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January 18, 2017 9369-03

Mr. Glenn Christensen
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***Subject:*** ***Draft Biological Resources Letter Report for the Tierrasanta Scour Pond Vector Habitat Remediation Project, City of San Diego, California***

Dear Mr. Christensen:

This letter report provides an analysis of potential biological resource impacts associated with the proposed Tierrasanta Scour Pond Vector Habitat Remediation Project located in the Tierrasanta Community Plan area in the City of San Diego, California. The proposed project involves utilizing Vector Habitat Remediation Program grant funding provided by the County of San Diego Department of Environmental Health (County) to help mitigate a serious and ongoing health and safety concern caused by breeding mosquitos in a large scour pond in East Shepherd Canyon near the corner of Antigua Boulevard and Santo Road.

In accordance with the current San Diego Land Development Code Biology Guidelines (City of San Diego 2012), this survey letter report provides an introduction, a summary of the pertinent biological resource regulations, a project description, the survey methods, existing biological resources, special-status biological resources, project impacts (direct and indirect), and project mitigation. The project impacts, avoidance, and mitigation measures (MMs) are discussed in accordance with the California Environmental Quality Act (CEQA), Clean Water Act (CWA), Migratory Bird Treaty Act (MBTA), California Fish and Game Code, the *City of San Diego Final Multiple Species Conservation Program* (*MSCP*) *Subarea Plan* (City Subarea Plan; City of San Diego 1997), and the City of San Diego's (City's) Environmentally Sensitive Lands (ESLs) regulations.

## 1 INTRODUCTION

The intent of the proposed project is to identify a bio-engineered solution to eliminate and/or reduce mosquito breeding habitat that has formed within a large scour pond on the down-gradient gradient side of a 30-foot long existing 4-48" culvert pipe headwall, which discharges storm water routed from North Shepherd Canyon to the north, beneath Antigua Boulevard. The scour pond is located in East Shepherd Canyon which, at one point likely supported intermittent stream flow, but now supports large pools of standing, stagnant water with perennial stream flow from attendant runoff.

The scour pond will ultimately be designed and constructed to be self-draining to the greatest extent feasible allowing water to flow southwest without impediment to a large 108" corrugated metal pipe culvert beneath Santo Road, requiring minimal effort to maintain. Part of this effort will involve the removal of non-native vegetation in the study area to eliminate encroachments and further flow restrictions and revegetating any disturbed areas with similar native vegetation. Once this project is complete, this section of East Shepherd Canyon will drain more efficiently thereby improving creek functions, water quality, wildlife habitat and the community's overall enjoyment of East Shepherd Canyon as an open space amenity and resource.

The biological survey discussed in this letter report concentrated on identifying biological resources that may be subject to regulation under the City's MSCP Subarea Plan (City Subarea Plan), Section 404 of the CWA as administered by the U.S. Army Corps of Engineers (USACE), Section 401 of the CWA and the Porter Cologne Act as administered by Regional Water Quality Control Board (RWQCB), Sections 1600–1603 of the Fish and Game Code as administered by the California Department of Fish and Wildlife (CDFW), and other potential special-status biological resources.

## 2 PROJECT LOCATION

The proposed project is located at the intersection of Antigua Boulevard and Santo Road along portions of North and East Shepherd Canyon in the Tierrasanta Community Plan area (Council District 7), just south of State Route 52 and north of Clairemont Mesa Boulevard (Figure 1).

Antigua Boulevard separates the study area with a portion of the work occurring along the downstream portion of North Shepherd Canyon and a majority of the work occurring at the scour pond along East Shepherd Canyon, where flows daylight into the study area from beneath Antigua Boulevard. Santo Road forms the western boundary of the study area.

The approximate centroid of the proposed project is 32°49'59.52" north latitude and 117°06'02.44" west longitude. The proposed project is located on the U.S. Geological Service (USGS) 7.5-minute series topographic La Mesa quadrangle map Section 28, Range 2 West, Township 15 South (Figure 2).

### Topography and Land Uses

The study area is best characterized as a low-lying hill and river valley environment with relatively flat topography intermixed with meandering channel morphology associated with Shepherd Canyon. Specifically, within the study area, the topography ranges from relatively flat to gently undulating with the exception of several steep, manufactured slopes extending from Santo Road and Antigua Boulevard bordering the site to the south and east.

Current land uses within and immediately surrounding the proposed project include single-family and multi-family residential development, neighborhood streets, sidewalks, traffic (vehicle and pedestrian), and trails and natural open space associated with Shepherd Canyon. Historically, back in 1941, the study area was associated with Camp Elliott, a military training facility where tank and artillery training plus communications training for the World War II Navajo Code Talkers occurred.

Elevations in the study area range from 305 feet above mean sea level (AMSL) in East Shepherd Canyon to 325 feet AMSL near the intersection of Antigua Boulevard and Santo Road.

The majority of North and East Shepherd Canyon within the study area is located within the City's Multi-Habitat Planning Area (MHPA). The proposed vector remediation program would be partially constructed within the MHPA (Figure 2).

**Soils**

According to the San Diego County Soil Survey, three soil types were mapped in the study area: Riverwash (Rm), Redding gravelly loam (RdC) 2%-9% slopes, Redding cobbly loam (RfF), dissected, 15% to 50% slopes, and terrace escarpments (TeF) (Bowman 1973).

## 3 METHODS

Data regarding biological and jurisdictional resources present within the study area were obtained through a review of pertinent literature and field reconnaissance; both are described in detail below.

**Literature Review**

The following data sources were reviewed to assist with the biological and jurisdiction efforts:

- Natural Resource Conservation Service (NRCS) Websoil Survey (U.S. Department of Agriculture (USDA 2016a)),
- CDFW California Natural Diversity Database (CNDDB; CDFW 2016a),
- California Native Plant Society Inventory of Rare and Endangered Plants (CNPS 2016),
- MSCP (City of San Diego 1997),
- U.S. Fish and Wildlife Service (USFWS) Species Occurrence Data (USFWS 2013), and
- San Diego Geographic Information Source (SanGIS) database (SanGIS 2016).

## Field Reconnaissance

General biological resource surveys were performed by Dudek senior biologist Tricia Wotipka on February 5 and 7, 2016. Areas north of Antigua Boulevard were evaluated for biological resources by Dudek senior biologist Tricia Wotipka on April 15, 2016 (Table 1). The biological surveys were conducted in accordance with the City's Guidelines for Conducting Biological Surveys (Appendix II, City of San Diego 2012) and included the mapping of vegetation communities and land covers present in the study area, a formal delineation of waters of the United States (U.S.), including wetlands, and an evaluation of the potential for special-status species to occur in the study area. It is important to note that the study area includes lands within North and East Shepherd Canyon on both the north and south side of Antigua Boulevard with a minimum 25 foot buffer surrounding the proposed impact footprint. This is intended to better facilitate a review of all potential direct and indirect impacts resulting from the project (i.e., trenching areas, new facilities/structures, staging areas).

