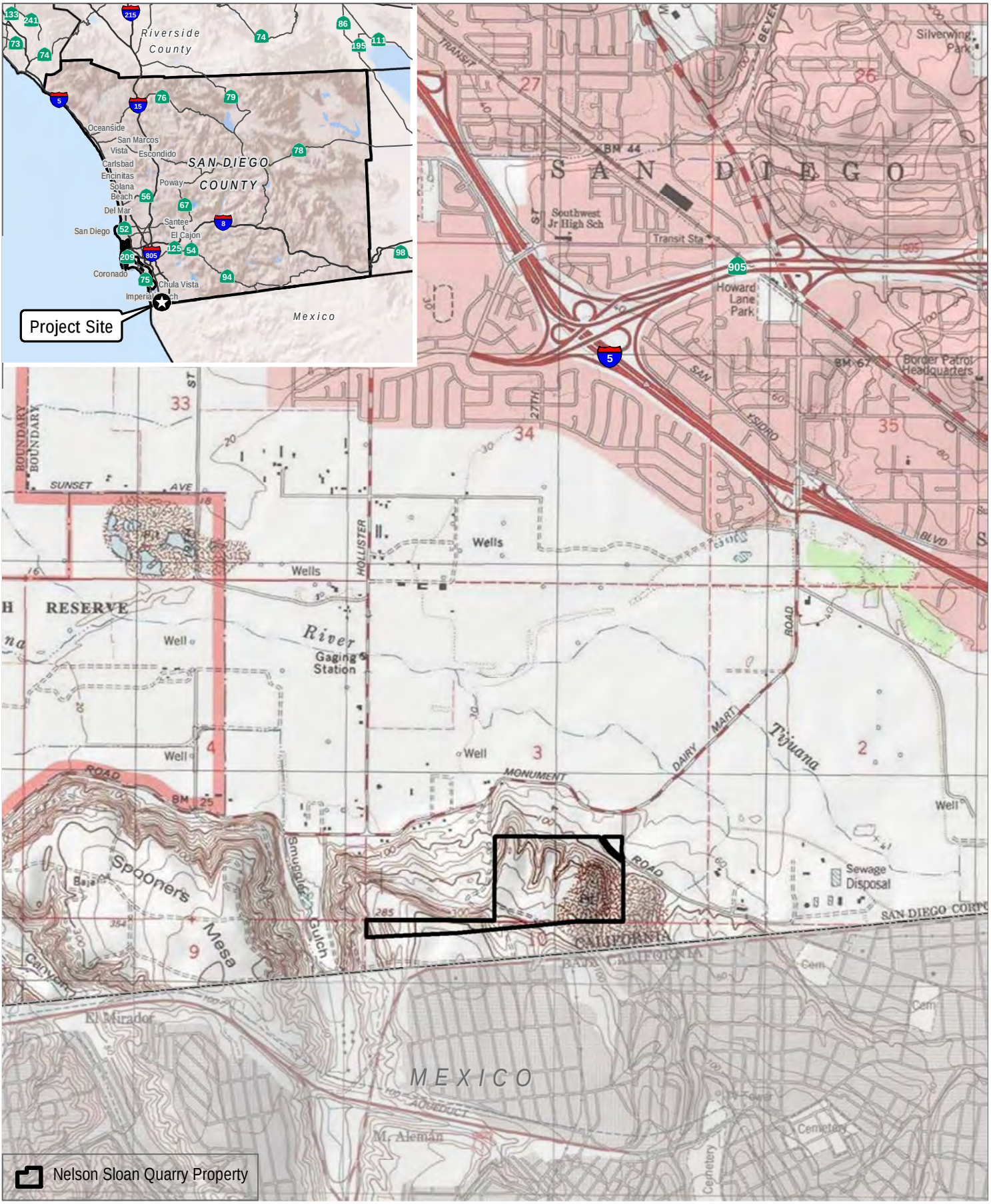
Bontrager, D.R. 1991. *Habitat Requirements, Home Range Requirements, and Breeding Biology of the California Gnatcatcher (*Polioptila californica*) in South Orange County, California*. Prepared for Santa Margarita Company, Rancho Santa Margarita, California. April 1991.

Braden, G.T., R.L. McKernan, and S.M. Powell. 1997. "Effects of Nest Parasitism by the Brown-Headed Cowbird on Nesting Success of the California Gnatcatcher." *Condor* 99:858–865.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California.* Nongame-Heritage Program, California Department of Fish and Game. October 1986.

Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County*. March 2008. Accessed April 2018. http://www.sdcanyonlands.org/pdfs/veg_comm_sdcounty_2008_doc.pdf.

USFWS (U.S. Fish and Wildlife Service). 1997. "Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Protocol." Carlsbad, California: USFWS. Revised July 28, 1997. Accessed April 2018. http://www.fws.gov/pacific/ecoservices/endangered/recovery/documents/CCalGnatcatcher.1997.protocol.pdf.



SOURCE: USGS 7.5-Minute Series Imperial Beach Quadrangle

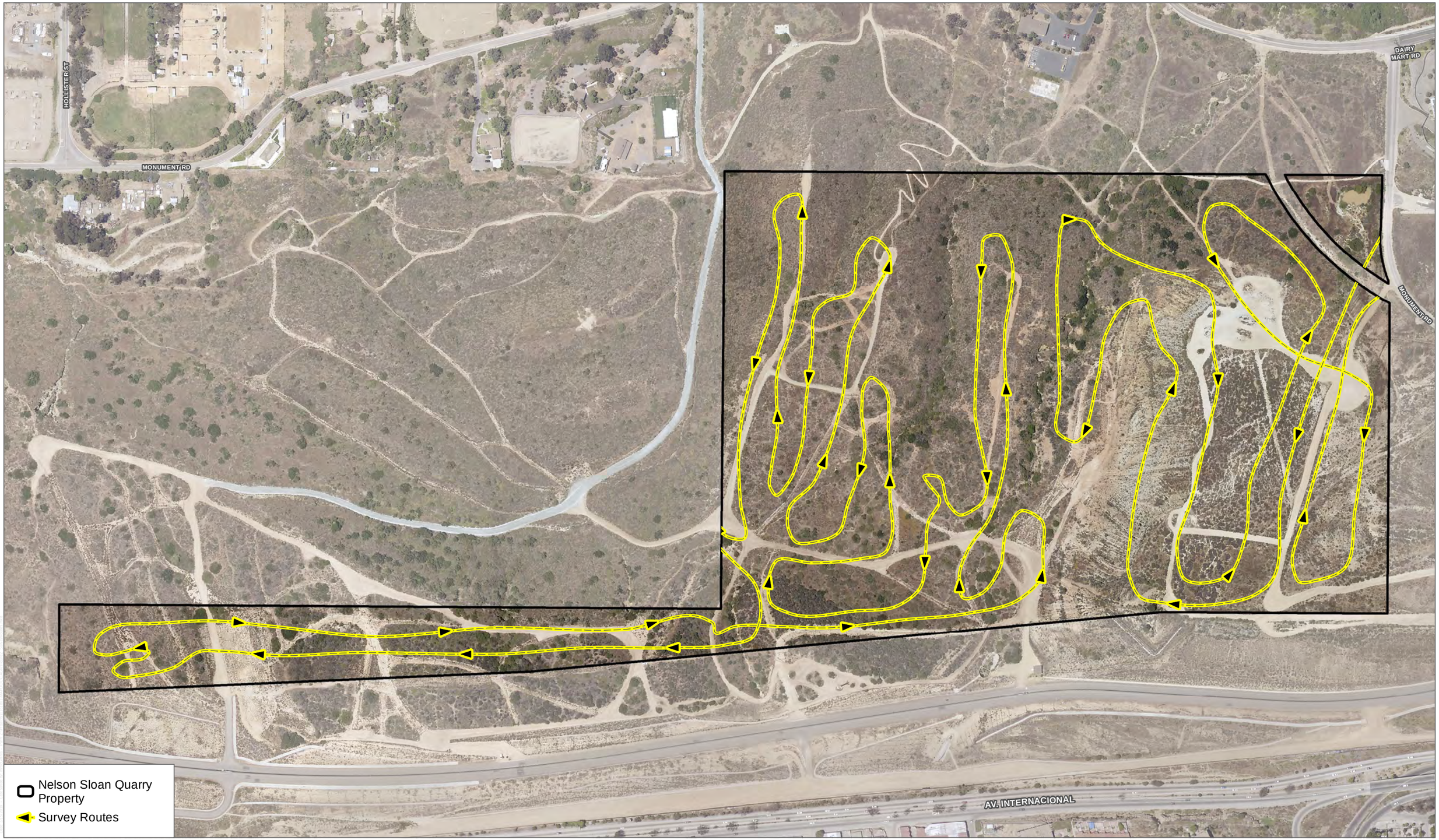
DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

2019 Focused California Gnatcatcher Survey Report for the Proposed Nelson Sloan Quarry Project



SOURCE: SANGIS 2017

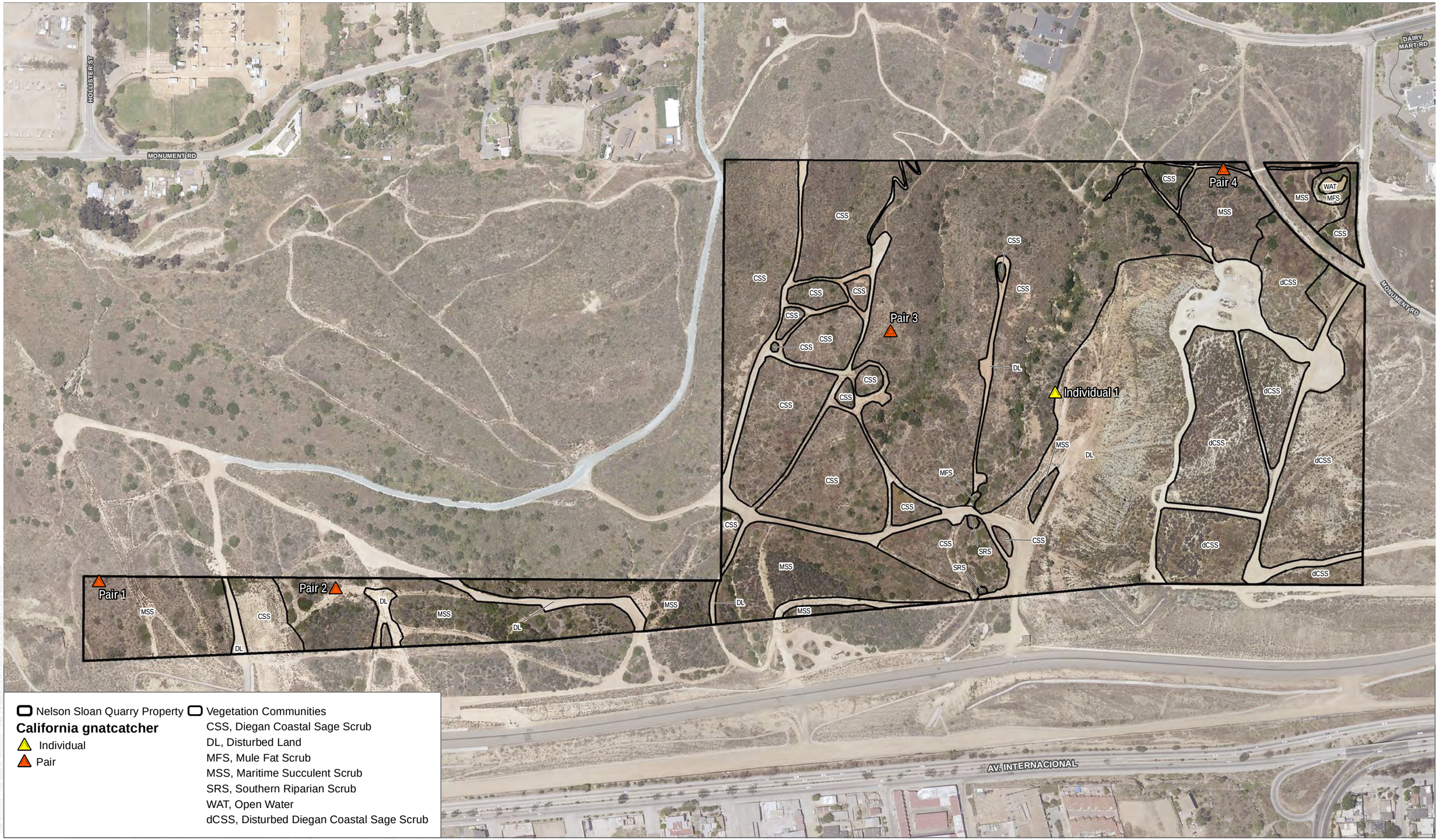
DUDEK

0 135 270 Feet

FIGURE 2

Survey Routes

2019 Focused California Gnatcatcher Survey Report for the Proposed Nelson Sloan Quarry Project



SOURCE: SANGIS 2017

DUDEK

0 135 270 Feet

FIGURE 3

Survey Results

2019 Focused California Gnatcatcher Survey Report for the Proposed Nelson Sloan Quarry Project

Appendix A

Wildlife Species Observed During the 2019 Nelson Sloan Coastal California Gnatcatcher Surveys

BIRD

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

FALCONS

FALCONIDAE—CARACARAS AND FALCONS

Falco peregrinus anatum—American peregrine falcon

Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch

Spinus psaltria—lesser goldfinch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Sayornis nigricans—black phoebe

Sayornis saya—Say's phoebe

Tyrannus vociferans—Cassin's kingbird

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii—Cooper's hawk

Buteo jamaicensis—red-tailed hawk

Circus hudsonius—northern harrier

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird

JAYS, MAGPIES AND CROWS

CORVIDAE—CROWS AND JAYS

Corvus brachyrhynchos—American crow

Corvus corax—common raven

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Toxostoma redivivum—California thrasher

NEW WORLD VULTURES

CATHARTIDAE—NEW WORLD VULTURES

Cathartes aura—turkey vulture

OLD WORLD WARBLERS AND GNATCATCHERS

SYLVIIDAE—SYLVIID WARBLERS

Polioptila californica californica—coastal California gnatcatcher

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

ROADRUNNERS AND CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

SWALLOWS

HIRUNDINIDAE—SWALLOWS

Petrochelidon pyrrhonota—cliff swallow

TERNS AND GULLS

LARIDAE—GULLS, TERNS, AND SKIMMERS

Larus occidentalis—western gull

WATERFOWL

ANATIDAE—DUCKS, GEESE, AND SWANS

Anas platyrhynchos—mallard

WOOD WARBLERS AND ALLIES

PARULIDAE—WOOD-WARBLERS

Setophaga coronata—yellow-rumped warbler

WOODPECKERS

PICIDAE—WOODPECKERS AND ALLIES

Colaptes auratus—northern flicker

WRENS

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren

WRENTITS

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

NEW WORLD SPARROWS

PASSERELLIDAE—NEW WORLD SPARROWS

Melospiza melodia—song sparrow

Melozone crissalis—California towhee

Pipilo maculatus—spotted towhee

Zonotrichia leucophrys—white-crowned sparrow

INVERTEBRATE

BUTTERFLIES

LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS

Glaucopsyche lygdamus australis—southern blue

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Vanessa cardui—painted lady

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark

HESPERIIDAE—SKIPPERS

Erynnis funeralis—funereal duskywing

PIERIDAE—WHITES AND SULFURS

Anthocharis sara sara—Pacific sara orangetip

Pontia protodice—checkered white

MAMMAL

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Lepus californicus bennettii—San Diego black-tailed jackrabbit