**Table 1**
**Survey Conditions**

| Date | Time | Personnel | Survey Conditions |
|---|---|---|---|
| 2/5/2016 | 1000–1230 | Tricia Wotipka | 0% cloud cover; 0-2 mph winds; 69-79˚ Fahrenheit |
| 2/7/2016 | 0930-1130 | Tricia Wotipka | 0%-10% cloud cover; 0-2 mph winds; 65-74˚ Fahrenheit |
| 4/15/2016 | 1000-1200 | Tricia Wotipka | 0% cloud cover; 2-3 mph winds; 72-78˚ Fahrenheit |

## Resource Mapping

The surveys were conducted on foot to visually cover 100% of the study area. A 200-scale (i.e., 200 feet = 1 inch) aerial photograph map (SANDAG Imagery 2014) with an overlay of the study area boundary was utilized to map the vegetation communities and record any special-status biological resources directly in the field. Observable biological resources—including perennial plants and conspicuous wildlife (i.e., birds and some reptiles) commonly accepted as regionally special status by the California Native Plant Society (CNPS), CDFW, and USFWS—were recorded on the field map, where applicable. Additionally, an assessment and determination of potential for locally recognized special-status species (i.e., Narrow Endemic and Covered Species listed in the City's Subarea Plan) to occur on site was conducted. The information recorded onto the field maps (e.g., vegetation communities and plant/animal species locations) was subsequently digitized into a Geographic Information System (GIS) format.

The vegetation community and land cover mapping follows the classifications described by Holland (1986), as adopted in the City Land Development Code, Biology Guidelines (City of San Diego 2012). In some cases, Oberbauer et al. (2008) was also utilized as a reference, especially with regards to land cover types. Areas on site supporting less than 20% native plant species cover were mapped as disturbed land, and areas supporting at least 20% native plant species, but fewer than 50% native cover, were mapped as a disturbed native vegetation community (e.g., disturbed coastal sage scrub). Vegetation community and land cover mapping was conducted at each work location.

Following completion of the field work, Dudek GIS Specialist Andrew Greis digitized the mapped findings using ArcGIS and calculated coverage acreages using ArcCAD.

**Flora and Fauna**

The plant species encountered during the field surveys were identified and recorded directly into a field notebook. Those species that could not be identified immediately were brought into the laboratory for further investigation. A compiled list of plant species observed in the study area is presented in Appendix A.

Wildlife species detected during the field surveys by sight, calls, tracks, scat, or other signs were recorded directly onto a field notebook. Binoculars (8.5x42 magnifications) were used to aid in the identification of wildlife. In addition to species actually detected during the surveys, expected wildlife use of the site was determined by known habitat preferences of local species and knowledge of their relative distributions in the area. A list of wildlife species observed in the study area is presented in Appendix B.

Latin and common names of animals follow Crother (2008) for reptiles and amphibians, American Ornithologists' Union (AOU 2012) for birds, Wilson and Reeder (2005) for mammals, and North American Butterfly Association (NABA 2001), and San Diego Natural History Museum (SDNHM 2012) for butterflies.

Latin and common names for plant species with a California Rare Plant Rank (CRPR) (formerly CNPS List) follow the CNPS Online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2015). 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 2015) and common names follow the USDA NRCS Plants Database (USDA 2014b).

**Wetlands Delineation**

A jurisdictional delineation of "waters of the U.S.," including wetlands, under the jurisdiction of the USACE, CDFW, RWQCB, and City was conducted in the study area in accordance with the *1987 USACE Wetland Delineation Manual* (USACE 1987) and the *Interim Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region* (USACE 2008). Potential wetland areas were evaluated for evidence of an ordinary high water mark (OHWM), surface water, hydrophytic vegetation, and hydric soils. A predominance of a bed and bank with evidence of hydrology and/or hydrophytic vegetation, where associated with a stream channel, defined CDFW-regulated wetlands. The limits of areas under the jurisdiction of the City and RWQCB generally match those areas delineated as USACE-jurisdictional. However, stream channels with evidence of an OHWM that lack connectivity to waters of the U.S. (i.e., vernal pools, isolated swales, etc.) may be regulated by the RWQCB and CDFW as isolated resources but they may not be regulated by the USACE. Further, artificially created wetlands or seasonal drainages that lack wetlands vegetation (i.e., ephemeral and/or intermittent channels) do not meet the City's definition of a wetland per the San Diego Land Development Code Biology Guidelines (City of San Diego 2012).

To assist in the determination of jurisdictional areas in the study area, data was collected at six data stations (Appendix E). Hydrology, vegetation, and soils were assessed, and data was collected on approved USACE Wetland Determination forms. Each data station point was evaluated for evidence of an OHWM, surface water, saturation, hydric soils, and wetland vegetation. The extent of any identified jurisdictional areas was determined by mapping the areas with similar vegetation and topography to the sampled locations. A more detailed description of the methods is described below.

The location of data stations and the limits of wetlands were collected in the field using a 200-scale (1 inch = 200 feet) aerial photograph, topographic base, and Trimble GeoXT GPS unit 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.

**Hydrophytic Vegetation**

Seasonal changes in species composition, human land-use practices, wildfires, and other natural disturbances can adversely affect the wetlands vegetation determination. During the delineation, a data station point was considered positive for hydrophytic vegetation if it passed the basic dominance test (Indicator 1), meaning that more than 50% of the dominant species sampled were characterized as either obligate, facultative wetland, and/or facultative per the Arid West 2014 Regional Wetland Plant List (Lichvar et al. 2014), or if it passed the prevalence index

(Indicator 2), which takes into account all plant species in the community, not just dominants. The standard plot sampling technique was used to sample vegetation within a 10-foot radius for herbaceous vegetation and a 30-foot radius for trees, shrubs, and woody vines (USACE 1987). All plant species observed during the surveys were identified and recorded (see Appendix A). Where plant identification could not be made in the field, a sample was taken and later identified in the laboratory.

**Hydric Soils**

According to the National Technical Committee for Hydric Soils, hydric soils are "soils that are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USDA 1994). Soil pits were prepared using a "sharp shooter" shovel to determine if hydric soils were present. The presence of hydric soils was determined through consultations with the USACE 1987 Wetlands Delineation Manual (USACE 1987) as well as Field Indicators of Hydric Soils in the United States (USDA and NRCS 2010) and USACE's Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008). Munsell Soil Color Charts were used to determine soil chroma and value. Where feasible, soil pits were prepared to depths ranging from 16 to 18 inches. Dry soils were moistened to obtain the most accurate color. In general, soils from test pits were determined to be hydric if found to be of a chroma one or chroma two with mottles. Excavated soils were examined for evidence of hydric conditions, including low chroma values and mottling, vertical streaking, sulfidic odor, and high organic matter content in the upper horizon. Evidence of previous ponding or flooding was assessed, along with the slope, slope shape, existing landform characteristics, soil material/composition, and hydrophytic vegetation to determine if hydric soils were present.

**Hydrology**

In accordance with the guidelines prescribed in USACE's Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008), wetland hydrology indicators are separated into four major groups: Group A, B, C, and D. Group A indicators are based on direct observations of surface flow, ponding, and soil saturation/groundwater. Group B indicators consist of evidence that the site has been or is currently subjected to ponding, including, but not limited to water marks, drift deposits, and sediment deposits. Group C indicators include signs of previous and/or current saturation, including oxidized rhizospheres surrounding living roots and the presence of reduced iron or sulfur, both of which are indicative of extended periods of soil saturation. Group D indicators consist of "vegetation and soil features that are indicative of current rather than historic wet

conditions and include a shallow aquitard and results of the FAC-Neutral test." Each group is subdivided into primary and secondary categories based on their frequency and reliability to occur in the Arid West region. See Appendix E for the completed data station forms.

**Special-Status Biological Resources**

Special-status biological resources are those defined as follows: (1) species that have been given special recognition by federal, state, or local conservation agencies and organizations due to limited, declining, or threatened population sizes; (2) species and habitat types recognized by local and regional resource agencies as special status; (3) habitat areas or vegetation communities that are unique, are of relatively limited distribution, or are of particular value to wildlife; (4) wildlife corridors and habitat linkages; or (5) biological resources that may or may not be considered special status, but are regulated under local, state, and/or federal laws.

Searches through the CNPS online inventory database (CNPS 2016) and CNDDB online inventory (2016) were conducted to assist in the determination of special-status plant and animal species potentially present on site (CDFW 2015a-e). Specifically, both a one-quad search and a nine-quad search were conducted. In addition to these state database searches, species covered under the City's Subarea Plan, including Narrow Endemic Species, were evaluated in relation to the project to assist in determining the level of potential to occur in the study area.

## 4 RESULTS

The quantification of biological resources described herein pertains to the entire project study area, totaling approximately 6.41 acres.

**Vegetation Communities/Land Cover Types**

Ten vegetation communities (including non-native and disturbed forms) and four land cover types were identified within the study area including coastal sage scrub; disturbed coastal sage scrub; coastal sage scrub restoration; broom baccharis scrub; southern willow scrub; mulefat scrub; disturbed herbaceous wetland; eucalyptus woodland; non-native grassland; urban/developed land; disturbed land; ruderal; ornamental plantings; and open freshwater (Figure 3).

The vegetation communities and land cover types recorded in the study area are described in detail below, their acreages are presented in Table 2, and their spatial distributions are presented on the Biological Resources Map (Figure 3). Also included in Table 2 is the designation of vegetation community sensitivity, based on rarity and ecological importance, as identified by the City's Land Development Manual Biology Guidelines (June 2012).

**Table 2**
**Vegetation Communities and Land Cover Types in the Project Study Area**

| Vegetation Community/Land Cover Type | Subarea Plan Tier[1] | Acreage |
|---|---|---|
| *Native Upland Vegetation Community* | | |
| Coastal Sage Scrub (CSS) | II | 1.00 |
| Disturbed Coastal Sage Scrub (dCSS) | II | 0.36 |
| Coastal Sage Scrub Restoration (rCSS) | II | 0.05 |
| Broom Baccharis Scrub (BBS) | II | 0.03 |
| *Subtotal* | --- | *1.44* |
| *Non-Native Upland Vegetation Communities and Land Covers* | | |
| Urban/Developed (DEV) | IV | 0.07 |
| Disturbed Land (DIS) | IV | 0.19 |
| Ruderal (RUD) | IV | 0.13 |
| Eucalyptus Woodland (EUC) | IV | 1.89 |
| Ornamental Plantings (ORN) | IV | 0.60 |
| Non-Native Grassland (NNG) | III B | 0.01 |
| *Subtotal* | --- | *2.89* |
| *Waters of the U.S., including Wetlands* | | |
| Southern Willow Scrub (SWS) | Wetland | 1.84 |
| Mulefat Scrub (MFS) | Wetland | 0.10 |
| Disturbed Herbaceous Wetland (dHW) | Wetland | 0.13 |
| Open Freshwater (OW) | IV | 0.01 |
| *Subtotal* | --- | *2.08* |
| **Total** | | **6.41** |

1 City Subarea Plan tiers from City Biology Guidelines (City of San Diego 2012).
2 Totals may not sum due to rounding.

**Coastal Sage Scrub** is composed of a variety of soft, low shrubs, characteristically dominated by drought-deciduous species such as California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonade sumac (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*). This vegetation community typically develops on south-facing, xeric slopes but it can occur under a variety of environmental circumstances.

Coastal sage scrub was identified within East Shepherd Canyon, on the south side of Antigua Boulevard, flanking an existing, east-to-west oriented pedestrian trail and is dominated by California sagebrush and coyote brush (*Baccharis pilularis*) with scattered lemonade sumac, black sage *(Salvia mellifera*), toyon (*Heteromeles arbutifolia*), and white sage (*Salvia apiana*). Coastal sage scrub is ranked as Tier II habitat per the City's Land Development Manual Biology Guidelines (June 2012).

**Disturbed Coastal Sage Scrub** is similar in native species composition to coastal sage scrub but it supports a higher percent cover of bare ground, refuse, and non-native grasses and forbs including, but not limited to, crimson fountaingrass (*Pennisetum setaceum*), horehound (*Marrubium vulgare*), tocalote (*Centaurea melitensis*), soft brome (*Bromus hordeaceus*), ripgut grass (*Bromus diandrus*), wild oats (*Avena fatua*), and an assortment of ornamental species dispersing from the adjacent street landscaping. Native species comprise between 20% and 40% native shrub cover and include soft, low, aromatic shrubs including California sagebrush, California buckwheat, and black sage. Larger native shrubs and sub-shrubs include desert broom, coyote brush, and lemonade sumac.

Within the study area, disturbed coastal sage scrub was mapped on the manufactured slopes bordering Santo Road and were largely not designated as MHPA (Figure 3). Disturbed coastal sage scrub is ranked as Tier II habitat per the City's Land Development Manual Biology Guidelines (June 2012).

**Coastal Sage Scrub Restoration** refers to lands on the south side of Antigua Boulevard that were targeted for native habitat revegetation and show signs of non-native vegetation removal, container plant installation, and native plant recruitment, either through hydroseed application or by natural dispersal. In 2013/2014, the portion of East Shepherd Canyon within the study area was subject to non-native species removal and native plant restoration undertaken by Tierrasanta Girl Scout Troop 3278 and the Friends of Tierrasanta Canyons, a local volunteer group that promotes the preservation and protection of San Diego's local canyons.

Areas mapped as coastal sage scrub restoration occur on the south side of Antigua Boulevard on the adjacent, manufactured slopes and along the existing trails bordering the scour pond and extending east and off site. Plant markers were installed at each container plant location informing residents and hikers of the various types of local native flora installed as part of the restoration effort. Dominant species within this vegetation community include California sagebrush, lemonade sumac, toyon, black sage, white sage, lemonadeberry, toyon, coyote brush, desert broom, California buckwheat, deerweed (*Acmispon glaber*), California honeysuckle (*Lonicera hispidula*), fuchsia-flowered gooseberry (*Ribes speciosum*), coast goldenbush (*Isocoma menziesii* var. *menziesii*), bush mallow (*Malacothamnus fasciculatus*), deer grass (*Muhlenbergia rigens*) and mulefat (*Baccharis salicifolia*). Given the sparse distribution and age of the plants, this vegetation community supports an abundance of bare ground ranging from 40% to 50%. Coastal sage scrub restoration is a sub-association of coastal sage scrub and as such is ranked as Tier II habitat per the City's Land Development Manual Biology Guidelines (June 2012).

**Broom Baccharis Scrub,** although not formally recognized by Holland (1986) as a distinct vegetation community, is a fairly common vegetation community throughout California. Oberbauer (2008) describes this community broadly as a sub-association of coastal sage scrub that is dominated by either coyote brush, desert broom (*Baccharis sarothroides*), or a combination of both. Within the context of the proposed project, broom baccharis scrub refers to a small patch of habitat in North Shepherd Canyon just north of Antigua Boulevard that is dominated by monotypic stands of desert broom baccharis. This vegetation community typically occurs on disturbed sites or those sites with nutrient-poor soils. Often times this community is found intermixed with other forms of coastal sage scrub and/or on upper terraces of river valleys (Oberbauer et al. 2008). Within the study area this community extends on gently sloping lands extending west from an existing multi-family residential complex just east and off site of the study area. Broom baccharis scrub is considered a sub-association of coastal sage scrub and as such is ranked as Tier II habitat per the City's Land Development Manual Biology Guidelines (June 2012).