REPTILE

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

SNAKES

COLUBRIDAE—COLUBRID SNAKES

Coluber lateralis—striped racer

Appendix B

Plant Species Observed During the 2019 Nelson Sloan Coastal California Gnatcatcher Surveys

Lycophytes [=Lycopods]

SELAGINELLACEAE – SPIKE-MOSS FAMILY

Selaginella cinerascens – mesa spike-moss

Ophioglossoid Ferns

OPHIOGLOSSACEAE – ADDER'S TONGUE FAMILY

Ophioglossum californicum – California adder's tongue

Leptosporangiate Ferns

POLYPODIACEAE – POLYPODY FAMILY

Polypodium californicum – California polypody

PTERIDACEAE – BRAKE FAMILY

Pentagramma triangularis ssp. triangularis – California goldback fern

Pellaea andromedifolia – coffee fern

Pentagramma triangularis – goldback fern

Gnetales

EPHEDRACEAE – EPHEDRA FAMILY

Ephedra californica – California ephedra

Angiosperms: Eudicots

ADOXACEAE – ADOXA FAMILY

Sambucus nigra ssp. caerulea – blue elderberry

AIZOACEAE – FIG-MARIGOLD FAMILY

* *Mesembryanthemum crystallinum* – crystalline iceplant

* *Mesembryanthemum nodiflorum* – slender-leaf iceplant

AMARANTHACEAE – AMARANTH FAMILY

Malosma laurina – laurel sumac

Rhus integrifolia – lemonadeberry

* *Schinus molle* – Peruvian pepper tree

* *Schinus terebinthifolius* – Brazilian pepper tree

APIACEAE – CARROT FAMILY

Apiastrum angustifolium – mock-parsley
Bowlesia incana – American bowlesia
Daucus pusillus – rattlesnake weed
* *Foeniculum vulgare* – sweet fennel

ASTERACEAE – SUNFLOWER FAMILY

Ambrosia acanthicarpa – annual bur-sage
Ambrosia chenopodiifolia – San Diego bur-sage
Ambrosia psilostachya – western ragweed
Artemisia californica – coastal sagebrush
Baccharis salicifolia ssp. *salicifolia* – mule-fat, seep-willow
Baccharis sarothroides – broom baccharis
Chaenactis glabriuscula var. *glabriuscula* – yellow pincushion
Chloracantha spinosa var. *spinosa* – Mexican devil-weed
Deinandra fasciculata – fascicled tarweed
Encelia californica – California encelia
Eriophyllum confertiflorum var. *confertiflorum* – long-stem golden-yarrow
Isocoma menziesii var. *menziesii* – spreading goldenbush
Lasthenia coronaria – southern goldfields
Leptosyne maritima – San Diego sea-dahlia
Logfia arizonica – Arizona cottonrose
Logfia filaginoides – California cottonrose
Porophyllum gracile – odora
Pseudognaphalium beneolens – fragrant everlasting
Pseudognaphalium californicum – California everlasting
Pseudognaphalium microcephalum – white everlasting
Pseudognaphalium stramineum – cotton-batting plant
Stephanomeria diegensis – San Diego wreath-plant
Uropappus lindleyi – silver puffs
* *Centaurea melitensis* – tocalote
* *Cotula australis* – Australian brass-buttons
Cotula coronopifolia – African brass-buttons
* *Glebionis coronaria* – garland/crown daisy
* *Hypochaeris glabra* – smooth cat's ear
* *Lactuca serriola* – prickly lettuce
* *Matricaria discoidea* – common pineapple-weed
* *Senecio vulgaris* – common groundsel
* *Sonchus oleraceus* – common sow-thistle

Bahiopsis laciniata – San Diego sunflower
Corethrogyne filaginifolia var. *filaginifolia* – California sand-aster

BORAGINACEAE – BORAGE FAMILY

Amsinckia intermedia – rancher's fiddleneck
Amsinckia menziesii – rigid fiddleneck
Emmenanthe penduliflora var. *penduliflora* – whispering bells
Eucrypta chrysanthemifolia var. *bipinnatifida* – spotted hideseed
Heliotropium curassavicum var. *oculatum* – salt heliotrope
Pectocarya linearis ssp. *ferocula* – slender combseed
Phacelia cicutaria var. *hispida* – caterpillar phacelia
Pholistoma membranaceum – San Diego fiesta flower
Pholistoma racemosum – white fiesta flower
Plagiobothrys collinus var. *californicus* – California popcornflower
Plagiobothrys collinus var. *gracilis* – San Diego popcornflower
Eucrypta chrysanthemifolia – common eucrypta
Johnstonella micromeres – minute-flower Johnstonella
Phacelia ramosissima – branching phacelia

BRASSICACEAE – MUSTARD FAMILY

Caulanthus heterophyllus – San Diego jewelflower
Descurainia pinnata ssp. *brachycarpa* – western tansy-mustard
Lepidium nitidum – shining peppergrass
* *Brassica tournefortii* – Sahara mustard
* *Eruca vesicaria* ssp. *sativa* – garden rocket
* *Hirschfeldia incana* – short-pod mustard
* *Lepidium didymum* – lesser wart-cress
* *Sisymbrium irio* – London rocket
* *Sisymbrium orientale* – hare's-ear cabbage
Descurainia pinnata – western tansy-mustard

CACTACEAE – CACTUS FAMILY

Bergerocactus emoryi – velvet/golden-club cactus
Cylindropuntia prolifera – coast cholla
Opuntia littoralis – coast prickly-pear
Opuntia oricola – chaparral prickly-pear
Ferocactus viridescens var. *viridescens* – coast barrel cactus

CARYOPHYLLACEAE – PINK FAMILY

Cardionema ramosissimum – tread lightly
Polycarpon depressum – California polycarp
* *Cerastium glomeratum* – mouse-ear chickweed
* *Silene gallica* – common catchfly
* *Stellaria media* – common chickweed
* *Stellaria pallida* – pale starwort
* *Polycarpon tetraphyllum* ssp. *tetraphyllum* – four-leaf allseed

CHENOPODIACEAE – GOOSEFOOT FAMILY

Chenopodium californicum – California goosefoot
Atriplex canescens – four-wing saltbush/shadscale

CISTACEAE – ROCK-ROSE FAMILY

Crocanthemum scoparium – peak rush-rose

CLEOMACEAE – SPIDERFLOWER FAMILY

Peritoma arborea var. *arborea* – desert badderpod

CRASSULACEAE – STONECROP FAMILY

Crassula connata – pygmyweed
Dudleya edulis – ladies' fingers
Dudleya lanceolata – lance-leaf dudleya
Dudleya pulverulenta – chalk dudleya

CUCURBITACEAE – GOURD FAMILY

Marah macrocarpa – manroot, wild-cucumber

ERICACEAE – HEATH FAMILY

Ornithostaphylos oppositifolia – Baja California birdbush
Xylococcus bicolor – mission manzanita

EUPHORBIACEAE – SPURGE FAMILY

Euphorbia misera – cliff spurge
Euphorbia polycarpa – small-seed sandmat
* *Ricinus communis* – castor bean

FABACEAE – LEGUME FAMILY

Acmispon americanus var. *americanus* – Spanish-clover
Acmispon micranthus – grab lotus
Acmispon strigosus – Bishop's/strigose lotus
Astragalus trichopodus var. *lonchus* – ocean locoweed
Lupinus bicolor – miniature lupine
Lupinus succulentus – arroyo lupine
Lupinus truncatus – collar lupine
Trifolium willdenovii – valley clover
* *Melilotus indicus* – Indian sweetclover
Acmispon glaber – deerweed

GENTIANACEAE – GENTIAN FAMILY

Zeltnera venusta – canchalagua

GERANIACEAE – GERANIUM FAMILY

* *Erodium botrys* – long-beak filaree/storksbill
* *Erodium cicutarium* – red-stem filaree/storksbill
* *Erodium moschatum* – white-stem filaree/storksbill

LAMIACEAE – MINT FAMILY

Salvia apiana – white sage
Salvia mellifera – black sage
* *Marrubium vulgare* – horehound

MALVACEAE – MALLOW FAMILY

Malacothamnus fasciculatus var. *fasciculatus* – chaparral bushmallow
* *Malva parviflora* – cheeseweed

MONTIACEAE – MONTIA FAMILY

Calandrinia menziesii – red maids
Claytonia parviflora ssp. *parviflora* – narrow-leaf miner's-lettuce
Claytonia perfoliata ssp. *mexicana* – Mexican miner's-lettuce
Claytonia parviflora – miner's-lettuce

NYCTAGINACEAE – FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia* – coastal wishbone plant
* *Mirabilis jalapa* var. *jalapa* – four o'clock
Mirabilis laevis – wishbone plant

ONAGRACEAE – EVENING-PRIMROSE FAMILY

Camissoniopsis bistorta – California sun cup

OROBANCHACEAE – BROOM-RAPE FAMILY

Dicranostegia orcuttiana – Orcutt's bird's beak

OXALIDACEAE – OXALIS FAMILY

* *Oxalis pes-caprae* – bermuda-buttercup

PAPAVERACEAE – POPPY FAMILY

Eschscholzia californica – California poppy

Papaver heterophyllum – wind poppy

PLANTAGINACEAE – PLANTAIN FAMILY

Nuttallanthus texanus – large blue toadflax

Plantago erecta – dot-seed plantain

* *Plantago lanceolata* – English plantain, rib-grass

Antirrhinum nuttallianum – Nuttall's snapdragon

POLEMONIACEAE – PHLOX FAMILY

Linanthus dianthiflorus – farinose ground pink

Navarretia hamata – hooked skunkweed

POLYGONACEAE – BUCKWHEAT FAMILY

Chorizanthe fimbriata var. *fimbriata* – fringed spineflower

Eriogonum fasciculatum var. *fasciculatum* – coast California buckwheat

Lastarriaea coriacea – lastarriaea

Pterostegia drymarioides – granny's hairnet, g. c. p.

Eriogonum fasciculatum – California buckwheat

RANUNCULACEAE – BUTTERCUP FAMILY

Clematis pauciflora – ropevine clematis

RESEDACEAE – MIGNONETTE FAMILY

Oligomeris linifolia – narrow-leaf oligomeris

RHAMNACEAE – BUCKTHORN FAMILY

Ceanothus verrucosus – wart-stem-lilac

Rhamnus crocea – spiny redberry

ROSACEAE – ROSE FAMILY

Heteromeles arbutifolia – toyon, Christmas berry

Adenostoma fasciculatum – chamise

RUBIACEAE – MADDER OR COFFEE FAMILY

Galium aparine – common bedstraw, goose grass
Galium nuttallii ssp. *nuttallii* – San Diego bedstraw
Galium porrigens var. *porrigens* – climbing/oval-leaf bedstraw

RUTACEAE – RUE OR CITRUS FAMILY

Cneoridium dumosum – coast spice bush, bush-rue

SALICACEAE – WILLOW FAMILY

Salix laevigata – red willow
Salix lasiandra var. *lasiandra* – shining willow
Salix lasiolepis – arroyo willow

SAXIFRAGACEAE – SAXIFRAGE FAMILY

Jepsonia parryi – coast jepsonia
Lithophragma affine – woodland star

SOLANACEAE – NIGHTSHADE FAMILY

Lycium californicum – California desert thorn
Solanum douglasii – Douglas's nightshade
Solanum parishii – Parish's nightshade
* *Nicotiana glauca* – tree tobacco

TAMARICACEAE – TAMARISK FAMILY

* Tamarix ramosissima – saltcedar

URTICACEAE – STINGING NETTLE FAMILY

Parietaria hespera var. *californica* – California pellitory
Parietaria hespera var. *hespera* – western pellitory
* *Urtica urens* – dwarf nettle

VERBENACEAE – VERVAIN FAMILY

Verbena menthifolia – mint-leaf vervain

Angiosperms: Monocots

AGAVACEAE – AGAVE FAMILY

Yucca schidigera – Mohave yucca

ARECACEAE – PALM FAMILY

* *Washingtonia robusta* – Mexican fan palm

IRIDACEAE – IRIS FAMILY

Sisyrinchium bellum – blue-eyed-grass

JUNCACEAE – RUSH FAMILY

Juncus bufonius – toad rush

LILIACEAE – LILY FAMILY

Calochortus splendens – splendid mariposa lily

MELANTHIACEAE – BUNCH FLOWER OR CAMAS FAMILY

Toxicoscordion fremontii – Fremont's camas

POACEAE – GRASS FAMILY

Bromus carinatus var. *carinatus* – California brome
Melica imperfecta – coast range melic
Muhlenbergia microsperma – little-seed muhly
Stipa diegoensis – San Diego needle grass
Stipa lepida – foothill needle grass
Stipa pulchra – purple needle grass
* *Bromus diandrus* – ripgut grass
* *Bromus hordeaceus* – soft chess
* *Festuca bromoides* – brome fescue
* *Festuca myuros* – rat-tail fescue
* *Festuca perennis* – perennial rye grass
* *Lamarckia aurea* – golden-top
* *Poa annua* – annual blue grass
* *Schismus barbatus* – Mediterranean schismus
* *Stipa miliacea* var. *miliacea* – smilo grass
* *Bromus rubens* – foxtail chess, red brome

THEMIDACEAE – BRODIAEA FAMILY

Dichelostemma capitatum ssp. *capitatum* – blue dicks, school bells

CLEOMACEAE – SPIDERFLOWER FAMILY

Peritoma arborea – badderpod

* signifies introduced (non-native) species

APPENDIX F

Special-Status Plant Species with Low Potential or Not Expected to Occur within the Project Area