**Urban/Developed Land**, according to Oberbauer et al. (2008), represents areas that have been constructed upon or otherwise physically altered to an extent that native vegetation communities are not supported. This land cover type generally consists of semi-permanent structures, homes, parking lots, pavement or hardscape, and landscaped areas that require maintenance and irrigation (e.g., ornamental greenbelts). Typically, this land cover type is unvegetated or supports a variety of ornamental plants and landscaping. Urban/developed land is not regulated by the environmental resource agencies and is often considered a disturbed category. Within the study area, urban/developed land refers to Antigua Boulevard and the associated sidewalks. This land cover is ranked as Tier IV and is not considered sensitive under the City's Biology Guidelines.

**Disturbed Land** is a land cover type characterized by a predominance of non-native species, often introduced and established through human action. Oberbauer et al. (2008) describes disturbed land as areas that have been physically disturbed (by previous legal human activity) and are no longer recognizable as a native or naturalized vegetation association but continues to retain a soil substrate. Typically, vegetation, if present, is nearly exclusively composed of non-native plant species such as ornamentals or ruderal exotic species (i.e., weeds). Disturbed land refers to dirt trails (Figure 3). Within the study area, disturbed land is composed entirely of bare ground and consists of a large existing trail just north of the scour pond at the toe of a manufactured, earthen slope extending south from Antigua Boulevard. Disturbed land is ranked as is ranked a Tier IV land cover per the City's Land Development Manual Biology Guidelines (June 2012).

**Ruderal Land** is a land cover type characterized by a predominance of non-native species, often introduced and established through human action with very limited bare ground. Vegetation in ruderal areas is comprised of weedy herbaceous species such as tocalote

(*Centaurea melitensis*), wild oat, black mustard, spiny sow thistle (*Sonchus asper*), and prickly lettuce (*Lactuca serriola*). Ruderal areas are generally the result of disturbance, such as prior grading or fire. Ruderal areas occur across a wide range of elevations, topographic orientations, and soil types. This land cover differs from disturbed land in that it supports more than 20% cover of weedy and non-native vegetation whereas disturbed lands are completely unvegetated or have very limited vegetation.

Within the study area, ruderal land is comprised of more than 20% cover of sow thistle, scarlet pimpernel (*Lysichiton arvensis*), horehound, pampas grass (*Cortaderia selloana*), shortpod mustard (*Hirschfeldia incana*), Canadian horseweed (*Erigeron canadensis*), and ladies tobacco (*Pseudognaphalium californicum*).

**Eucalyptus Woodland**, although not recognized by Holland (1986) as a native plant community, is a distinct "naturalized" vegetation type that is fairly widespread throughout Southern California and is considered a woodland habitat. It typically consists of monotypic stands of introduced Australian eucalyptus trees (*Eucalyptus* spp.). The understory is either depauperate or absent owing to shade and the possible allelopathic (i.e., toxic) properties of the eucalyptus leaf litter. Although eucalyptus woodlands are of limited value to most native plants and animals, they frequently provide nesting and perching sites for several raptor species.

This vegetation community was mapped on the south side of Antigua Boulevard in East Shepherd Canyon and is limited to the manufactured slopes extending south from Antigua Boulevard and on the slopes extending north from a single-family residential development at the far south end of the study area. This community is supported by a variety of stands of Eucalyptus trees including, not limited to, river redgum (*Eucalyptus camaldulensis*) and redbox (*Eucalyptus polyanthemos*), with a sparse, depauperate understory comprised of California sagebrush, white sage, and California encelia (*Encelia californica*) with a mixed array of non-native annual grasses and leaf litter. Eucalyptus woodland is ranked as Tier IV and is not considered sensitive under the City's Biology Guidelines.

**Ornamental Plantings** is described by Oberbauer et al. (2008) as a land cover type that refers to areas where non-native ornamental species and landscaping schemes have been installed and maintained. Ornamental plantings are not regulated by the environmental resource agencies and are included within the disturbed category according to the City's Biology Guidelines (City of San Diego 2012). Ornamental plantings consist of street landscaping along Santo Road and in a small linear strip along Antigua Boulevard. This habitat type supports a myriad of ornamental species including crimson fountaingrass, pine trees (*Pinus* sp.), and a few scattered

Eucalyptus trees. This land cover is ranked as Tier IV and is not considered sensitive under the City's Land Development Manual Biology Guidelines (June 2012).

**Annual Non-Native Grassland** contains ripgut brome (*Bromus diandrus*) and soft chess brome (*Bromus hordeaceus*) as dominant or co-dominant grass species in the herbaceous layer with scattered forbs including petty spurge (Euphorbia peplus) and scarlet pimpernel (*Lysimachia arvensis*). Annual non-native grasslands are typically found on seasonally dry hillsides and valleys in the Central Valley, interior valleys of the Coast Ranges, and along the coast of central and southern California as well as some of the offshore islands. This mix of grasses and forbs is often found on gravelly to deep, fine-grained soils well suited for annual growth (Sawyer et al. 2009). Annual non-native grasslands have open to continuous cover less than 0.75 meters (2.5 feet) in height; low cover of emergent trees and shrubs may be present. This community occurs from sea level to 2,200 meters (7,218 feet) AMSL (Sawyer et al. 2009).

Annual non-native grassland is composed primarily of non-native annual grasses and native and non-native broad-leafed forbs. Noxious weeds are also often present in disturbed areas adjacent to this habitat type. Dominant grasses include ripgut brome and slender wild oat. Annual non-native grassland is ranked a Tier IIIB vegetation community per the City's Land Development Manual Biology Guidelines (June 2012).

**Southern Willow Scrub** is often described as a dense, broad-leafed, winter-deciduous riparian thicket dominated by several species of willow (Holland 1986). Most stands are too dense to allow much understory development (Holland 1986). Southern willow scrub is found along stream channels on loose, sandy, or fine gravelly alluvium deposits. This habitat is considered seral due to repeated disturbance/flooding and is therefore unable to develop into the taller southern riparian forest (Holland 1986).

Southern willow scrub is the most prevalent wetland vegetation community within the study area. Dominant species include arroyo willow (*Salix lasiolepis*), Goodding's black willow (*Salix goodingii*), and mulefat (*Baccharis salicifolia*). Southern willow scrub is a wetland waters of the U.S. and as such would be regulated by the USACE and RWQCB, pursuant to Sections 401 and 404 of the federal Clean Water Act; the CDFW pursuant to Sections 1600-1605 of the California Fish and Game Code; and the City pursuant to the MSCP Subarea Plan (1997) and the City's current San Diego Land Development Code Biology Guidelines (City of San Diego 2012).

**Mulefat Scrub** is a relatively low (2 to 3 meters), dense, shrubby riparian scrub alliance that occurs in riparian vegetation, edges of catch basins, and in canyons. It is dominated by mulefat, and may contain a small number of arroyo willow, upland shrubs, and facultative wetland herbs.

Mulefat scrub is a seral alliance that occurs mainly along major drainages and floodplains where the riparian vegetation is open or disturbed. Frequent flooding and/or scouring apparently maintain this alliance in an early successional state (Holland 1986).

Within the study area, mulefat scrub occurs within the floodplain of East Shepherd Canyon just upstream (east) of the scour pond along the edge of the active floodway. It is dominated by mulefat with an understory comprised of recently planted California wild rose (*Rosa californica*), Bermuda grass (*Cynodon dactylon*), and annual rabbitsfoot grass (*Polypogon monspeliensis*).