Scientific Name	Common Name	Status (Federal/State/CRPR/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Abronia maritima	red sand-verbena	None/None/List D/None	Coastal dunes/perennial herb/Feb–Nov/0–330	Not expected to occur. No suitable vegetation present. The closest known occurrence is 2.3 miles west of the study area along the coastal dunes of the Tijuana River Estuary (CCH 2019).
Abronia villosa var. *aurita*	chaparral sand-verbena	None/None/1B.1/ None	Chaparral, Coastal scrub, Desert dunes; sandy/annual herb/(Jan)Mar–Sep/245–5250	Not expected to occur. This species is not known to occur within the vicinity (CDFW 2019).
Acanthomintha ilicifolia	San Diego thorn-mint	FT/SE/1B.1/ /Narrow Endemic	Chaparral, Coastal scrub, Valley and foothill grassland; Clay, openings/annual herb/Apr–June/30–3150	Not expected to occur. This species is associated with heavy clay soils (USFWS 2009a). The closest known CNDDB occurrence is 4.1 miles northeast of the study area within Otay Mesa (CDFW 2019).
Acmispon haydonii	pygmy lotus	None/None/1B.3/ None	Pinyon and juniper woodland, Sonoran desert scrub; rocky/perennial herb/Jan–June/1705–3935	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Acmispon prostratus	Nuttall's acmispon	None/None/1B.1/ Covered	Coastal dunes, Coastal scrub (sandy)/annual herb/Mar–June(July)/0–35	Not expected to occur. Nuttall's acmispon was absent during rare plant surveys. There is suitable coastal scrub and sandy soils present but is more likely to occur on the beach The closest known CNDDB occurrence is 2.0 miles west of the study area within Tijuana River Valley (CDFW 2019).
Adolphia californica	California adolphia	None/None/2B.1/ None	Chaparral, Coastal scrub, Valley and foothill grassland; Clay/perennial deciduous shrub/Dec–May/30–2430	Not expected to occur. California adolphia was absent during rare plant surveys. There is no suitable clay soil present. The closest known CNDDB occurrence is 2.4 miles east of the study area on the eastern boundary of Pacific Gateway Park (CDFW 2019).
Agave shawii var. *shawii*	Shaw's agave	None/None/2B.1/ Narrow Endemic	Coastal bluff scrub, Coastal scrub; Maritime succulent scrub/perennial leaf succulent/Sep–May/5–395	Not expected to occur. Shaw's agave was absent during rare plant surveys. There is no suitable coastal bluff scrub present. The closest known CNDDB occurrence is 2.0 miles west of the study area within Tijuana River Valley (CDFW 2019). Also, as stated by Reiser (2001), this species is almost extirpated in the U.S., and occurs in few documented areas.
Ambrosia monogyra	singlewhorl burrobrush	None/None/2B.2/ None	Chaparral, Sonoran desert scrub; sandy/perennial shrub/Aug–Nov/30–1640	Not expected to occur. Singlewhorl burrobush was not observed during rare plant surveys. There is suitable chaparral and sandy soil present. The closest known CNDDB occurrence is 0.3 miles west of the study area within Smuggler's Gulch (CDFW 2019).
Ambrosia pumila	San Diego ambrosia	FE/None/1B.1/ Narrow Endemic	Chaparral, Coastal scrub, Valley and foothill grassland, Vernal pools; sandy loam or clay, often in disturbed areas, sometimes alkaline/perennial rhizomatous herb/Apr–Oct/65–1360	Not expected to occur. San Diego ambrosia was not observed during rare plant surveys. This species prefers creek beds, floodplains, and seasonally dry areas (Reiser 2001). In addition, there is no suitable clay soil present. The closest known CNDDB occurrence is 2.5 miles northeast of the study area along Otay Mesa Road (CDFW 2019).
Androsace elongata ssp. *acuta*	California androsace	None/None/4.2/ None	Chaparral, Cismontane woodland, Coastal scrub, Meadows and seeps, Pinyon and juniper woodland, Valley and foothill grassland/annual herb/Mar–June/490–4280	Not expected to occur. California androsace was not observed during rare plant surveys. Although there is suitable coastal scrub and chaparral present. California androsace occurs at higher elevation and has been near Cuyamaca, this species is not known to occur within the vicinity (CDFW 2019).
Aphanisma blitoides	aphanisma	None/None/1B.2/ Narrow Endemic	Coastal bluff scrub, Coastal dunes, Coastal scrub; sandy or gravelly/annual herb/Feb–June/0–1000	Not expected to occur. Aphanisma was not observed during rare plant surveys. This species prefers coastal bluff and coastal dune habitat (Reiser 2001). The closest known CNDDB occurrence is 2.5 miles northwest of the study area within the Tijuana Slough National Wildlife Refuge (CDFW 2019).
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	FE/None/1B.1/ Covered	Chaparral (maritime, sandy)/perennial evergreen shrub/Dec–June/0–1200	Not expected to occur. Del Mar manzanita was not observed during rare plant surveys. This species is associated with weathered sandstone soils including the Carlsbad series, Cesteron series, and Corralitos sandy loam, which do not occur on site (USFWS 2010). In addition, the site is south of the species' known geographic range (USFWS 2010). Although there is suitable maritime chaparral present, this species is not known to occur within the vicinity (CDFW 2019).
Arctostaphylos otayensis	Otay manzanita	None/None/1B.2/ Covered	Chaparral, Cismontane woodland; metavolcanic/perennial evergreen shrub/Jan–Apr/900–5575	Not expected to occur. Otay manzanita was not observed during rare plant surveys. The site is outside of the species' known elevation range but can be found at lower

Scientific Name	Common Name	Status (Federal/State/CRPR/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				elevations. The closest known CNDDB occurrence is 8.5 miles northeast of the study area along Otay River (CDFW 2019).
Arctostaphylos rainbowensis	Rainbow manzanita	None/None/1B.1/ None	Chaparral/perennial evergreen shrub/Dec–Mar/670–2200	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
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/45–3000	Not expected to occur. San Diego sagewort was not observed during rare plant surveys. There is suitable coastal scrub present. The closest known occurrence is 1.1 miles west of the study area within the Tijuana River Valley (CCH 2019).
Asplenium vespertinum	western spleenwort	None/None/4.2/ None	Chaparral, Cismontane woodland, Coastal scrub; rocky/perennial rhizomatous herb/Feb–June/590–3280	Not expected to occur. The site is outside of the species' known elevation range. The closest known occurrence is 7.5 miles north of the study area within Sweetwater River (CCH 2019).
Astragalus crotalariae	Salton milk-vetch	None/None/4.3/ None	Sonoran desert scrub (sandy or gravelly)/perennial herb/Jan–Apr/-195–820	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Astragalus deanei	Dean's milk-vetch	None/None/1B.1/ None	Chaparral, Cismontane woodland, Coastal scrub, Riparian forest/perennial herb/Feb–May/245–2280	Not expected to occur. Dean's milk-vetch was not observed during rare plant surveys. There is suitable coastal scrub and chaparral present but generally is found in eastern San Diego County. The closest known CNDDB occurrence is 7.1 miles north of the study area in Rice Canyon, however the observation was recorded in 1883 (CDFW 2019).
Astragalus douglasii var. *perstrictus*	Jacumba milk-vetch	None/None/1B.2/ None	Chaparral, Cismontane woodland, Pinyon and juniper woodland, Riparian scrub, Valley and foothill grassland; rocky/perennial herb/Apr–June/2950–4495	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Astragalus insularis var. *harwoodii*	Harwood's milk-vetch	None/None/2B.2/ None	Desert dunes, Mojavean desert scrub; sandy or gravelly/annual herb/Jan–May/0–2330	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Astragalus lentiginosus var. *borreganus*	Borrego milk-vetch	None/None/4.3/ None	Mojavean desert scrub, Sonoran desert scrub; sandy/annual herb/Feb–May/95–2935	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Astragalus magdalenae var. *peirsonii*	Peirson's milk-vetch	FT/SE/1B.2/ None	Desert dunes/perennial herb/Dec–Apr/195–740	Not expected to occur. No suitable vegetation present. This species is restricted to the Algodone Dunes of eastern Imperial County (69 FR 31523). This species is not known to occur within the vicinity (CDFW 2019).
Astragalus oocarpus	San Diego milk-vetch	None/None/1B.2/ None	Chaparral (openings), Cismontane woodland/perennial herb/May–Aug/1000–5000	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Astragalus pachypus var. *jaegeri*	Jaeger's bush milk-vetch	None/None/1B.1/ None	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland; sandy or rocky/perennial shrub/Dec–June/1195–3200	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Astragalus tener var. *titi*	coastal dunes milk-vetch	FE/SE/1B.1/ Narrow Endemic	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie (mesic); often vernally mesic areas/annual herb/Mar–May/0–165	Not expected to occur. No suitable vegetation present. This species is primarily associated with coastal dune habitat (Reiser 2001). The closest known CNDDB occurrence is 10 miles north of the study area in Coronado (CDFW 2019). There is only one known occurrence documented within San Diego County (SDNHM 2012), and the species is likely extirpated in San Diego County (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/5–1510	Not expected to occur. Coulter's saltbush was not observed during rare plant surveys. This species prefers sea bluff habitat (Reiser 2001) and inland habitat. The closest known CNDDB occurrence is 1.9 miles west of the study area within the Tijuana River Valley (CDFW 2019).
Atriplex pacifica	South Coast saltscale	None/None/1B.2/ None	Coastal bluff scrub, Coastal dunes, Coastal scrub, Playas/annual herb/Mar–Oct/0–460	Not expected to occur. South coast saltscale was not observed during rare plant surveys. There is suitable sage scrub present. South coast saltscale has been collected adjacent to the study area (Consortium of Herbaria 2019). The closest known CNDDB occurrence is 1.5 miles west of the study area within the Tijuana River Valley (CDFW 2019).
Atriplex parishii	Parish's brittlescale	None/None/1B.1/None	Chenopod scrub, Playas, Vernal pools; alkaline/annual herb/June–Oct/80–6235	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).

Scientific Name	Common Name	Status (Federal/State/CRPR/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None/1B.2/ None	Coastal bluff scrub, Coastal scrub; alkaline/annual herb/Apr–Oct/30–655	Not expected to occur. There is no coastal bluff scrub and alkaline present. In addition, this species is not known to occur within the vicinity (CDFW 2019).
Ayenia compacta	California ayenia	None/None/2B.3/ None	Mojavean desert scrub, Sonoran desert scrub; rocky/perennial herb/Mar–Apr/490–3595	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Azolla microphylla	Mexican mosquito fern	None/None/4.2/ None	Marshes and swamps (ponds, slow water)/annual / perennial herb/Aug/95–330	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Baccharis vanessae	Encinitas baccharis	FT/SE/1B.1/Covered	Chaparral (maritime), Cismontane woodland; sandstone/perennial deciduous shrub/Aug,Oct,Nov/195–2360	Low potential to occur. This species is known to occur in northern San Diego County, and has been recorded in Otay Mountain (USFWS 2011a). Although there is suitable maritime chaparral present, this species is not known to occur within the vicinity (CDFW 2019).
Berberis fremontii	Fremont barberry	None/None/2B.3/ None	Joshua tree woodland, Pinyon and juniper woodland; Rocky, sometimes granitic/perennial evergreen shrub/Mar–May/3755–5645	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Berberis nevinii	Nevin's barberry	FE/SE/1B.1/Covered	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub; sandy or gravelly/perennial evergreen shrub/(Feb)Mar–June/225–2705	Not expected to occur. The site is outside of the species' known geographic range, according to USFWS (2009b). This species is not known to occur within the vicinity (CDFW 2019).
Bloomeria clevelandii	San Diego goldenstar	None/None/1B.1/Covered	Chaparral, Coastal scrub, Valley and foothill grassland, Vernal pools; clay/perennial bulbiferous herb/Apr–May/160–1525	Not expected to occur. San Diego golden star was not observed during rare plant surveys. There is clay soil present. The closest known CNDDB occurrence is 5.1 miles northeast of the study area along Otay River (CDFW 2019).
Boechera hirshbergiae	Hirshberg's rockcress	None/None/1B.2/None	Pebble (Pavement) plain/perennial herb/Mar–May/4590–4640	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Brodiaea filifolia	thread-leaved brodiaea	FT/SE/1B.1/Covered	Chaparral (openings), Cismontane woodland, Coastal scrub, Playas, Valley and foothill grassland, Vernal pools; often clay/perennial bulbiferous herb/Mar–June/80–3675	Not expected potential to occur. This species is associated with floodplains in mesic, southern grassland and alkali grassland plant communities with clay, loamy sand, or alkaline silty-clay soils (USFWS 2009c).There is no suitable clay soil or vernal pools present. This species is not known to occur within the vicinity (CDFW 2019).
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/95–5550	Not expected to occur. Orcutt's brodiaea was not observed during rare plant surveys. The closest known CNDDB occurrence is 7.1 miles northeast of the study area within the San Diego National Wildlife Refuge (CDFW 2019).
Bursera microphylla	little-leaf elephant tree	None/None/2B.3/ None	Sonoran desert scrub (rocky)/perennial deciduous tree/June–July/655–2295	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Calamagrostis koelerioides	San Diego reed grass	None/None/None/ Covered	Chaparral, meadows and seeps; slopes, dry hills, ridges/perennial rhizomatous herb/June–Aug/0–7546	Not expected to occur. San Diego reed grass was not observed during rare plant surveys. Although there is suitable chaparral present, this species is not known to occur within the vicinity (CDFW 2019).
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/30–4005	Not expected to occur. Other redmaids (Calandrinia menziesii) were present during rare plant surveys outside the reclamation area. Although there is suitable coastal scrub and chaparral present, there are no known occurrences within 10 miles of the study area (CCH 2019).
California macrophylla	round-leaved filaree	None/None/None/ None	Cismontane woodland, Valley and foothill grassland; clay/annual herb/Mar–May/45–3935	Not expected to occur. Round-leaved filaree was not observed during rare plant surveys. This species is not known to occur within the vicinity (CDFW 2019).
Calliandra eriophylla	pink fairy-duster	None/None/2B.3/ None	Sonoran desert scrub (sandy or rocky)/perennial deciduous shrub/Jan–Mar/390–4920	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Calochortus catalinae	Catalina mariposa lily	None/None/4.2/ None	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial bulbiferous herb/(Feb)Mar–June/45–2295	Not expected to occur. Catalina mariposa lily was not observed during rare plant surveys. Although there is suitable coastal scrub and chaparral present, this species is not known to occur within the vicinity (CDFW 2019).

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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/605–6005	Not expected to occur. The site is outside of the species' known elevation range. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Carlowrightia arizonica	Arizona carlowrightia	None/None/2B.2/None	Sonoran desert scrub (sandy, granitic alluvium)/perennial deciduous shrub/Mar–May/935–1410	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Caulanthus heterophyllus	California mustard	None/None/None/ Covered	Coastal scrub, chaparral; dry, open, generally after fire, disturbance/annual herb/Mar–May/1400–4593	Not expected to occur. California mustard was not observed during rare plant surveys. Although there is suitable coastal scrub present, this species is not known to occur within the vicinity (CDFW 2019).
Caulanthus simulans	Payson's jewelflower	None/None/4.2/None	Chaparral, Coastal scrub; sandy, granitic/annual herb/(Feb)Mar–May(June)/295–7220	Not expected to occur. Although there is suitable coastal scrub present, this species is not known to occur within the vicinity (CDFW 2019).
Ceanothus cyaneus	Lakeside ceanothus	None/None/1B.2/ Covered	Closed-cone coniferous forest, Chaparral/perennial evergreen shrub/Apr–June/770–2475	Not expected to occur. The site is outside of the species' known elevation range. The closest known CNDDB occurrence is 10 miles east of the study area within the San Ysidro Mountains (CDFW 2019).
Ceanothus otayensis	Otay Mountain ceanothus	None/None/1B.2/ None	Chaparral (metavolcanic or gabbroic)/perennial evergreen shrub/Jan–Apr/1965–3610	Not expected to occur. Otay mountain ceanothus was not observed during rare plant surveys. The site is outside of the species' known elevation range but can occur at lower elevation. The closest known CNDDB occurrence is 8.5 miles northeast of the study area within Otay Valley (CDFW 2019).
Centromadia parryi ssp. *australis*	southern tarplant	None/None/1B.1/ None	Marshes and swamps (margins), Valley and foothill grassland (vernally mesic), Vernal pools/annual herb/May–Nov/0–1575	Not expected to occur. Southern tarplant was not observed during rare plant surveys. Southern tarplant occurs in wet areas. This species is not known to occur within the vicinity (CDFW 2019).
Centromadia pungens ssp. *laevis*	smooth tarplant	None/None/1B.1/None	Chenopod scrub, Meadows and seeps, Playas, Riparian woodland, Valley and foothill grassland; alkaline/annual herb/Apr–Sep/0–2100	Not expected to occur. There are no meadows or playas present, and this species is not known to occur within the vicinity (CDFW 2019).
Chaenactis carphoclinia var. *peirsonii*	Peirson's pincushion	None/None/1B.3/None	Sonoran desert scrub (sandy)/annual herb/Mar–Apr/5–1640	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
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. The closest known occurrence is less than 0.5 miles from the western boundary of the study area on coastal bluffs (CDFW 2019).
Chaenactis parishii	Parish's chaenactis	None/None/1B.3/ None	Chaparral (rocky)/perennial herb/May–July/4265–8200	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Chamaebatia australis	southern mountain misery	None/None/4.2/ None	Chaparral (gabbroic or metavolcanic)/perennial evergreen shrub/Nov–May/980–3345	Not expected to occur. The site is outside of the species' known elevation range. There are no known occurrences within 10 miles of the study area (CCH 2019).
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	FE/SE/1B.2/Covered	Coastal dunes, Marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct(Nov)/0–100	Not expected to occur. No suitable vegetation present. This species is known to occur on marshes, including Tijuana Estuary (USFWS 2009d). The closest known CNDDB occurrence is 2.3 miles west of the study area within the Slough Tijuana Slough National Wildlife Refuge (CDFW 2019).
Chorizanthe leptotheca	Peninsular spineflower	None/None/4.2/ None	Chaparral, Coastal scrub, Lower montane coniferous forest; alluvial fan, granitic/annual herb/May–Aug/980–6235	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Chorizanthe orcuttiana	Orcutt's spineflower	FE/SE/1B.1/None	Closed-cone coniferous forest, Chaparral (maritime), Coastal scrub; sandy openings/annual herb/Mar–May/5–410	Not expected to occur. Orcutt's spineflower was not observed during rare plant surveys. This species is primarily associated with coastal chamise chaparral habitat (Reiser 2001). However, there are no undisturbed sandy soils on site (Reiser 2001) and there are no known occurrences within 10 miles of the study area (CDFW 2019, USFWS 2019).
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	FC/SE/1B.1/None	Coastal scrub (sandy), Valley and foothill grassland/annual herb/Apr–July/490–4005	Not expected to occur. The site is outside of the species' known geographic range (83 FR 11453). Although there is suitable coastal scrub present, this species is not known to occur within the vicinity (CDFW 2019).

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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/95–5020	Not expected to occur. There is no suitable clay soil or vernal pools present. The closest known CNDDB occurrence is 5.2 miles northeast of the study area within Poggi Canyon (CDFW 2019).
Clarkia delicata	delicate clarkia	None/None/1B.2/ None	Chaparral, Cismontane woodland; often gabbroic/annual herb/Apr–June/770–3280	Not expected to occur. The site is outside of the species' known elevation range. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Clinopodium chandleri	San Miguel savory	None/None/1B.2/ Covered	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland; Rocky, gabbroic or metavolcanic/perennial shrub/Mar–July/390–3525	Not expected to occur. San Miguel savory was not observed during rare plant surveys. Although there is suitable coastal scrub present, there are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Colubrina californica	Las Animas colubrina	None/None/2B.3/ None	Mojavean desert scrub, Sonoran desert scrub/perennial deciduous shrub/Apr–June/30–3280	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	None/None/1B.2/ None	Chaparral, Cismontane woodland/perennial evergreen shrub/Apr–June/95–2590	Not expected to occur. Summer holly was not observed during rare plant surveys. Although there is suitable chaparral present, there are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
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/95–2430	Not expected to occur. Small-flowered morning glory was not observed during rare plant surveys. The closest known occurrence is 4.9 miles northeast of the study area south of Otay River (CCH 2019).
Corethrogyne filaginifolia var. *incana*	San Diego sand aster	None/None/1B.1/ None	Coastal bluff scrub, Chaparral, Coastal scrub/perennial herb/June–Sep/5–375	Not expected to occur. San Diego sand aster was not observed during rare plant surveys. This species is primarily associated with coastal chamise chaparral habitat (Reiser 2001). However, there are no undisturbed sandy soils on site (Reiser 2001). The closest known CNDDB occurrence is 0.7 miles west of the study area within Tijuana River Valley (CDFW 2019).
Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	None/None/1B.1/ Covered	Coastal bluff scrub, Chaparral (maritime, openings), Coastal scrub; sandy/perennial herb/May,July,Aug,Sep/45–490	Not expected to occur. Although there is suitable maritime chaparral present, this species is not known to occur within the vicinity (CDFW 2019).
Cryptantha ganderi	Gander's cryptantha	None/None/1B.1/ None	Desert dunes, Sonoran desert scrub (sandy)/annual herb/Feb–May/520–1310	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Cylindropuntia californica var. *californica*	snake cholla	None/None/1B.1/ Narrow Endemic	Chaparral, Coastal scrub/perennial stem succulent/Apr–May/95–490	Not expected to occur. Snake cholla was not observed during rare plant surveys. Suitable coastal scrub is present; however, this species is primarily associated with xeric hillsides (Reiser 2001). The closest known CNDDB occurrence is 1.8 miles west of the study area within the Tijuana River Valley (CDFW 2019).
Cylindropuntia wolfii	Wolf's cholla	None/None/4.3/ None	Sonoran desert scrub/perennial stem succulent/Mar–May/325–3935	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Deinandra conjugens	Otay tarplant	FT/SE/1B.1/ Narrow Endemic	Coastal scrub, Valley and foothill grassland; clay/annual herb/(Apr)May–June/80–985	Not expected to occur. Otay tarplant was not observed during rare plant surveys. A reference check was specifically performed for this species near Otay and was found to be blooming the same day as surveys were performed at this site. This species is associated with clay soils or clay subsoils (USFWS 2009e). The closest known CNDDB occurrence is 2.2 miles northeast of the study area within Moody Canyon (CDFW 2019).
Deinandra floribunda	Tecate tarplant	None/None/1B.2/ None	Chaparral, Coastal scrub/annual herb/Aug–Oct/225–4005	Not expected to occur. There is suitable coastal scrub and chaparral present. The closest known CNDDB occurrence is 5.9 miles east of the study area within Pacific Gateway Park (CDFW 2019).
Deinandra mohavensis	Mojave tarplant	None/SE/1B.3/ None	Chaparral, Coastal scrub, Riparian scrub; mesic/annual herb/(May)June–Oct(Jan)/2095–5250	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
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)/80–3085	Not expected to occur. Paniclulate tarplant occurs in northern San Diego county near Camp Pendleton and is a grassland species. The closest known occurrence is 6.6 miles north of the study area in Chula Vista (CCH 2019).
Delphinium parishii ssp. *subglobosum*	Colorado Desert larkspur	None/None/4.3/ None	Chaparral, Cismontane woodland, Pinyon and juniper woodland, Sonoran desert scrub/perennial herb/Mar–June/1965–5905	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).

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Dieteria asteroides var. *lagunensis*	Mt. Laguna aster	None/SR/2B.1/ None	Cismontane woodland, Lower montane coniferous forest/perennial herb/(May)July–Aug(Sep–Oct)/2590–7875	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Diplacus aridus	low bush monkeyflower	None/None/4.3/ None	Chaparral (rocky), Sonoran desert scrub/perennial evergreen shrub/Apr–July/2460–3935	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
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/1475–6560	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Ditaxis serrata var. *californica*	California ditaxis	None/None/3.2/ None	Sonoran desert scrub/perennial herb/Mar–Dec/95–3280	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Downingia concolor var. *brevior*	Cuyamaca Lake downingia	None/SE/1B.1/ None	Meadows and seeps (vernally mesic), Vernal pools/annual herb/May–July/3375–4920	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Dudleya alainae	Banner dudleya	None/None/3.2/ None	Chaparral, Lower montane coniferous forest, Sonoran desert scrub; rocky/perennial herb/Apr–July/2425–3935	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
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/5–165	Not expected to occur. Orcutt's Dudleya was not observed during rare plant surveys. There is suitable coastal scrub and chaparral present. The closest known CNDDB occurrence is 2.0 miles west of the study area within the Tijuana River Valley (CDFW 2019).
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/15–1475	Not expected to occur. Blochman's Dudleya was not observed during rare plant surveys.The closest known CNDDB occurrence is 1.2 miles west of the study area within Goat Canyon (CDFW 2019).
Dudleya brevifolia	short-leaved dudleya	None/SE/1B.1/ Narrow Endemic	Chaparral (maritime, openings), Coastal scrub; Torrey sandstone/perennial herb/Apr–May/95–820	Not expected to occur. Short-leaved Dudleya was not observed during rare plant surveys. While coastal scrub is present; this species has been documented within the region of the project site (Calflora 2018); however, it is primarily associated with chamise chaparral or Torrey pine forest habitats and Torrey sandstone substrates, which do not occur on site (Reiser 2001; CNPS 2018). This species is not known to occur within the vicinity (CDFW 2019).
Dudleya multicaulis	many-stemmed dudleya	None/None/1B.2/ None	Chaparral, Coastal scrub, Valley and foothill grassland; often clay/perennial herb/Apr–July/45–2590	Not expected to occur. There is no suitable clay soil present. This species is not known to occur within the vicinity (CDFW 2019).
Dudleya variegata	variegated dudleya	None/None/1B.2/ Narrow Endemic	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland, Vernal pools; clay/perennial herb/Apr–June/5–1905	Not expected to occur. Variegated Dudleya was not observed during rare plant surveys. The closest known CNDDB occurrence is 2.7 miles east of the study area within the San Diego National Wildlife Refuge (CDFW 2019).
Dudleya viscida	sticky dudleya	None/None/1B.2/ Covered	Coastal bluff scrub, Chaparral, Cismontane woodland, Coastal scrub; rocky/perennial herb/May–June/30–1805	Not expected to occur. Sticky Dudleya was not observed during rare plant surveys. Although there is suitable coastal scrub and chaparral present, there are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Ericameria cuneata var. *macrocephala*	Laguna Mountains goldenbush	None/None/1B.3/ None	Chaparral (granitic)/perennial shrub/Sep–Dec/3920–6070	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	None/None/1B.1/ Covered	Chaparral, Coastal scrub; mesic/perennial evergreen shrub/(July)Sep–Nov/95–1970	Not expected to occur. Palmer's goldenbush was not observed during rare plant surveys. Coastal scrub is present; however, this species is primarily associated with mesic chaparral habitat (Reiser 2001). The closest known CNDDB occurrence is 3.2 miles north of the study area within Otay Valley Regional Park (CDFW 2019).
Eriogonum evanidum	vanishing wild buckwheat	None/None/1B.1/ None	Chaparral, Cismontane woodland, Lower montane coniferous forest, Pinyon and juniper woodland; sandy or gravelly/annual herb/July–Oct/3605–7300	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE/1B.1/ Covered	Coastal scrub, Valley and foothill grassland, Vernal pools; mesic/annual / perennial herb/Apr–June/65–2035	Not expected to occur. This species is primarily associated with vernal pools (Reiser 2001), which do not occur on the project site. The closest known CNDDB occurrence is 2.8 miles west within the San Diego National Wildlife Refuge (CDFW 2019).

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Eryngium pendletonense	Pendleton button-celery	None/None/1B.1/ None	Coastal bluff scrub, Valley and foothill grassland, Vernal pools; clay, vernally mesic/perennial herb/Apr–June(July)/45–360	Not expected to occur. There is no suitable clay soil or vernal pools present. This species is not known to occur within the vicinity (CDFW 2019).
Erysimum ammophilum	sand-loving wallflower	None/None/1B.2/ Covered	Chaparral (maritime), Coastal dunes, Coastal scrub; sandy, openings/perennial herb/Feb–June/0–195	Not expected to occur. Sand-loving wallflower was not observed during rare plant surveys. Although there is suitable maritime chaparral and coastal scrub present, there are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Erythranthe diffusa	Palomar monkeyflower	None/None/4.3/ None	Chaparral, Lower montane coniferous forest; sandy or gravelly/annual herb/Apr–June/4000–6005	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Eucnide rupestris	annual rock-nettle	None/None/2B.2/ None	Sonoran desert scrub/annual herb/Dec–Apr/1640–1970	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Euphorbia arizonica	Arizona spurge	None/None/2B.3/ None	Sonoran desert scrub (sandy)/perennial herb/Mar–Apr/160–985	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Euphorbia platysperma	flat-seeded spurge	None/None/1B.2/ None	Desert dunes, Sonoran desert scrub (sandy)/annual herb/Feb–Sep/210–330	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Euphorbia revoluta	revolute spurge	None/None/4.3/ None	Mojavean desert scrub (rocky)/annual herb/Aug–Sep/3590–10170	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Frankenia palmeri	Palmer's frankenia	None/None/2B.1/ None	Coastal dunes, Marshes and swamps (coastal salt), Playas/perennial herb/May–July/0–35	Not expected to occur. No suitable vegetation present. The closest known CNDDB occurrence is 2.3 miles west of the study area along a high vegetated dune in Border Field State Park (CDFW 2019).
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/30–2350	Not expected to occur. Mexican flannelbush was not observed during rare plant surveys. Although there is suitable chaparral present, this species is associated with closed-cone coniferous forest and alluvial benches along ephemeral drainages, which does not occur on site (USFWS 2009f). The closest known CNDDB occurrence is 0.6 miles west of the study area within Tijuana River Valley (CDFW 2019).
Fritillaria biflora	Chocolate lily	None/None/None/ None	Coastal scrub, chaparral, valley and foothill grassland; sometimes clay, cobbly loam/perennial herb/Feb–June/1030–3379	Not expected to occur. Chocolate lily was not observed during rare plant surveys. This species is not known to occur within the vicinity (CDFW 2019).
Funastrum utahense	Utah vine milkweed	None/None/4.2/ None	Mojavean desert scrub, Sonoran desert scrub; sandy or gravelly/perennial herb/(Mar)Apr–June(Sep–Oct)/325–4710	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Galium angustifolium ssp. *borregoense*	Borrego bedstraw	None/SR/1B.3/ None	Sonoran desert scrub (rocky)/perennial herb/Mar(May)/1145–4100	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Galium angustifolium ssp. *jacinticum*	San Jacinto Mountains bedstraw	None/None/1B.3/ None	Lower montane coniferous forest/perennial herb/June–Aug/4425–6890	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Galium johnstonii	Johnston's bedstraw	None/None/4.3/ None	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland, Riparian woodland/perennial herb/June–July/4000–7545	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
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/3900–5350	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. The closest known CNDDB occurrence is 8.6 miles northeast of the study area within Long Canyon (CDFW 2019).
Geothallus tuberosus	Campbell's liverwort	None/None/1B.1/ None	Coastal scrub (mesic), Vernal pools; soil/ephemeral liverwort/N.A./30–1970	Not expected to occur. There are no vernal pools present. The closest known CNDDB occurrence is 6.6 miles north of the study area within Rice Canyon (CDFW 2019).
Geraea viscida	sticky geraea	None/None/2B.2/ None	Chaparral (often in disturbed areas)/perennial herb/(Apr)May–June/1475–5575	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Githopsis diffusa ssp. *filicaulis*	Mission Canyon bluecup	None/None/3.1/ None	Chaparral (mesic, disturbed areas)/annual herb/Apr–June/1475–2295	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).