Mulefat scrub is a wetland waters of the U.S. and as such would be regulated by the USACE and RWQCB, pursuant to Sections 401 and 404 of the federal Clean Water Act; the CDFW pursuant to Sections 1600-1605 of the California Fish and Game Code; and the City pursuant to the MSCP Subarea Plan (1997) and the City's current San Diego Land Development Code Biology Guidelines (City of San Diego 2012).

**Disturbed Herbaceous Wetland** is a seasonal wetland vegetation community that primarily supports low-growing, hydrophytic non-native annual species, such as curly dock (*Rumex crispus*), Italian ryegrass (*Festuca perennis*), and deer grass. Native species are often present but constitute less than 20% relative cover. Within the study area, disturbed herbaceous wetlands occur in East Shepherd Canyon in the more central portion of the study area where an existing above-ground manhole exists, suggesting that the area was previously disturbed due to construction and access to this infrastructure. Disturbed herbaceous wetlands do not include native emergent wetland species such as cattails, bulrushes, and rushes that constitute freshwater marsh. As a seasonal community in San Diego County, herbaceous wetlands may only occur during wetter than average years.

Disturbed herbaceous wetland is a wetland waters of the U.S. and as such would be regulated by the USACE and RWQCB, pursuant to Sections 401 and 404 of the federal Clean Water Act; the CDFW pursuant to Sections 1600-1605 of the California Fish and Game Code; and the City pursuant to the MSCP Subarea Plan (1997) and the City's current San Diego Land Development Code Biology Guidelines (City of San Diego 2012).

**Open Water** typically refers to areas containing pools of standing or flowing freshwater with little to no emergent vegetation. Within the study area, open water refers to a small section of flowing water in East Shepherd Canyon where the stream emerges from a dense thicket of arroyo willows, meanders sharply around an existing above-ground manhole, and into disturbed herbaceous wetlands in close proximity to the scour pond.

Open water is considered a non-wetland waters of the U.S. and as such would be regulated by the USACE and RWQCB, pursuant to Sections 401 and 404 of the federal Clean Water Act, and the CDFW pursuant to Sections 1600-1605 of the California Fish and Game Code. However, as stated in the San Diego Land Development Code Biology Guidelines (City of San Diego 2012), seasonal drainage patterns that are either naturally occurring or manmade and lack wetland vegetation (i.e., open water) do not meet the City's definition of wetlands and thus are not regulated by the City. Therefore, open water does not meet the City's definition of a wetland and thus would not be regulated by the City in accordance with the MSCP Subarea Plan (1997) and the City's current San Diego Land Development Code Biology Guidelines (City of San Diego 2012).

**Wetlands Delineation**

Results of the 2016 jurisdictional wetlands delineation, performed by Dudek senior biologist Tricia Wotipka, concluded there are approximately 2.08 acres of jurisdictional waters of the U.S., including wetlands, within the study area. This is comprised of approximately 2.03 acres of USACE, RWQCB, CDFW, and City jurisdictional wetlands; 0.01 acre of USACE, RWQCB, and CDFW jurisdictional non-wetland waters; and 0.04 acre of wetlands under the jurisdiction of CDFW and City only (Table 3).

**Table 3**
**Jurisdictional Wetland Delineation Summary**

| Jurisdiction | Vegetation Community | Acreage |
|---|---|---|
| USACE, RWQCB, CDFW, City Wetlands | Southern willow scrub | 1.80 |
| | Mulefat scrub | 0.10 |
| | Disturbed herbaceous wetlands | 0.12 |
| *USACE, RWQCB, CDFW, City Subtotal* | | *2.03* |
| USACE, RWQCB, CDFW Waters | Open water | 0.01 |
| CDFW, City-Only Wetlands | Southern willow scrub | 0.04 |
| **Grand Total** | | **2.08** |

Figure 4 shows the distribution of jurisdictional waters of the U.S., including wetlands, in the study area. The waters and wetlands on the site are associated exclusively within North and East Shepherd Canyon within the project site.

Shepherd Canyon is a roughly east-west trending USGS blue-line stream comprised of two main reaches referred to as North Shepherd Canyon and East Shepherd Canyon. North

Shepherd Canyon originates in the western foothills of North Fortuna Mountain, just south of State Route 52, and it flows west through annual grassland and sage scrub habitats across hilly topography. From Villarica Way east toward Portobelo Drive/Via Valarta, North Shepherd Canyon is, at best, an intermittent stream channel flowing only for short periods of time following a rain event. As North Shepherd Canyon continues to meander west/southwest toward the project site it flows without impediment through a residential development and is conveyed beneath existing roadways via culverts. Wetlands vegetation is fragmented by larger expanses of coyote brush and coastal sage scrub. As North Shepherd Canyon reaches Antigua Boulevard the flow becomes more perennial in nature due to the constricted nature of the culverts beneath Antigua Boulevard and the poor drainage on the down-gradient side of the concrete culvert headwall. At this point, North Shepherd Canyon forms a fairly dense wetland corridor dominated by arroyo willows, black willows, and other wetland vegetation. Flows conveyed beneath Antigua Boulevard discharge into the scour pond in East Shepherd Canyon. East Shepherd Canyon originates off site and east of the project near Mission Trails Regional Park. Similar to North Shepherd Canyon, East Shepherd Canyon originates off site as an intermittent stream that transitions to a more perennially flowing resource as it flows beneath Via Valarta and meanders behind single family residences until it reaches its confluence with North Shepherd Canyon downstream. Flows from Shepherd Canyon are then directed to a 108" corrugated metal pipe culvert where they exit the site beneath Santo Road.

At the time of the delineation, Shepherd Canyon displayed an ordinary high water mark (OHWM), saturation, permanence of surface water, and wetland vegetation.

Hydrology, vegetation, and soils were assessed at six data station locations (see Figure 4) along North and East Shepherd Canyon to determine the presence or absence of wetlands field indicators. Three soil mapping units were recorded within the project area; however, only one soil mapping unit is listed on the National Hydric Soils List for the San Diego County Area, California (USDA and NRCS 2012): Riverwash (Rm).

Results of the six data stations (Table 4) document that the project area is characterized by a variety of soil textures (i.e., silt loam, clay loam, loam), and three data stations were found to exhibit all three wetland field indicators. The data collected at each data station are included in Appendix E, on the USACE's Wetland Determination Data Forms for the Arid West Region.

**Table 4**
**Data Station Point Summary**

| Data Station | Wetland Determination Field Indicators | | | Stream Association | Determination | Jurisdiction |
|---|---|---|---|---|---|---|
| | *Vegetation* | *Hydric Soils* | *Hydrology* | | | |
| 1 | None | None | None | Yes | Upland | None |
| 2 | ✓ | ✓ | ✓ | Yes | Wetland | USACE/RWQCB/CDFW/City |
| 3 | ✓ | ✓ | ✓ | Yes | Wetland | USACE/RWQCB/CDFW/City |
| A | ✓ | ✓ | ✓ | Yes | Wetland | USACE/RWQCB/CDFW/City |
| B | None | None | None | Yes | Upland | None |
| C | ✓ | None | None | Yes | Wetland | CDFW/City |

Data Station 1 was located along an existing trail edge above the OHWM where the topography begins to slope down toward the floodplain of East Shepherd Canyon. These areas supported deer grass, ripgut brome, lemonadeberry, cuman ragweed and other non-wetland species with less than 5% cover of hydrophytic vegetation comprised of deer grass. There were no observations of hydrology or hydric soils. Thus, Data Station 1 was not mapped as a wetland but rather it defined the upland boundary of East Shepherd Canyon within the study area.