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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/605–5725	Not expected to occur. The site is outside of the species' known elevation range. The closest known CNDDB occurrence is 3.7 miles northeast of the study area within Otay Mesa (CDFW 2019).
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/65–3135	Not expected to occur. Palmer's grapplinghook was not observed during rare plant surveys. The closest known occurrence is 3.0 miles north within Pacific Gateway Park (CCH 2019).
Hazardia orcuttii	Orcutt's hazardia	None/ST/1B.1/ None	Chaparral (maritime), Coastal scrub; often clay/perennial evergreen shrub/Aug–Oct/260–280	Not expected to occur. Orcutt's hazardia was not observed during rare plant surveys. There is no suitable clay soil present. This species is not known to occur within the vicinity (CDFW 2019).
Herissantia crispa	curly herissantia	None/None/2B.3/List B/None	Sonoran desert scrub/annual / perennial herb/(Apr)Aug–Sep/2295–2380	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Hesperocyparis forbesii	Tecate cypress	None/None/1B.1Covered	Closed-cone coniferous forest, Chaparral; clay, gabbroic or metavolcanic/perennial evergreen tree/N.A./260–4920	Not expected to occur. Tecate cypress was not observed during rare plant surveys. The closest known CNDDB occurrence is 5.6 miles northeast of the study area within Wolf Canyon (CDFW 2019).
Hesperocyparis stephensonii	Cuyamaca cypress	None/None/1B.1/ None	Closed-cone coniferous forest, Chaparral, Cismontane woodland, Riparian forest; gabbroic/perennial evergreen tree/N.A./3395–5595	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Heterotheca sessiliflora ssp. *sanjacintensis*	Sessileflower false goldenaster	None/None/None/ None	Montane habitats; reported to be endemic to Mount Palomar and the San Jacinto Mountains (Reiser 2001)/perennial herb/July–Sep/2200–7218	Not expected to occur. The site is outside of the species' known geographic range (Reiser 2001). This species is not known to occur within the vicinity (CDFW 2019).
Heterotheca sessiliflora ssp. *sessiliflora*	beach goldenaster	None/None/1B.1/ None	Chaparral (coastal), Coastal dunes, Coastal scrub/perennial herb/Mar–Dec/0–4020	Not expected to occur. Beach goldenstar was not observed during rare plant surveys.. There is suitable coastal scrub and chaparral present. The closest known CNDDB occurrence is 2.1 miles east of the study area west of the Tijuana International Border Crossing (CDFW 2019).
Heuchera brevistaminea	Laguna Mountains alumroot	None/None/1B.3/ None	Broadleafed upland forest, Chaparral, Cismontane woodland, Riparian forest; rocky/perennial rhizomatous herb/Apr–July(Sep)/4490–6560	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Heuchera rubescens var. *versicolor*	San Diego County alumroot	None/None/3.3/ None	Chaparral, Lower montane coniferous forest; rocky/perennial rhizomatous herb/May–June/4920–13125	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Holocarpha virgata ssp. elongata	graceful tarplant	None/None/4.2/ None	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/annual herb/May–Nov/195–3610	Not expected to occur. Graceful tarplant was not observed during rare plant surveys. Although there is suitable coastal scrub and chaparral present, there are no known occurrences within 10 miles of the study area (CCH 2019).
Hordeum intercedens	vernal barley	None/None/3.2/ None	Coastal dunes, Coastal scrub, Valley and foothill grassland (saline flats and depressions), Vernal pools/annual herb/Mar–June/15–3280	Not expected to occur. There are no saline flats and depressions or vernal pools present. The closest known occurrence is 3.4 miles northwest of the study area within the Sweetwater Marsh National Wildlife Refuge (CCH 2019).
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/1B.1/ None	Chaparral (maritime), Cismontane woodland, Coastal scrub; sandy or gravelly/perennial herb/Feb–July(Sep)/225–2655	Not expected to occur. Mesa horkelia was not observed during rare plant surveys. Although there is suitable maritime chaparral and coastal scrub present, this species is not known to occur within the vicinity (CDFW 2019).
Horkelia truncata	Ramona horkelia	None/None/1B.3/ None	Chaparral, Cismontane woodland; clay, gabbroic/perennial herb/May–June/1310–4265	Not expected to occur. The site is outside of the species' known elevation range. There is no suitable clay soil present. This species is not known to occur within the vicinity (CDFW 2019).
Horsfordia newberryi	Newberry's velvet-mallow	None/None/4.3/ None	Sonoran desert scrub (rocky)/perennial shrub/Feb,Apr,Nov,Dec/5–2625	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Hosackia crassifolia var. *otayensis*	Otay Mountain lotus	None/None/1B.1/ None	Chaparral (metavolcanic, often in disturbed areas)/perennial herb/May–Aug/1245–3295	Not expected to occur. The site is outside of the species' known elevation range. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).

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Hulsea californica	San Diego sunflower	None/None/1B.3/ None	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest; openings and burned areas/perennial herb/Apr–June/3000–9565	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Hulsea mexicana	Mexican hulsea	None/None/2B.3/ None	Chaparral (volcanic, often on burns or disturbed areas)/annual / perennial herb/Apr–June/3935–3935	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Hymenothrix wrightii	Wright's hymenothrix	None/None/4.3/ None	Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland/perennial herb/June–Oct/4590–5085	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Ipomopsis tenuifolia	slender-leaved ipomopsis	None/None/2B.3/ None	Chaparral, Pinyon and juniper woodland, Sonoran desert scrub; gravelly or rocky/perennial herb/Mar–May/325–3935	Not expected to occur.Although there is suitable chaparral present, this species is not known to occur within the vicinity (CDFW 2019).
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/1B.2/ None	Chaparral, Coastal scrub (sandy, often in disturbed areas)/perennial shrub/Apr–Nov/30–445	Not expected to occur. Decumbent goldenbush was not observed during rare plant surveys. There is suitable coastal scrub, chaparral, and sandy, disturbed areas present. The closest known CNDDB occurrence is 1.1 miles northwest of the study area within the Tijuana River National Estuarine Research Reserve (CDFW 2019).
Iva hayesiana	San Diego marsh-elder	None/None/2B.2/ None	Marshes and swamps, Playas/perennial herb/Apr–Oct/30–1640	Not expected to occur. No suitable vegetation present. The closest known CNDDB occurrence is less than 0.5 miles north of the study area within a riparian floodplain (CDFW 2019).
Johnstonella costata	ribbed cryptantha	None/None/4.3/ None	Desert dunes, Mojavean desert scrub, Sonoran desert scrub; sandy/annual herb/Feb–May/-195–1640	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Johnstonella holoptera	winged cryptantha	None/None/4.3/ None	Mojavean desert scrub, Sonoran desert scrub/annual herb/Mar–Apr/325–5545	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Juglans californica	Southern California black walnut	None/None/4.2/ None	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; alluvial/perennial deciduous tree/Mar–Aug/160–2955	Not expected to occur. Southern California black walnut was not observed during rare plant surveys. Although there is suitable coastal scrub and chaparral present, this species is not known to occur within the vicinity (CDFW 2019).
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/5–2955	Not expected to occur. Southwestern spiny rush was not observed during rare plant surveys. No suitable vegetation present. The closest known occurrence is 1.0 miles northeast of the study area along the Tijuana River (CCH 2019).
Juncus cooperi	Cooper's rush	None/None/4.3/ None	Meadows and seeps (mesic, alkaline or saline)/perennial herb/Apr–May(Aug)/-850–5805	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1/ None	Marshes and swamps (coastal salt), Playas, Vernal pools/annual herb/Feb–June/0–4005	Not expected to occur. Coulter's goldfields were not observed during rare plant surveys. No suitable vegetation present. The closest known CNDDB occurrence is 2.5 miles west of the study area within the Tijuana River National Estuarine Research Reserve (CDFW 2019).
Lathyrus splendens	pride-of-California	None/None/4.3/ None	Chaparral/perennial herb/Mar–June/655–5005	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Lepechinia cardiophylla	heart-leaved pitcher sage	None/None/1B.2/ Covered	Closed-cone coniferous forest, Chaparral, Cismontane woodland/perennial shrub/Apr–July/1705–4495	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Lepechinia cardiophylla	heart-leaved pitcher sage	None/None/1B.2/ Covered	Closed-cone coniferous forest, Chaparral, Cismontane woodland/perennial shrub/Apr–July/1705–4495	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
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/1000–3295	Not expected to occur. The site is outside of the species' known elevation range. The closest known CNDDB occurrence is 10 miles east of the study area within the San Ysidro Mountains (CDFW 2019).
Lepidium flavum var. *felipense*	Blair Valley pepper-grass	None/None/1B.2/ None	Pinyon and juniper woodland, Sonoran desert scrub; sandy/annual herb/Mar–May/1490–2755	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/4.3/ None	Chaparral, Coastal scrub/annual herb/Jan–July/0–2905	Not expected to occur. Robinson's pepper-grass was not observed during rare plant surveys. There is suitable chaparral and coastal scrub present. The closest known occurrence is 4.6 miles northeast of the study area along Otay River (CCH 2019).

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Leptosiphon floribundus ssp. *hallii*	Santa Rosa Mountains leptosiphon	None/None/1B.3/ None	Pinyon and juniper woodland, Sonoran desert scrub/perennial herb/May–July(Nov)/3280–6560	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Lessingia glandulifera var. *tomentosa*	Warner Springs lessingia	None/None/1B.1/ None	Chaparral (sandy)/annual herb/Aug,Oct/2850–4005	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Lewisia brachycalyx	short-sepaled lewisia	None/None/2B.2/ None	Lower montane coniferous forest, Meadows and seeps; mesic/perennial herb/(Feb)Apr–June(July)/4490–7545	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
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)/95–5905	Not expected to occur. Although there is suitable coastal scrub and chaparral present, there are no known occurrences within 10 miles of the study area (CCH 2019).
Lilium parryi	lemon lily	None/None/1B.2/ None	Lower montane coniferous forest, Meadows and seeps, Riparian forest, Upper montane coniferous forest; mesic/perennial bulbiferous herb/July–Aug/4000–9005	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Limnanthes alba ssp. *parishii*	Parish's meadowfoam	None/SE/1B.2/ None	Lower montane coniferous forest, Meadows and seeps, Vernal pools; vernally mesic/annual herb/Apr–June/1965–6560	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Linanthus bellus	desert beauty	None/None/2B.1/ None	Chaparral (sandy)/annual herb/Apr–May/3280–4595	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Linanthus orcuttii	Orcutt's linanthus	None/None/1B.3/ None	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland; openings/annual herb/May–June/3000–7035	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Lupinus albifrons var. *medius*	Mountain Springs bush lupine	None/None/1B.3/ None	Pinyon and juniper woodland, Sonoran desert scrub/perennial shrub/Mar–May/1390–4495	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Lycium parishii	Parish's desert-thorn	None/None/2B.3/ None	Coastal scrub, Sonoran desert scrub/perennial shrub/Mar–Apr/440–3280	Not expected to occur Although there is suitable coastal scrub present, this species is not known to occur within the vicinity (CDFW 2019).
Lyrocarpa coulteri	Palmer's lyrepod	None/None/4.3/ None	Sonoran desert scrub (gravelly or rocky)/perennial herb/Dec–Apr/390–2610	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Malacothamnus aboriginum	Indian Valley bush-mallow	None/None/1B.2/ None	Chaparral, Cismontane woodland; Rocky, granitic, often in burned areas/perennial deciduous shrub/Apr–Oct/490–5575	Not expected to occur. Indian Valley bush mallow was not observed during rare plant surveys. Although there is suitable chaparral present, this species is not known to occur within the vicinity (CDFW 2019).
Malperia tenuis	brown turbans	None/None/2B.3/ None	Sonoran desert scrub (sandy, gravelly)/annual herb/(Feb)Mar–Apr/45–1100	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Matelea parvifolia	spearleaf	None/None/2B.3/ None	Mojavean desert scrub, Sonoran desert scrub; rocky/perennial herb/Mar–May(July)/1440–3595	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Mentzelia hirsutissima	hairy stickleaf	None/None/2B.3/ None	Sonoran desert scrub (rocky)/annual herb/Mar–May/0–2295	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
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/45–3510	Not expected to occur. There is no suitable clay soil or vernal pools present. The closest known occurrence is 6.3 miles east of the study area within Otay Mesa (CCH 2019).
Mimulus latidens	Vernal pool monkeyflower	None/None/None/ None	Vernal pools/annual herb/Apr–June/900–2953	Not expected to occur. There are no vernal pools and this species is not known to occur within the vicinity (CDFW 2019).
Mirabilis tenuiloba	slender-lobed four o'clock	None/None/4.3/ None	Sonoran desert scrub/perennial herb/(Feb)Mar–May/750–3595	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Mobergia calculiformis	light gray lichen	None/None/3/None	Coastal scrub (?); On rocks/crustose lichen (saxicolous)/N.A./30–35	Low potential to occur. Although there is suitable coastal scrub present, there are no known occurrences recorded for this species (CCH 2019).

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Monardella hypoleuca ssp. *lanata*	felt-leaved monardella	None/None/1B.2/ Covered	Chaparral, Cismontane woodland/perennial rhizomatous herb/June–Aug/980–5165	Not expected to occur. The site is outside of the species' known elevation range. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Monardella macrantha ssp. *hallii*	Hall's monardella	None/None/1B.3/ None	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland/perennial rhizomatous herb/June–Oct/2395–7200	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Monardella nana ssp. *leptosiphon*	San Felipe monardella	None/None/1B.2/ None	Chaparral, Lower montane coniferous forest/perennial rhizomatous herb/June–July/3935–6085	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Monardella stoneana	Jennifer's monardella	None/None/1B.2/ None	Closed-cone coniferous forest, Chaparral, Coastal scrub, Riparian scrub; usually rocky intermittent streambeds/perennial herb/June–Sep/30–2590	Not expected to occur. Jennifer's monardella was not observed during rare plant surveys. Although there is suitable coastal scrub and chaparral present, there are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
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/160–740	Not expected to occur. This species is a geographically narrow endemic species restricted to three watersheds north of Kearny Mesa, and therefore the site is outside of the species known geographic range (USFWS 2012). There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
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)/0–4595	Not expected to occur. California spineflower was not observed during rare plant surveys. Although there is suitable coastal scrub and chaparral present, there are no known occurrences within 10 miles of the study area (CCH 2019).
Myosurus minimus ssp. *apus*	little mousetail	None/None/3.1/ None	Valley and foothill grassland, Vernal pools (alkaline)/annual herb/Mar–June/65–2100	Not expected to occur. There are no vernal pools present. The closest known occurrence is 3.6 miles northeast of the study area within Pacific Gateway Park (CCH 2019).
Nama stenocarpa	mud nama	None/None/2B.2/ None	Marshes and swamps (lake margins, riverbanks)/annual / perennial herb/Jan–July/15–1640	Not expected to occur. No suitable vegetation present. This species is associated with the muddy banks of lakes and ponds (Reiser 2001).
Nasturtium gambelii	Gambel's water cress	FE/ST/1B.1/ None	Marshes and swamps (freshwater or brackish)/perennial rhizomatous herb/Apr–Oct/15–1085	Not expected to occur. No suitable vegetation present. This species is not known to occur in San Diego County (USFWS 2011b). This species is not known to occur within the vicinity (CDFW 2019).
Navarretia fossalis	spreading navarretia	FT/None/1B.1/ Narrow Endemic	Chenopod scrub, Marshes and swamps (assorted shallow freshwater), Playas, Vernal pools/annual herb/Apr–June/95–2150	Not expected to occur. No suitable vegetation present. This species is primarily associated with vernal pools (Reiser 2001) which do not occur on the project site. The closest known CNDDB occurrence is 3.7 miles northeast of the study area within Otay Mesa (CDFW 2019).
Navarretia peninsularis	Baja navarretia	None/None/1B.2/ None	Chaparral (openings), Lower montane coniferous forest, Meadows and seeps, Pinyon and juniper woodland; mesic/annual herb/(May)June–Aug/4920–7545	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Navarretia prostrata	prostrate vernal pool navarretia	None/None/1B.1/ None	Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools; Mesic/annual herb/Apr–July/5–3970	Not expected to occur. This species is restricted to vernal pools (Reiser 2001), which do not occur on the project site. The closest known CNDDB occurrence is 8.9 miles north of the study area within National City (CDFW 2019).
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. The closest known CNDDB occurrence is 2.7 miles west within coastal dunes in Border Field State Park (CDFW 2019).
Nemacaulis denudata var. *gracilis*	slender cottonheads	None/None/2B.2/ None	Coastal dunes, Desert dunes, Sonoran desert scrub/annual herb/(Mar)Apr–May/-160–1310	Not expected to occur. No suitable vegetation present. The closest known CNDDB occurrence is 1.3 miles northeast of the study area within San Ysidro (CDFW 2019).
Nolina cismontana	chaparral nolina	None/None/1B.2/ None	Chaparral, Coastal scrub; sandstone or gabbro/perennial evergreen shrub/(Mar)May–July/455–4185	Not expected to occur.Although there is suitable coastal scrub and chaparral present, this species is not known to occur within the vicinity (CDFW 2019).
Nolina interrata	Dehesa nolina	None/SE/1B.1/ Covered	Chaparral (gabbroic, metavolcanic, or serpentinite)/perennial herb/June–July/605–2805	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Nolina interrata	Dehesa nolina	None/SE/1B.1/ Covered	Chaparral (gabbroic, metavolcanic, or serpentinite)/perennial herb/June–July/605–2805	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).

Scientific Name	Common Name	Status (Federal/State/CRPR/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Opuntia wigginsii	Wiggins' cholla	None/None/3.3None	Sonoran desert scrub (sandy)/perennial stem succulent/Mar/95–2905	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Orcuttia californica	California Orcutt grass	FE/SE/1B.1/ Narrow Endemic	Vernal pools/annual herb/Apr–Aug/45–2165	Not expected to occur. No suitable vegetation present. This species is restricted to vernal pools (USFWS 2011c); however, vernal pools do not occur on site. The closest known occurrence is 4.1 miles east of the study area within the San Diego National Wildlife Refuge (CDFW 2019).
Orobanche parishii ssp. *brachyloba*	short-lobed broomrape	None/None/4.2/ None	Coastal bluff scrub, Coastal dunes, Coastal scrub; sandy/perennial herb (parasitic)/Apr–Oct/5–1000	Not expected to occur. Short lobed broomrape was not observed during rare plant surveys. This species is primarily associated with coastal bluff scrub and coastal dune habitat (Reiser 2001). The closest known occurrence is 8.1 miles north of the study area on coastal bluffs in Coronado (CCH 2019).
Packera ganderi	Gander's ragwort	None/SR/1B.2/ Covered	Chaparral (burns, gabbroic outcrops)/perennial herb/Apr–June/1310–3935	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Pectocarya peninsularis	Baja California bur-comb	None/None/None/ None	Sonoran desert scrub; washes, roadsides, clearings, sandy, silty, or gravelly soil/annual herb/Feb–Apr/300–984	Not expected to occur. Baja California bur-comb was not observed during rare plant surveys. Although there is sandy soil present, this species is not known to occur within the vicinity (CDFW 2019).
Penstemon clevelandii var. *connatus*	San Jacinto beardtongue	None/None/4.3/ None	Chaparral, Pinyon and juniper woodland, Sonoran desert scrub; rocky/perennial herb/Mar–May/1310–4920	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Penstemon thurberi	Thurber's beardtongue	None/None/4.2/ None	Chaparral, Joshua tree woodland, Pinyon and juniper woodland, Sonoran desert scrub/perennial herb/May–July/1640–4005	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
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/260–6070	Not expected to occur. Golden-rayed pentachaeta was not observed during rare plant surveys. Although there is suitable coastal scrub and chaparral present, there are no known occurrences within 10 miles of the study area (CCH 2019).
Perideridia gairdneri ssp. *gairdneri*	Gairdner's yampah	None/None/4.2/ None	Broadleafed upland forest, Chaparral, Coastal prairie, Valley and foothill grassland, Vernal pools; vernally mesic/perennial herb/June–Oct/0–2000	Not expected to occur. There are no vernal pools present. This species is not known to occur within the vicinity (CDFW 2019).
Phacelia stellaris	Brand's star phacelia	None/None/1B.1/None	Coastal dunes, Coastal scrub/annual herb/Mar–June/0–1310	Not expected to occur. Brand's star phacelia was not observed during rare plant surveys. There is suitable coastal scrub present. The closest known CNDDB occurrence is 2.0 miles west of the study area within Border Field State Park (CDFW 2019).
Pickeringia montana var. *tomentosa*	woolly chaparral-pea	None/None/4.3/ None	Chaparral; Gabbroic, granitic, clay/evergreen shrub/May–Aug/0–5575	Not expected to occur. Woolly chaparral pea was not observed during rare plant surveys. There are no known occurrences within 10 miles of the study area (CCH 2019).
Pilostyles thurberi	Thurber's pilostyles	None/None/4.3/ None	Sonoran desert scrub/perennial herb (parasitic)/Dec–Apr/0–1200	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Pinus torreyana ssp. *torreyana*	Torrey pine	None/None/1B.2/ Covered	Closed-cone coniferous forest, Chaparral; Sandstone/perennial evergreen tree/N.A./95–525	Not expected to occur. Torrey pine was not observed during rare plant surveys. Although there is suitable chaparral present, this species is not known to occur within the vicinity (CDFW 2019).
Piperia cooperi	chaparral rein orchid	None/None/4.2/ None	Chaparral, Cismontane woodland, Valley and foothill grassland/perennial herb/Mar–June/45–5200	Not expected to occur. Chaparral rein orchind was not observed during rare plant surveys. Although there is suitable chaparral present, the closest known occurrence is 9.3 miles north of the study area within National City (CCH 2019).
Piperia leptopetala	narrow-petaled rein orchid	None/None/4.3/ None	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest/perennial herb/May–July/1245–7300	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Poa atropurpurea	San Bernardino blue grass	FE/None/1B.2/None	Meadows and seeps (mesic)/perennial rhizomatous herb/(Apr)May–July(Aug)/4460–8055	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is known to occur in Laguna and Palomar Mountains in San Diego County (USFWS 2008). This species is not known to occur within the vicinity (CDFW 2019).

Scientific Name	Common Name	Status (Federal/State/CRPR/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Pogogyne abramsii	San Diego mesa mint	FE/SE/1B.1/ Narrow Endemic	Vernal pools/annual herb/Mar–July/295–655	Not expected to occur. This species is restricted to vernal pools (USFWS 2010a); however, no vernal pools occur on site. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Pogogyne nudiuscula	Otay Mesa mint	FE/SE/1B.1/ Narrow Endemic	Vernal pools/annual herb/May–July/295–820	Not expected to occur. This species is restricted to vernal pools (USFWS 2010b); however, no vernal pools occur on site. The closest known CNDDB occurrence is 2.7 miles northeast of the study area within Moody Canyon (CDFW 2019).
Polygala cornuta var. *fishiae*	Fish's milkwort	None/None/4.3/ None	Chaparral, Cismontane woodland, Riparian woodland/perennial deciduous shrub/May–Aug/325–3280	Not expected to occur. Fish's milkwort was not observed during rare plant surveys. Although there is suitable chaparral present, this species is not known to occur within the vicinity (CDFW 2019).
Proboscidea althaeifolia	desert unicorn-plant	None/None/4.3/ None	Sonoran desert scrub; gently sloping sandy flats and washes, sometimes roadsides/perennial herb/May–Sep(Oct)/275–3280	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Quercus cedrosensis	Cedros Island oak	None/None/2B.2/ None	Closed-cone coniferous forest, Chaparral, Coastal scrub/perennial evergreen tree/Apr–May/835–3150	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
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)/45–1310	Not expected to occur. Nuttal's scrub oak was not observed during rare plant surveys. The species is known to occur in the southwestern portion of study area (Greystone 2005). Suitable habitat present. However, shrub would have been observed during surveys if present. Absent. There is no suitable clay soil present. Suitable coastal scrub habitat is present; however, this perennial species is associated primarily with chaparral habitats (Reiser 2001). The closest known CNDDB occurrence is 0.9 miles west of the study area within Spooners Mesa (CDFW 2019).
Quercus engelmannii	Engelmann oak	None/None/4.2/ None	Chaparral, Cismontane woodland, Riparian woodland, Valley and foothill grassland/perennial deciduous tree/Mar–June/160–4265	Not expected to occur. Engelmann oak was not observed during rare plant surveys. Although there is suitable chaparral, there is no suitable woodland habitat and there are no known occurrences within 10 miles of the study area (CCH 2019).
Rhus aromatica var. *simplicifolia*	single-leaved skunkbrush	None/None/2B.3/ None	Pinyon and juniper woodland; Usually granitic./perennial deciduous shrub/Mar–Apr/4000–4495	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Ribes canthariforme	Moreno currant	None/None/1B.3/ None	Chaparral, Riparian scrub/perennial deciduous shrub/Feb–Apr/1115–3935	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Ribes viburnifolium	Santa Catalina Island currant	None/None/1B.2/ None	Chaparral, Cismontane woodland/perennial evergreen shrub/Feb–Apr/95–1150	Not expected to occur. Santa Catalina Island currant was not observed during rare plant surveys. There is suitable chaparral present. The closest known CNDDB occurrence is 0.9 miles west of the study area within Spooners Mesa (CDFW 2019).
Romneya coulteri	Coulter's matilija poppy	None/None/4.2/ None	Chaparral, Coastal scrub; Often in burns/perennial rhizomatous herb/Mar–July(Aug)/65–3935	Not expected to occur. Coulter;'s mattilaja poppy was not observed during rare plant surveys. There is suitable coastal scrub and chaparral present. The closest known occurrence is 7.5 miles north of the study area within Bonita (CCH 2019).
Rosa minutifolia	small-leaved rose	None/SE/2B.1/ Covered	Chaparral, Coastal scrub/perennial deciduous shrub/Jan–June/490–525	Not expected to occur. Small leaved rose was not observed during rare plant surveys. There is suitable coastal scrub and chaparral present. The closest known CNDDB occurrence is 3.6 miles northeast of the study area within Dennery Canyon (CDFW 2019).
Rubus glaucifolius var. *ganderi*	Cuyamaca raspberry	None/None/3.1/ None	Lower montane coniferous forest (gabbroic)/perennial evergreen shrub/May–June/3935–5495	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Rupertia rigida	Parish's rupertia	None/None/4.3/ None	Chaparral, Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Pebble (Pavement) plain, Valley and foothill grassland/perennial herb/June–Aug/2295–8200	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Saltugilia caruifolia	caraway-leaved woodland-gilia	None/None/4.3/ None	Chaparral, Lower montane coniferous forest; Sandy, openings/annual herb/May–Aug/2755–7545	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).

Scientific Name	Common Name	Status (Federal/State/CRPR/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Salvia eremostachya	desert sage	None/None/4.3/ None	Sonoran desert scrub (rocky or gravelly)/perennial evergreen shrub/Mar–May/2295–4595	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Salvia munzii	Munz's sage	None/None/2B.2/ None	Chaparral, Coastal scrub/perennial evergreen shrub/Feb–Apr/375–3495	Not expected to occur. Munz's sage was not observed during rare plant surveys. There is suitable coastal scrub and chaparral present. The closest known CNDDB occurrence is 7.8 miles northeast of the study area within Otay Valley (CDFW 2019).
Scutellaria bolanderi ssp. *austromontana*	southern mountains skullcap	None/None/1B.2/ None	Chaparral, Cismontane woodland, Lower montane coniferous forest; mesic/perennial rhizomatous herb/June–Aug/1390–6560	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Selaginella asprella	bluish spike-moss	None/None/4.3/ None	Cismontane woodland, Lower montane coniferous forest, Pinyon and juniper woodland, Subalpine coniferous forest, Upper montane coniferous forest; granitic, rocky/perennial rhizomatous herb/July/5245–8860	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Selaginella eremophila	desert spike-moss	None/None/2B.2/ None	Chaparral, Sonoran desert scrub (gravelly or rocky)/perennial rhizomatous herb/(May)June(July)/655–4250	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Senecio aphanactis	chaparral ragwort	None/None/2B.2/ None	Chaparral, Cismontane woodland, Coastal scrub; sometimes alkaline/annual herb/Jan–Apr(May)/45–2625	Not expected to occur. Chaparral ragwort was not observed during rare plant surveys. There is suitable coastal scrub and chaparral present, however suitable alkaline soils do not occur on site. The closest known CNDDB occurrence is 2.0 miles west of the study area within Border Field State Park (CDFW 2019).
Senna covesii	Coves' cassia	None/None/2B.2/ None	Sonoran desert scrub; Dry, sandy desert washes and slopes/perennial herb/Mar–June(Aug)/735–4250	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Sibaropsis hammittii	Hammitt's clay-cress	None/None/1B.2/None	Chaparral (openings), Valley and foothill grassland; clay/annual herb/Mar–Apr/2360–3495	Not expected to occur. The site is outside of the species' known elevation range. There is no suitable clay soil present. This species is not known to occur within the vicinity (CDFW 2019).
Solanum xanti	Purple nightshade	None/None/None/ Covered	Coastal scrub, chaparral, cismontane woodland, lower montane coniferous forest/perennial herb / perennial shrub/June–July/2700–8858	Not expected to occur. Purple nighshade was not observed during rare plant surveys. Although there is suitable coastal scrub and chaparral present, this species is not known to occur within the vicinity (CDFW 2019).
Spermolepis echinata	bristly scaleseed	None/None/None/ None	Sonoran desert scrub (sandy or rocky)/annual herb/Mar–Aprandnbsp;andnbsp; /1500–4921	Not expected to occur. There is no suitable vegetation present and this species is not known to occur within the vicinity (CDFW 2019).
Sphaerocarpos drewei	bottle liverwort	None/None/1B.1/ None	Chaparral, Coastal scrub; openings, soil/ephemeral liverwort/N.A./295–1970	Low potential to occur. Although there is suitable coastal scrub and chaparral present, there are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Stemodia durantifolia	purple stemodia	None/None/2B.1/ None	Sonoran desert scrub (often mesic, sandy)/perennial herb/(Jan)Apr,June,Aug,Sep,Oct,Dec/590–985	Not expected to occur. Purple stemodia was not observed during rare plant surveys. The site is outside of the species' known elevation range and there is no suitable vegetation present. The closest known CNDDB occurrence is 3.5 miles northeast of the study area within Otay Valley Regional Park (CDFW 2019).
Streptanthus bernardinus	Laguna Mountains jewelflower	None/None/4.3/ None	Chaparral, Lower montane coniferous forest/perennial herb/May–Aug/2195–8200	Not expected to occur. The site is outside of the species' known elevation range. There are no known occurrences within 10 miles of the study area (CCH 2019).
Streptanthus campestris	southern jewelflower	None/None/1B.3/ None	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland; rocky/perennial herb/(Apr)May–July/2950–7545	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Stylocline citroleum	oil neststraw	None/None/1B.1/ None	Chenopod scrub, Coastal scrub, Valley and foothill grassland; clay/annual herb/Mar–Apr/160–1310	Not expected to occur. There is no suitable clay soil present. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
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. No suitable vegetation present. The closest known CNDDB occurrence is 2.1 miles west of the study area within Border Field State Park (CDFW 2019).
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. This species is not known to occur within the vicinity (CDFW 2019).