Data Station 2 was on the edge of the floodplain at the approximate location of the OHWM near the toe of slope approximately 10 feet south of Data Station 1. The soils data collected at Data Station 2 indicates that, in this area, the soils are hydric because there was evidence of a depleted matrix. The hydrology data collected at this location indicated that there is wetlands hydrology present with indicators that included drift deposits, drainage patterns, and surface water. Dominance of curly dock, annual rabbitsfoot grass, and mulefat at Data station 2 indicates the presence of hydrophytic vegetation. Due to the presence of all three indicators, this data point is within a wetland under the jurisdiction of USACE, RWQCB, CDFW, and City.

Data Station 3 was situated along the boundary of disturbed, low-growing herbaceous wetlands vegetation and southern willow scrub below the OHWM, with Italian ryegrass, arroyo willow, and curly dock present. The soils data collected at Data Station 3 indicates that, in this area, the soils are hydric because there was evidence of a redox dark surface. The hydrology data collected at this location indicated that there is wetlands hydrology present with indicators that included drift deposits, drainage patterns, water marks, and a high water table. Due to the presence of all three indicators, this data point is within a wetland under the jurisdiction of USACE, RWQCB, CDFW, and City.

Data Station A was located in North Shepherd Canyon on the upstream side of the existing 4-48" culvert pipe headwall within southern willow scrub habitat in the channel bottom of the creek. The soils data collected at Data Station A indicates that, in this area, the soils are hydric because there was evidence of a depleted matrix. The hydrology data collected at this location indicated that there is wetlands hydrology present with indicators that included drift deposits, water marks, sediment deposits, and drainage patterns. Dominance of arroyo willow and black willow at Data Station A indicates the presence of hydrophytic vegetation. Due to the presence of all three indicators, this data point is within a wetland under the jurisdiction of USACE, RWQCB, CDFW, and City.

Data Station B was located on a grassy, upland slope on the north side of Antigua Boulevard behind the existing 4-48" culvert pipe headwall above the OHWM. This area is dominated by crimson fountaingrass, ripgut brome, cuman ragweed, petty spurge, and redbox with no indicators of wetland vegetation. There were no observations of hydrology or hydric soils as this data station point is situated on the slope, behind and above the headwall where flows from North Shepherd Canyon are conveyed beneath Antigua Boulevard. Data Station B did not test positive for vegetation, hydrology, and hydric soil indicators and thus was not mapped as a wetland or waters of the U.S.

Data Station C was located above the OHWM along North Shepherd Canyon in a small patch of southern willow scrub just north of Antigua Boulevard. This area is dominated by arroyo willows with an understory comprised of annual non-native grasses and forbs including ripgut brome and petty spurge. Due to the lack of hydrology and hydric soils, this data point is not within USACE/RWQCB jurisdictional waters of the U.S., including wetlands. This data station is considered a CDFW/City only wetland.

**Plants and Animals**

A total of 73 species of vascular plants, 36 native and 36 non-native, were recorded in the study area during the 2016 surveys (Appendix A). The diversity of native plant species is typical for the region and is representative of vegetation communities situated within urban canyon environments. It is important to note that this list is not all-inclusive in that it does not include a comprehensive list of all the ornamental species and cultivars observed within the right-of-way of Santo Road and Antigua Boulevard.

A total of 23 wildlife species were recorded in the study area during the 2016 surveys (Appendix B). The wildlife species observed are common, disturbance-adapted species typically found in urban and suburban settings, such as house finch (*Carpodacus mexicanus*), American crow (*Corvus brachyrhynchos*), and mourning dove (*Zenaida macroura*). One reptile species, western

fence lizard (*Sceloporus occidentalis*) was observed. Five invertebrate species were observed including cabbage butterfly (*Pieris rapae rapae*), mourning cloak (*Nymphalis antiopa*), anise swallowtail (*Papilio zelicaon*), checkered white (*Pontia protodice*), and monarch (*Danaus plexippus*) were observed during the surveys. No mammals were observed during the surveys. However, urban-adapted species such as California ground squirrel (*Spermophilus beecheyi*), common raccoon (*Procyon lotor*), Botta's pocket gopher (*Thomomys bottae*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), and Virginia opossum (*Didelphis virginiana*) are common in the area and, while not observed, are expected to occur within the study area. There is minimal suitable habitat for larger mammals such as bobcat and mountain lion within the study area due to the sites' proximity to residential development, roadways, the fragmented context of the natural vegetation communities in the study area and the disturbed and developed nature of the immediately surrounding habitat. Overall, despite the project's location within Shepherd Canyon, the diversity of wildlife species in the study area is relatively low due to the extent of existing development, fragmented nature of the canyon, and urban setting of the study area.

**Special-Status Plants and Animals**

No federally or state-listed species or other special-status species were observed during the 2016 surveys. Due to the limited amount of suitable habitat for these species, the condition of vegetation communities in the study area (i.e., poor stratification, diversity, etc.) and proximity of the site to urban development, the site conditions limit the potential for special-status plants and other special-status animal species to occur in the study area.

A search of CNPS and CNDDB records was utilized to develop matrices of special-status plant and wildlife species that may have potential to occur in the study area due to the presence of suitable habitat (taking into consideration vegetation communities, soils, elevation, and geographic range, life form/blooming period, etc.). These two matrices of special-status plant and wildlife species (i.e., federally, state, or locally listed species), their favorable habitat conditions, and their potential to occur on site based on the findings of the field investigations are presented in Appendices C and D, respectively. Species considered special status under the City's Subarea Plan, including Narrow Endemic Species, are also included in these appendices.

None of the plant species presented in Appendix C were detected during the field surveys and, given the lack of unique soil types (e.g., clay, alkaline, etc.) and overall lack of suitable vegetation communities, special-status plants are not expected to occur in the study area. Those species with a moderate potential to occur are perennial species that would have been detected if present.

### *Special-Status Wildlife Species*

One special-status species, yellow-breasted chat (*Icteria virens*) a California Species of Special Concern (SSC), was observed foraging in East Shepherd Canyon during the April 2016 survey.

Yellow-breasted chats nest in early successional riparian habitat with a dense understory for nesting and an open canopy (Comrack 2008). In Southern California, the yellow-breasted chat nests in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories. Nesting areas are associated with the narrow border streams, creeks, sloughs, and rivers (Comrack 2008). Grinnell and Miller (1944) suggested that plant cover in breeding habitat must be dense to provide shade and concealment. During spring and fall migration, the yellow-breasted chat uses the same low, dense vegetation used as breeding and wintering grounds, although spring migrants are occasionally found in suburban habitats (Parnell 1969).

With the exception of yellow-breasted chat, no additional special-status wildlife species presented in Appendix D were detected during the field surveys. Due to the limited amount of suitable habitat, the condition of vegetation communities in the study area (i.e., poor stratification, diversity, etc.), and proximity of the site to urban development and major roadways, the conditions limit the potential for special-status wildlife species to occur in the study area.

### Species with Moderate to High Potential to Occur

Three species presented in Appendix D would have moderate to high potential to occur within the study area, including coastal California gnatcatcher (*Polioptila californica californica*), Cooper's hawk (*Accipiter cooperii*), and least Bell's vireo (*Vireo bellii pusillus*). A description of each species is provided below.

### *Coastal California Gnatcatcher*

Coastal California gnatcatcher is federally listed threatened, a California SSC, and MSCP covered species. Coastal California gnatcatcher breeds in lower elevations (less than 500 meters or 1,640 feet) south and west of the Transverse and Peninsular Ranges (Atwood and Bolsinger 1992). Higher densities of this species occur in coastal San Diego and Orange counties, and lower densities are found in Los Angeles, Orange, western Riverside, southwestern San Bernardino, and inland San Diego counties (Atwood 1993; Preston et al. 1998). The coastal California gnatcatcher primarily occupies open coastal sage scrub habitat that is dominated by California sagebrush. This species is relatively absent from coastal sage scrub habitats dominated by black sage (*Salvia mellifera*), white sage, or sugar sumac (*Rhus ovata*).

Although not observed during 2016 surveys, portions of the study area along East Shepherd Canyon near the southern boundary have potential to support the federally threatened coastal California gnatcatcher due to the contiguous nature of suitable habitat from the study area east to Mission Trails Regional Park.

***Least Bell's Vireo***

Least Bell's vireo was state listed as endangered on June 27, 1980, and federally listed as endangered on May 2, 1986 (51 FR 16474 16482).

Least Bell's vireos primarily occupy riverine riparian habitats along water, including dry portions of intermittent streams that typically provide dense cover within one to two meters (3.3 to 6.6 feet) of 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. In the coastal portions of its southern California range, the least Bell's vireo occurs in lower portions of canyons, typically below 600 meters (2,000 feet) AMSL.

Least Bell's vireos generally begin to arrive from their wintering range in southern Baja California, and possibly mainland Mexico, to establish breeding territories by mid- to late March (Garrett and Dunn 1981; Salata 1983A, 1983B; Hays 1989; Pike and Hays 1992). Nests are typically built within approximately 1 meter (3.3 feet) of the ground in the forks of willows, wild rose (*Rosa* spp.), mulefat, or other understory vegetation (Franzreb 1989). Cover surrounding nests is moderately open mid-story with an overstory of willow, cottonwood (*Populus* spp.), sycamore (*Platanus racemosa*), or oak (*Quercus* spp.). Crown cover is usually more than 50% and contains occasional small openings. The most critical structural component to least Bell's vireo breeding habitat is a dense shrub layer at 0.6 to 3 meters (2 to 10 feet) above the ground (Goldwasser 1981; Franzreb 1989). Breeding territories, which are maintained by males and include threats and physical confrontations, range on average from 1 to 3 acres (USFWS 1998).

Due to the presence of suitable wetlands vegetation within the portion of Shepherd Canyon on site there is a moderate potential for this species to occur on site. However, there are no documented occurrences of least Bell's vireo in Shepherd Canyon and this species was not detected during the April 2016 survey. This is likely due to the fragmented nature of suitable habitat present in the area and the poor density and lack of vertical stratification in the suitable wetlands vegetation on site. Further, suitable habitat for this species was not observed in the upstream reaches of North and East Shepherd Canyon.

***Cooper's Hawk***

Cooper's hawk is a CDFW Watch List species and is covered under the MSCP. This species is found throughout California in wooded areas. It 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 hawks use patchy woodlands and edges with snags for perching while they are hunting for prey such as small birds, small mammals, reptiles, and amphibians within broken woodland and habitat edges (Zeiner et al. 1990a).

Cooper's hawk would be expected to forage over the project study area, and there are large trees that could potentially be used for nesting by this species. This species is a common resident in urban areas. There is moderately suitable habitat in the study area in the form of tall riparian trees and woodland habitat for this species to forage and nest.

# 5 RELATIONSHIP TO MSCP

The MSCP is a long-term regional conservation plan established to protect special-status species and habitats in San Diego County. The MSCP is divided into subarea plans that are implemented separately from one another. The project study area is within the City's Subarea Plan. This subarea encompasses 206,124 acres and is generally characterized by urban land use. The City MHPA is a "hard line" preserve developed by the City in cooperation with the wildlife agencies, property owners, developers, and environmental groups. The MHPA identifies biological core resource areas and corridors targeted for conservation, in which only limited development may occur (City of San Diego 1997).

For planning purposes, the City's MSCP Subarea Plan has been divided into five distinct areas: Southern Area; Eastern Area; Urban Areas; Northern Area; and Cornerstone Lands and San Pasqual Valley. The proposed project intersects MHPA lands in the Eastern Area of the Subarea Plan. The Eastern Area consists of remaining undeveloped lands in the eastern portion of the City of San Diego including the area known as East Elliott (approximately 2,300 acres), and Mission Trails Regional Park (approximately 5,700 acres). The eastern edge of the Eastern Area forms the San Diego border with the City of Santee.

As illustrated on Figure 3, approximately 4.18 acres of MHPA lands occur within the study area including 0.80 acre of coastal sage scrub, 0.05 acre of disturbed coastal sage scrub, 0.02 acre of broom baccharis scrub, 1.73 acres of southern willow scrub, 0.11 acre of disturbed herbaceous wetland, 0.004 acre of open water, 1.26 acres of eucalyptus woodland, 0.01 acre of non-native

grassland, 0.005 acre of disturbed land, 0.04 acre of ornamental plantings, 0.13 acre of ruderal, and 0.02 acre of urban/developed land.

## 6 PROJECT DESCRIPTION

The proposed design is intended to remediate the deficiencies in the existing Antigua Boulevard culvert outfall by removing the existing pond, restoring a positive flow path in Shepherd Canyon, and reducing the likelihood of the formation of a scour hole at the Antigua Boulevard culvert outfall. The proposed vector habitat remediation improvements are comprised of two discreet components; the culvert outfall energy dissipator and a low flow channel. The overall proposed improvements will span approximately 19,350 square feet. At the downstream end of the existing 4-48" culvert pipe headwall a rock rip-rap energy dissipator is proposed, beginning at the terminus of the existing reinforced concrete headwall invert apron. The proposed rock rip-rap energy dissipator will have a footprint that is approximately 64 feet long by 50 feet wide with a 54-inch thick layer of ½ ton rip-rap. The rip-rap will be placed over a non-woven geotextile fabric and held in place by a reinforced concrete sill. Flow velocities in the proposed energy dissipator will be reduced from 17 feet per second, at the upstream extent of the facility to 4 feet per second at the downstream end of the energy dissipator in the design 100-year storm.

An engineered low-flow channel will be installed along the existing Shepherd Canyon thalweg/flowline to maintain adequate slope and positive drainage. The low-flow trapezoidal channel will have a 15 feet wide base width, a 3 foot wall height, 2.5:1 side slopes, and will be vegetated with willow stakes and native vegetation. The design flowrate for the low-flow channel is 250 cubic feet per second, based on the calculated runoff from a 1-yr design storm event. The low flow channel has two distinct reaches with the same cross section geometry but differing erosion protection armoring. The proposed channel improvements will cover span an area of approximately 14,460 square feet. The upstream reach of the channel, extending approximately 121 lineal feet from the end of the energy dissipator to the junction with the easterly flow path in Shepherd Canyon will be armored with vegetated rip-rap. The downstream reach, extending approximately 295 lineal feet from easterly flow path junction to the existing 108-inch diameter Santo Road culvert will be armored only with vegetation. The channel cross section provides a multistage flow path where smaller more common storm events would be contained within the low-flow channel cross section and larger less frequent storm flows would be allowed overtop the banks of the low-flow channel, and spread into the native Shepherd Canyon floodplain. This design technique is intended to minimize stream bed erosion and maintain a positive flow path.

# 7 PROJECT IMPACTS

This section addresses direct impacts and indirect impacts that will result from implementation of the project.

**Direct Impacts** may include both the permanent loss of on-site habitat and the plant and wildlife species that it contains and the temporary loss of on-site habitat. Direct impacts were quantified by overlaying the proposed preliminary 30% design onto the biological resources map and evaluating the impacts by vegetation community.