Scientific Name	Common Name	Status (Federal/State/CRPR/MSCP)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Tetracoccus dioicus	Parry's tetracoccus	None/None/1B.2/ Covered	Chaparral, Coastal scrub/perennial deciduous shrub/Apr–May/540–3280	Not expected to occur. The site is outside of the species' known elevation range. The closest known CNDDB occurrence is 9.1 miles northeast of the study area within along Salt Creek (CDFW 2019).
Thermopsis californica var. *semota*	velvety false lupine	None/None/1B.2/ None	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland/perennial rhizomatous herb/Mar–June/3280–6135	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Tortula californica	California screw-moss	None/None/1B.2/ None	Chenopod scrub, Valley and foothill grassland; sandy, soil/moss/N.A./30–4790	Low potential to occur. California screw moss was not observed during rare plant surveys. There is suitable grassland habitat present. The closest known CNDDB occurrence is 1.4 miles within Border Field State Park (CDFW 2019).
Viguiera purisimae	La Purisima viguiera	None/None/2B.3/ None	Coastal bluff scrub, Chaparral/shrub/Apr–Sep/1195–1395	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Viola purpurea ssp. *aurea*	golden violet	None/None/2B.2/ None	Great Basin scrub, Pinyon and juniper woodland; sandy/perennial herb/Apr–June/3280–8200	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Xanthisma junceum	rush-like bristleweed	None/None/4.3/ None	Chaparral, Coastal scrub/perennial herb/May–Jan/785–3280	Not expected to occur. The site is outside of the species' known elevation range. This species is not known to occur within the vicinity (CDFW 2019).
Xylorhiza orcuttii	Orcutt's woody-aster	None/None/1B.2/ None	Sonoran desert scrub/perennial herb/Mar–Apr/0–1200	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).

* "Vicinity" refers to species recorded in the USGS 7.5-minute Imperial Beach quadrangle and surrounding 4 quadrangles including the Point Loma, National City, Jamul Mountains, and Otay Mesa quadrangles (CDFW 2019; USFWS 2019).

References

69 FR 31523. U.S. Fish and Wildlife Service, Interior. Endangered and Threatened Wildlife and Plants. June 4, 2004.
83 FR 11453. U.S. Fish and Wildlife Service, Interior. Endangered and Threatened Wildlife and Plants. March 15, 2018.
USFWS. 2008. (Poa atropurpurea) San Bernardino Bluegrass 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office. Carlsbad, California. September 2008. https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20080930_5YR_POAT.pdf
USFWS. 2009a. Acanthomintha ilicifolia (San Diego thornmint) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office. Carlsbad, California. August 14, 2009. https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20090812_5YR_ACIL.pdf
USFWS. 2009b. Berberis nevinii (Nevin's barberry) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office. Carlsbad, California. August 14, 2009. https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20090814_5YR_BENE.pdf
USFWS. 2009c. Brodiaea filifolia (thread-leaved brodiaea) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office. Carlsbad, California. August 14, 2009. https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20090813_5YR_BRFI.pdf
USFWS. 2009d. Chloropyron maritimum subsp. maritimum (Cordylanthus maritimus subsp. maritimus) (salt marsh bird's-beak) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office. Carlsbad, California. August 13, 2009. https://www.fws.gov/carlsbad/speciesstatuslist/5yr/20090813_5yr_chmama.pdf
USFWS. 2009e. Deinandra conjugens (Otay tarplant) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office. Carlsbad, California. June 30, 2009. https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20090630_5YR_DECO.pdf
USFWS. 2009f. Fremontodendron mexicanum (Mexican flannelbush) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office. Carlsbad, California. August 14, 2009. https://www.fws.gov/carlsbad/speciesstatuslist/5yr/20090814_5yr_frme.pdf
USFWS. 2010a. Pogogyne abramsii (San Diego mesa mint) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office. Carlsbad, California. September 1, 2010. https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20100901_5YR_POAB.pdf
USFWS. 2010b. Pogogyne nudiuscula (Otay mesa mint) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office. Carlsbad, California. September 1, 2010. https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20100901_5YR_PONU.pdf
USFWS. 2011a. Baccharis vanessae (Encinitas baccharis) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office. Carlsbad, California. December 22, 2011. https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20111222_5YR_BAVA.pdf
USFWS. 2011b. Rorippa gambellii [Nasturtium gambelii] (Gambel's watercress) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Ventura Fish and Wildlife Office. Ventura, California. September 2011. https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20111107_5YR_NAGA.pdf
USFWS. 2011c. Orcuttia californica (California Orcutt grass) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office. Carlsbad, California. March 11, 2011. https://www.fws.gov/carlsbad/speciesstatuslist/5yr/20110311_5yr_orca.pdf
USFWS. 2012. Monardella viminea (Willowy Monardella) 5-Year Review Short Form Summary. U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office. Carlsbad, California. August 3, 2012. https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20120803_5YR_MOVI.pdf

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APPENDIX G

Special-Status Wildlife Species with Low Potential or Not Expected to Occur within the Project Area

Scientific Name	Common Name	Status: Federal/State/MSCP	Habitat	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. The site is outside of the species' known geographic range. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Batrachoseps major aridus	desert slender salamander	FE/SE/None	Barren, palm oasis, desert wash, and desert scrub	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Ensatina eschscholtzii klauberi	large-blotched salamander	None/WL/None	Moist and shaded evergreen and deciduous woodlands	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Rana draytonii	California red-legged frog	FT/SSC/Covered	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	Not expected to occur. No suitable streams present. Thought to be extirpated from San Diego County. This species is not known to occur within the vicinity (CDFW 2019).
Rana muscosa	mountain yellow-legged frog	FE/SE, WL/None	Lakes, ponds, meadow streams, isolated pools, and open riverbanks; rocky canyons in narrow canyons and in chaparral	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
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	Not expected to occur. No vernal pools present. Tadpoles observed within the vicinity during previous surveys in 2004 (Greystone 2005) and 1997-1999 (Fisher and Case 2000). The closest known CNDDB occurrence is 2.4 miles west of the study area within Border Field State Park (CDFW 2019).
Taricha torosa (Monterey Co. south only)	California newt	None/SSC/None	Wet forests, oak forests, chaparral, and rolling grassland	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Reptiles				
Actinemys marmorata	western pond turtle	None/SSC/Covered	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. No suitable streams present. This species is not known to occur within the vicinity (CDFW 2019).
Anniella pulchra	northern 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 sandy or loose, loamy soils	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC/None	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Low potential to occur. The site is on the western boundary of the species' known geographic range (California Herps 2019). The closest known CNDDB occurrence is 9.6 miles east of the study area within Otay Mesa (CDFW 2019).
Chelonia mydas	green sea turtle	FT/None/None	Shallow waters of lagoons, bays, estuaries, mangroves, eelgrass, and seaweed beds	Not expected to occur. No water bodies present. The closest known CNDDB occurrence is 5.9 miles north of the study area within San Diego Bay (CDFW 2019).
Coleonyx switaki	Switak's banded gecko	None/ST/None	Rocklands, especially massive rocks and rock formations at the heads of canyons	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Coleonyx variegatus abbotti	San Diego banded gecko	None/SSC/None	Rocky areas within coastal scrub and chaparral	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Lampropeltis zonata (pulchra)	California mountain kingsnake (San Diego population)	None/WL/None	Habitat generalist found in habitats including conifer forest, oak–pine woodlands, riparian woodland, chaparral, manzanita, and coastal scrub	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).

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Masticophis fuliginosus	Baja California coachwhip	None/SSC/None	In California restricted to southern San Diego County, where it is known from grassland and coastal sage scrub. Open areas in grassland and coastal sage scrub.	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present. This species was observed within the vicinity in dune, mesa topes, and marsh habitat in 1997-1999 (Fisher and Case 2000).The closest known CNDDB occurrence is 2.1 miles west of the study area within Border Field State Park (CDFW 2019).
Phrynosoma mcallii	flat-tailed horned lizard	None/SSC/None	Desert washes and flats with sparse low-diversity vegetation cover and sandy soils	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Plestiodon skiltonianus interparietalis	Coronado skink	None/WL/None	Woodlands, grasslands, pine forests, and chaparral; rocky areas near water	Low potential to occur. No suitable water bodies present. The closest known CNDDB occurrence is 1.0 miles north of the study area north of Tijuana River (CDFW 2019).
Salvadora hexalepis virgultea	coast patch-nosed snake	None/SSC/None	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites	Not expected to occur. The site is outside of the species' known geographic range. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Thamnophis hammondii	two-striped gartersnake	None/SSC/None	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected to occur. No suitable water bodies present. This species was observed within the vicinity in marsh habitat in 1997-1999 (Fisher and Case 2000). The closest known CNDDB occurrence is 1.0 miles north of the study area north of Tijuana River (CDFW 2019).
Thamnophis sirtalis ssp. (Southern California coastal plain from Ventura County to San Diego County, and from sea level to about 850 m)	south coast garter snake	None/SSC/None	Marsh and upland habitats near permanent water and riparian vegetation	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Uma notata	Colorado Desert fringe-toed lizard	None/SSC/None	Wind-blown sand dunes, dry lakebeds, sandy beaches, riverbanks, desert washes, and sparse desert scrub	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Birds				
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/SSC, PSE/Covered	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberrry; forages in grasslands, woodland, and agriculture	Not expected to nest. No suitable nesting vegetation present. The closest known CNDDB occurrence is 0.8 miles north of the study area along Tijuana River (CDFW 2019).
Ammodramus savannarum (nesting)	grasshopper sparrow	None/SSC/None	Nests and forages in moderately open grassland with tall forbs or scattered shrubs used for perches	Low potential to nest. No suitable nesting habitat present. This species is not known to occur within the vicinity (CDFW 2019).
Antigone canadensis canadensis (wintering)	lesser sandhill crane	None/SSC/None	Winter foraging in cropland, grazed and mowed grassland, pasture, alfalfa fields, and shallow wetlands; roosting sites are flooded and support several inches of water	Low potential to occur. Some agricultural land adjacent to the site. This species is not known to occur within the vicinity (CDFW 2019).
Aquila chrysaetos (nesting & wintering)	golden eagle	BCC/FP, WL/Covered	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	Low potential to nest and forage. The site is potentially part of a foraging territory; however, no breeding habitat on site. This species is not known to occur within the vicinity (CDFW 2019).
Asio flammeus (nesting)	short-eared owl	None/SSC/None	Grassland, prairies, dunes, meadows, irrigated lands, and saline and freshwater emergent wetlands	Low potential to nest. No suitable habitat present. This species is not known to occur within the vicinity (CDFW 2019).
Asio otus (nesting)	long-eared owl	None/SSC/None	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats	Low potential to nest. No suitable riparian habitat present. This species is not known to occur within the vicinity (CDFW 2019).
Aythya americana (nesting)	redhead	None/SSC/None	Nests in deep (>3 ft) permanent or semi-permanent wetlands of at least 1 acre; 75% open water; emergent tules, Scirpus spp., and Typha spp. 3 feet in height; winters in coastal estuaries and large, deep ponds, lakes, and reservoirs of the interior	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).

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Branta canadensis	Canada goose	None/None/Covered	Lakes, rivers, ponds, and other bodies of water; yards, park lawns, and agricultural fields	Not expected to occur. No suitable bodies of water for habitat. This species is not known to occur within the vicinity (CDFW 2019).
Bucephala islandica (nesting)	Barrow's goldeneye	None/SSC/None	Winters in lagoons, bays, and estuaries in coastal areas, and riverine waters, lakes, and reservoirs in the interior	Not expected to nest. No suitable water bodies present. This species is not known to occur within the vicinity (CDFW 2019).
Buteo regalis (wintering)	ferruginous hawk	BCC/WL/Covered	Winters and forages in open, dry country, grasslands, open fields, agriculture	Low potential to occur. This species prefers open, dry country. This species is not known to occur within the vicinity (CDFW 2019).
Buteo swainsoni (nesting)	Swainson's hawk	BCC/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	Low potential to occur. The site is outside of breeding range. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Campylorhynchus brunneicapillus sandiegensis (San Diego & Orange Counties only)	coastal cactus wren	BCC/SSC/Covered	Southern cactus scrub patches	Low potential to occur. No suitable cactus patches present. The closest known CNDDB occurrence is 3.0 miles northeast of the study area within Otay Mesa (CDFW 2019).
Cerorhinca monocerata (nesting colony)	rhinoceros auklet	None/WL/None	Marine pelagic and subtidal habitats	Not expected to nest. No suitable marine habitat present. This species is not known to occur within the vicinity (CDFW 2019).
Charadrius alexandrinus nivosus (nesting)	western snowy plover	FT, BCC/SSC/Covered	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	Low potential to occur. No suitable estuarine shores present. The closest known CNDDB occurrence is 2.9 miles northwest of the study area along the Tijuana River Mouth (CDFW 2019).
Charadrius montanus (wintering)	mountain plover	BCC/SSC/Covered	Winters in shortgrass prairies, plowed fields, open sagebrush, and sandy deserts	Low potential to occur. No suitable agriculture habitat present. This species is not known to occur within the vicinity (CDFW 2019).
Chlidonias niger (nesting colony)	black tern	None/SSC/None	Freshwater marsh with emergent vegetation; in the Central Valley primarily nests and forages in rice fields and other flooded agricultural fields with weeds and other residual aquatic vegetation	Low potential to occur. No suitable marsh present. This species is not known to occur within the vicinity (CDFW 2019).
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT, BCC/SE/None	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. The site is outside of the species' known geographic range. The closest known CNDDB occurrence is 8.3 miles north of the study area along Sweetwater River (CDFW 2019).
Contopus cooperi (nesting)	olive-sided flycatcher	BCC/SSC/None	Nests in mixed-conifer, montane hardwood–conifer, Douglas-fir, redwood, red fir, and lodgepole pine habitats; usually close to water	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
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. No suitable vegetation present. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Cypseloides niger (nesting)	black swift	BCC/SSC/None	Nests in moist crevices, caves, and cliffs behind or adjacent to waterfalls in deep canyons; forages over a wide range of habitats	Not expected to nest. No suitable caves or cliffs present. This species is not known to occur within the vicinity (CDFW 2019).
Dendrocygna bicolor (nesting)	fulvous whistling-duck	None/SSC/None	Nests in freshwater wetlands, especially shallow impoundments managed for rice production and temporarily flooded grasslands; also nests in pastures, haylands, and small grain fields adjacent to rice fields	Not expected to nest. No suitable wetland nesting habitat present. This species is not known to occur within the vicinity (CDFW 2019).
Egretta rufescens	reddish egret	None/None/Covered	Freshwater marsh with emergent vegetation; in the Central Valley primarily nests and forages in rice fields and other flooded agricultural fields with weeds and other residual aquatic vegetation	Not expected to occur. No suitable freshwater marsh habitat present. This species is not known to occur within the vicinity (CDFW 2019).
Elanus leucurus (nesting)	white-tailed kite	None/FP/None	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	Low potential to nest. No suitable riparian habitat present. Observed in the vicinity during previous surveys in 2004 (Greystone 2005). This species is not known to occur within the vicinity (CDFW 2019).
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. No suitable dense riparian thickets present. The closest known occurrence is 7.3 miles northeast of the study area along Otay River (USFWS 2019).

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Falco columbarius (wintering)	merlin	None/WL/None	Forages in semi-open areas, including coastline, grassland, agriculture, savanna, woodland, lakes, and wetlands	Low potential to occur. No suitable agriculture or coastline habitat present. This species is not known to occur within the vicinity (CDFW 2019).
Falco mexicanus (nesting)	prairie falcon	BCC/WL/None	Forages in grassland, savanna, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	Low potential to occur. No suitable agriculture or cliff habitat present. Observed in the vicinity during previous surveys in 2004 (Greystone 2005). This species is not known to occur within the vicinity (CDFW 2019).
Fratercula cirrhata (nesting colony)	tufted puffin	None/SSC/None	Nests on offshore rocks and islands free of mammalian predators, either in earthen burrows or crevices on steep rocky slopes	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Gavia immer (nesting)	common loon	None/SSC/None	Extirpated as a breeder from California; winters in coastal waters such as bays, channels, coves, and inlets; also winters inland at large, deep lakes and reservoirs	Not expected to nest. No suitable coastal waters on site. This species is not known to occur within the vicinity (CDFW 2019).
Haliaeetus leucocephalus (nesting & wintering)	bald eagle	FDL, BCC/FP, SE/Covered	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains	Not expected to nest or winter. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
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	Not expected to nest. No suitable dense riparian woodlands present. Observed in the vicinity during previous surveys in 2004 (Greystone 2005). The closest known CNDDB occurrence is 6.0 miles northeast of the study area (CDFW 2019).
Ixobrychus exilis (nesting)	least bittern	BCC/SSC/None	Nests in freshwater and brackish marshes with dense, tall growth of aquatic and semi-aquatic vegetation	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Junco hyemalis caniceps (nesting)	gray-headed junco	None/WL/None	Nests and forages in pine and juniper–pine forests	Not expected to nest. No suitable pine forest present. This species is not known to occur within the vicinity (CDFW 2019).
Larus californicus (nesting colony)	California gull	None/WL/None	Nests in alkali and freshwater lacustrine habitats; abundant in coastal and interior lowlands during non-nesting period	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Laterallus jamaicensis coturniculus	California black rail	BCC/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. No suitable marsh habitat present. The closest known CNDDB occurrence is 2.5 miles northwest of the study area along the Tijuana River mouth (CDFW 2019). However believed extirpated from San Diego County; last known vagrant observed in 1983 (Unitt 2004).
Leucophaeus atricilla (nesting colony)	laughing gull	None/WL/None	Coastal saltmarsh, bays, and estuaries	Not expected to nest. No suitable saltmarsh present. This species is not known to occur within the vicinity (CDFW 2019).
Melanerpes lewis (nesting)	Lewis's woodpecker	BCC/None/None	Winters in open oak woodland and savanna; nests in open ponderosa pine forest and logged or burned pine forest	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Mycteria americana	wood stork	None/SSC/None	Nests in freshwater and marine-estuarine forested habitats; forages in natural and artificial wetlands; roosts in trees, usually over water	Not expected to occur. No suitable freshwater forested habitats present. This species is not known to occur within the vicinity (CDFW 2019).
Numenius americanus (nesting)	long-billed curlew	BCC/WL/Covered	Nests in grazed, mixed grass, and short-grass prairies; localized nesting along the California coast; winters and forages in coastal estuaries, mudflats, open grassland, and cropland	Low potential to nest. No suitable nesting prairie habitat present. This species is not known to occur within the vicinity (CDFW 2019).
Oceanodroma furcata (nesting colony)	fork-tailed storm-petrel	None/SSC/None	Offshore islands with restricted access and free of mammalian predators; nesting habitat varies across islands from natural crevices in talus slopes to earthen burrows dug by themselves or other species	Not expected to nest. This species nests on offshore islands. This species is not known to occur within the vicinity (CDFW 2019).
Oceanodroma homochroa (nesting colony)	ashy storm-petrel	BCC/SSC/None	Nests on rocky offshore islands on talus slopes, rock walls, sea caves, cliffs, and under piles of driftwood; they do not excavate their own nesting burrows	Not expected to nest. This species nests on offshore islands. This species is not known to occur within the vicinity (CDFW 2019).
Oceanodroma melania (nesting colony)	black storm-petrel	None/SSC/None	Nests on small rocky islands or talus slopes of larger islands free of mammalian predators; occurs on land only to breed	Not expected to nest. This species nests on islands. This species is not known to occur within the vicinity (CDFW 2019).

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Oreothlypis luciae (nesting)	Lucy's warbler	BCC/SSC/None	Nests and forages in desert wash and desert riparian habitats, especially dominated by mesquite, but also in other shrubs and tamarisk	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Pandion haliaetus (nesting)	osprey	None/WL/None	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast	Not expected to nest. No suitable water bodies present on site. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None/SE/Covered	Nests and forages in coastal saltmarsh dominated by pickleweed (Salicornia spp.)	Not expected to occur. No suitable vegetation present. The closest known CNDDB occurrence is 2.5 miles northwest of the study area within the Tijuana Slough National Wildlife Refuge (CDFW 2019).
Passerculus sandwichensis rostratus (wintering)	large-billed savannah sparrow	None/SSC/Covered	Nests and forages in open, low saltmarsh vegetation, including low halophytic scrub	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Pelecanus erythrorhynchos (nesting colony)	American white pelican	None/SSC/None	Nests colonially on sandy, earthen, or rocky substrates on isolated islands in freshwater lakes; minimal disturbance from predators; access to foraging areas on inland marshes, lakes, or rivers; winters on shallow coastal bays, inlets, and estuaries	Not expected to nest. No suitable marsh habitat present. This species is not known to occur within the vicinity (CDFW 2019).
Pelecanus occidentalis californicus (nesting colonies & communal roosts)	California brown pelican	FDL/FP, SDL/Covered	Forages in warm coastal marine and estuarine environments; in California, nests on dry, rocky offshore islands	Not expected to nest. No suitable estuarine habitat present. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Phalacrocorax auritus (nesting colony)	double-crested cormorant	None/WL/None	Nests in riparian trees near ponds, lakes, artificial impoundments, slow-moving rivers, lagoons, estuaries, and open coastlines; winter habitat includes lakes, rivers, and coastal areas	Low potential to occur. No suitable water bodies present. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Piranga rubra (nesting)	summer tanager	None/SSC/None	Nests and forages in mature desert riparian habitats dominated by cottonwoods and willows	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Plegadis chihi (nesting colony)	white-faced ibis	None/WL/Covered	Nests in shallow marshes with areas of emergent vegetation; winter foraging in shallow lacustrine waters, flooded agricultural fields, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Progne subis (nesting)	purple martin	None/SSC/None	Nests and forages in woodland habitats including riparian, coniferous, and valley foothill and montane woodlands; in the Sacramento region often nests in weep holes under elevated freeways	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Pyrocephalus rubinus (nesting)	vermilion flycatcher	None/SSC/None	Nests in riparian woodlands, riparian scrub, and freshwater marshes; typical desert riparian with cottonwood, willow, mesquite adjacent to irrigated fields, ditches, or pastures	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Rallus obsoletus levipes	Ridgway's rail	FE/SE, FP/Covered	Coastal wetlands, brackish areas, coastal saline emergent wetlands	Not expected to occur. No suitable vegetation present. Observed in the vicinity during previous surveys in 2004 (Greystone 2005). The closest known occurrence is 1.0 mile northeast of the study area within the Tijuana River Valley Regional Park (USFWS 2019).
Riparia riparia (nesting)	bank swallow	None/ST/None	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	Low potential to nest. No suitable nesting habitat on cliffs present. This species is not known to occur within the vicinity (CDFW 2019).
Rynchops niger (nesting colony)	black skimmer	BCC/SSC/None	Nests on barrier beaches, shell banks, spoil islands, and saltmarsh; forages over open water; roosts on sandy beaches and gravel bars	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Sialia mexicana	western bluebird	None/None/Covered	Nests in old-growth red fir, mixed-conifer, and lodegpole pine habitats near wet meadows used for foraging	Not expected to occur. No suitable pine habitats near wet meadows present. This species is not known to occur within the vicinity (CDFW 2019).

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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 nest. No suitable water bodies present. The closest known CNDDB occurrence is 2.9 miles northwest of the study area along the Tijuana River mouth (CDFW 2019).
Strix occidentalis occidentalis	California spotted owl	BCC/SSC/None	Nests and forages in dense, old-growth, multi-layered mixed-conifer, redwood, and Douglas-fir habitats	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Thalasseus elegans (nesting colony)	elegant tern	None/WL/Covered	Inshore coastal waters, bays, estuaries, and harbors; forages over open water	Not expected to nest. No suitable water bodies present. This species is not known to occur within the vicinity (CDFW 2019).
Toxostoma bendirei	Bendire's thrasher	BCC/SSC/None	Nests and forages in desert succulent shrub and Joshua tree habitat in Mojave Desert; nests in yucca, cholla, and other thorny scrubs or small trees	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Toxostoma crissale	Crissal thrasher	None/SSC/None	Nests and forages in desert riparian and desert wash; dense thickets of sagebrush and other shrubs such as mesquite, iron catclaw acacia, and arrowweed willow within juniper and pinyon–juniper woodlands	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Toxostoma lecontei	LeConte's thrasher	BCC/SSC/None	Nests and forages in desert wash, desert scrub, alkali desert scrub, desert succulent, and Joshua tree habitats; nests in spiny shrubs or cactus	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
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	Not expected to nest. No suitable dense riparian thickets present. Observed in coastal sage scrub shrubs near the northeast corner of the study area in 2020; observed migrant within the region (Graystone 2005).
Vireo vicinior (nesting)	gray vireo	BCC/SSC/None	Nests and forages in pinyon–juniper woodland, oak, and chamise and redshank chaparral	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Fishes				
Cyprinodon macularius	desert pupfish	FE/SE/None	Desert springs, small streams, and marshes below 1,515 meters (5,000 feet) above mean sea level; tolerates high salinities, high water temperatures, and low dissolved-oxygen concentrations	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Eucyclogobius newberryi	tidewater goby	FE/SSC/None	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Gasterosteus aculeatus williamsoni	unarmored threespine stickleback	FE/FP, SE/None	Slow-moving and backwater areas	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Gila orcuttii	arroyo chub	None/SSC/None	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters (16 inches); substrates of sand or mud	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
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 site is outside of the species' known geographic range and there is no suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Mammals				
Bassariscus astutus	ringtail	None/FP/None	Mixed forests and shrublands near rocky areas or riparian habitats; forages near water and is seldom found more than 1 kilometer (0.62 mile) from a water source	Low potential to occur. The site is more than 1 kilometer (0.62 mile) from a water source. This species is not known to occur within the vicinity (CDFW 2019).
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None/SSC/None	Desert wash, desert scrub, desert succulent scrub, and pinyon–juniper woodland	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).

Scientific Name	Common Name	Status: Federal/State/MSCP	Habitat	Potential to Occur
Dipodomys stephensi	Stephens' kangaroo rat	FE/ST/None	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Euderma maculatum	spotted bat	None/SSC/None	Foothills, mountains, desert regions of southern California, including arid deserts, grasslands, and mixed-conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes	Low potential to occur. There is suitable arid desert habitat, however there are no cliffs present. This species is not known to occur within the vicinity (CDFW 2019).
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	Low potential to occur. There is marginal suitable riparian woodland present. The closest known CNDDB occurrence is 9.1 mile northeast of the study area along Otay River (CDFW 2019).
Lasiurus 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	Low potential to occur. There is suitable desert habitat present. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Macrotus californicus	Californian leaf-nosed bat	None/SSC/None	Riparian woodlands, desert wash, desert scrub; roosts in mines and caves, occasionally buildings	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Odocoileus hemionus	mule deer	None/None/Covered	Coastal sage scrub, chaparral, riparian, woodlands, and forest; often browses in open area adjacent to cover throughout California, except deserts and intensely farmed areas	Low potential to occur. This species is not known to occur within the vicinity (CDFW 2019).
Onychomys torridus ramona	southern grasshopper mouse	None/SSC/None	Grassland and sparse coastal scrub	Low potential to occur. This species is not known to occur within the vicinity (CDFW 2019).
Ovis canadensis nelsoni	Nelson's bighorn sheep	None/FP/None	Steep slopes and cliffs, rough and rocky topography, sparse vegetation; also canyons, washes, and alluvial fans	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None/SSC/None	Lower-elevation grassland, alluvial sage scrub, and coastal scrub	Not expected to occur. The site is outside of the species' known geographic range. This species is not known to occur within the vicinity (CDFW 2019).
Perognathus longimembris internationalis	Jacumba pocket mouse	None/SSC/None	Desert scrub and sparse sage scrub in areas with fine sandy soils	Low potential to occur. There is suitable desert scrub and sandy soils present. This species is not known to occur within the vicinity (CDFW 2019).
Perognathus longimembris pacificus	Pacific pocket mouse	FE/SSC/None	fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium	Low potential to occur. The closest known CNDDB occurrence is 2.2 miles northwest of the study area within Tijuana River Valley, however this occurrence is historic and no recent occurrences have been documented (CDFW 2019). Nearest extant population is Camp Pendleton.
Puma concolor browni	Yuma mountain lion	None/SSC/None	Heavy riparian growth and also adjacent rocky desert uplands; uses most habitats within its range	Low potential to occur. The site could be part of territory; however high human activity on site would deter this species. This species is not known to occur within the vicinity (CDFW 2019).
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. High human activity on site would deter this species. The closest known CNDDB occurrence is 2.2 miles west of the study area within Border Field State Park (CDFW 2019).
Invertebrates				
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/None/Covered	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. No vernal pools on site. The closest known CNDDB occurrence is 2.1 miles northeast of the study area within Otay Mesa (CDFW 2019).
Callophrys thornei	Thorne's hairstreak	None/None/Covered	Interior cypress woodland dominated by host plant Hesperocyparis forbesii (Tecate cypress)	Low potential to occur. No suitable woodland habitat present. The closest known CNDDB occurrence is 7.8 miles east of the study area within Otay Mesa (CDFW 2019).

Scientific Name	Common Name	Status: Federal/State/MSCP	Habitat	Potential to Occur
Lycaena hermes	Hermes copper	FC/None/None	Mixed woodlands, chaparral, and coastal scrub	Low potential to occur. There are no host plants or suitable habitat present. There are no known CNDDB occurrences within 10 miles of the study area (CDFW 2019).
Panoquina errans	wandering skipper	None/None/Covered	Saltmarsh	Not expected to occur. No suitable vegetation present. The closest known CNDDB occurrence is 2.5 miles northeast of the study area within Tijuana Slough National Wildlife Refuge (CDFW 2019).
Pyrgus ruralis lagunae	Laguna Mountains skipper	FE/None/None	Restricted to montane meadows of Laguna Mountains and Mount Palomar	Not expected to occur. No suitable vegetation present. This species is not known to occur within the vicinity (CDFW 2019).
Streptocephalus woottoni	Riverside fairy shrimp	FE/None/Covered	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. No vernal pools on site. The closest known CNDDB occurrence is 2.8 miles northeast of the study area within Moody Canyon (CDFW 2019).

The federal and state status of species is based on the Special Animals List (November 2018) (CDFW 2018).
* "Vicinity" refers to species recorded in the USGS 7.5-minute Imperial Beach quadrangle and surrounding 4 quadrangles including the Point Loma, National City, Jamul Mountains, and Otay Mesa quadrangles (CDFW 2019; USFWS 2019).
Federal Designations:
BCC Fish and Wildlife Service: Birds of Conservation Concern
(FD) Federally delisted; monitored for 5 years.
FE Federally listed as Endangered.
FT Federally listed as Threatened.
State Designations:
SSC California Species of Special Concern
P California Department of Fish and Wildlife Protected and Fully Protected Species
(SD) State-delisted.
WL California Department of Fish and Wildlife Watch List
County of San Diego:
Group 1: Group 1 Listed Species
Group 2: Group 2 Listed Species
City of San Diego Subarea Multiple Species Conservation Program:
Covered: MSCP Covered Species