**Indirect Impacts** refer to off-site and on-site effects that are short-term impacts (i.e., temporary) due to project construction or long-term (i.e., permanent) design of the project and the effects it may have to adjacent resources. For this project, it is assumed that the potential indirect impacts resulting from construction activities may include dust, noise, and general human presence that may temporarily disrupt species and habitat vitality and construction-related soil erosion and runoff. No long-term indirect impacts are assumed to occur as the project does not result in a change of existing land use, noise, or human presence. The potential change in storm water discharge hydrology due to construction of the storm channel is expected to improve conditions downstream of the project area which are currently adversely affected by failure of the existing culverts to flow and function properly. This change is therefore beneficial and no adverse indirect impacts long-term indirect impacts would result from the project.

## 7.1 Direct Impacts

### Vegetation Communities and Land Cover Types

Implementation of the project will result in direct impacts to 0.43 acre of vegetation communities including 0.06 acre of coastal sage scrub (Tier II), 0.02 acre of disturbed coastal sage scrub (Tier II), 0.001 acre of ornamental plantings (Tier IV), and 0.41 acre of southern willow scrub (Wetland) (Figure 5). Table 5 provides a summary of these impacts.

**Table 5**
**Direct Project Impacts**

| Vegetation Community/Land Cover Type | Subarea Plan Tier* | Acreage |
|---|---|---|
| *Native Upland Vegetation Community* | | |
| Coastal Sage Scrub (CSS)** | II | 0.06 |
| Disturbed Coastal Sage Scrub (dCSS) | II | 0.02 |
| *Subtotal* | --- | *0.08* |

**Table 5**
**Direct Project Impacts**

| Vegetation Community/Land Cover Type | Subarea Plan Tier* | Acreage |
|---|---|---|
| *Non-Native Upland Vegetation Communities and Land Covers* | | |
| Ornamental Plantings (ORN) | IV | 0.003 |
| *Waters of the U.S., including Wetlands* | | |
| Southern Willow Scrub (SWS) | Wetland | 0.41 |
| | **Total** | **0.493** |

* Vegetation Tiers are defined by the City Biology Guidelines (City of San Diego 2012).
** Impacts to 0.06 acre of coastal sage scrub are due to a temporary construction equipment staging area along Antigua Boulevard.

Ornamental plantings provide little native habitat value and foraging opportunities for wildlife and are considered Tier IV vegetation communities as defined by the City's Biology Guidelines (City of San Diego 2012); therefore, impacts to this land cover would not be considered significant and no mitigation is required (City of San Diego 2012).

Direct impacts to coastal sage scrub and disturbed coastal sage scrub, totaling 0.08 acre, are not considered significant because the total combined impacts to Tier II vegetation communities are less than the 0.1-acre significance threshold established by the City's Biology Guidelines (City of San Diego 2012). Therefore, impacts to these vegetation communities would not be considered significant and no mitigation is required (City of San Diego 2012).

### Waters of the U.S., including Wetlands

Implementation of the project will result in direct, permanent impacts to 0.41 acre of southern willow scrub due to construction of the engineered, low-flow channel and the rock rip-rap energy dissipator at the existing Antigua Boulevard culvert outfall. Southern willow scrub is a wetland waters of the U.S. and as such impacts to this resource would be considered significant under local, state and federal regulations. Impacts to southern willow scrub would require mitigation **(BIO-1)**.

### Special-Status Plants

No special-status plants were detected in the project study area during the 2016 surveys. There are no special-status plant species with a moderate or high potential to occur within the project study area and, due to the lack of suitable substrate and overall habitat, special-status plant species are not expected to occur (Appendix C). Therefore, no significant direct impacts to special-status plants are anticipated.

**Special-Status Wildlife**

Although not documented during the 2016 surveys, the coastal California gnatcatcher has a moderate potential to occur in coastal sage scrub habitats on site. The California gnatcatcher is a federally listed threatened species and a CDFW Species of Special Concern. It is closely associated with coastal sage scrub habitat and typically occurs below elevations of 950 feet AMSL and on slopes less than 40%, but this species has been observed at elevations greater than 2,000 feet AMSL. The species is threatened primarily by loss, degradation, and fragmentation of coastal sage scrub habitat and is also thought to be impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism. Even though this portion of Shepherd Canyon is within close proximity to existing development and is fragmented somewhat by existing road crossings, there is a moderate potential for California gnatcatcher to forage from Mission Trails Regional Park west toward the study area. The state and federally listed endangered least Bell's vireo, while not observed during 2015 and 2016 surveys of the site, has a moderate potential to occur in southern willow scrub and mulefat scrub habitats within the study area. Vegetation clearing, grubbing, and overall construction activities both inside and outside the MHPA is restricted during the breeding season for California gnatcatcher, which extends from March 1 to August 15 in MHPA lands, and for the least Bell's vireo, which extends from March 15 to September 15 in MHPA lands. If construction is to occur during the breeding season for California gnatcatcher and least Bell's vireo, significant, direct impacts to these species could occur. This would be a significant impact absent mitigation **(BIO-2).**

Area Specific Management Directives (ASMDs) for a number of wildlife species are addressed below; however, no specific mitigation measures are required as the proposed project meets the required objectives as explained in the following paragraphs. ASMDs for a number of species must be addressed including: California gnatcatcher, least Bell's vireo and Cooper's hawk. The remaining natural open space habitat in the study area will remain undeveloped and maintained suitable for these species.

ASMDs for the California gnatcatcher discuss inclusion of 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 MHPA may occur between March 1 and August 15. ASMDs for least Bell's vireo 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 this species. Any clearing of occupied habitat must occur between September 15 and March 15 (i.e., outside of the nesting period).

ASMDs for the Cooper's hawk discuss breeding habitat. If a nest is found for this species during pre-construction surveys, a 300-foot buffer will be established and enforced.

Yellow-breasted chat (CDFW SSC) was observed in East Shepherd Canyon during the April 2016 survey and, while not observed, there is moderate potential for Cooper's hawk (CDFW SSC and MSCP Covered Species) and least Bell's vireo (State and Federally Listed Endangered and MSCP Covered Species) to occur in the study area. All raptors species are considered special-status, including Cooper's hawk, and may use the site for foraging and nesting. Stands of river redgum eucalyptus and redbox were observed along Antigua Boulevard where proposed construction would occur; however, no nesting raptors were observed. Although raptor species have the potential to occur in the study area, lands within the impact footprint are highly urbanized and do not provide important habitat that would substantially affect any species from continuing to exist within the area.

With respect to least Bell's vireo, southern willow scrub and mulefat scrub occurs within the study area, which is suitable habitat for this species; however, the habitat is fragmented and occurs in scattered patches intermixed with coastal sage scrub and herbaceous wetlands. North and East Shepherd Canyon both quickly transition from wet, willow-dominated habitats to dry, sparsely vegetated intermittent stream channels dominated by eucalyptus woodland and more upland shrubs and scrub habitat. It is unlikely that least Bell's vireo will migrate from upland habitats west across Via Valarta and Portobelo Drive from Mission Trails Regional Park where riparian habitat is more optimal for foraging and breeding.

Based on this information, significant direct impacts to these and other special-status wildlife species are not expected to occur (Appendix D).

## 7.2 Indirect Impacts

### Vegetation Communities and Land Covers

Two native vegetation communities were mapped within the project impact footprint – coastal sage scrub and disturbed coastal sage scrub. Short-term indirect impacts that may affect adjacent vegetation communities include dust, invasive plant species, and increased human presence. Typical construction Best Management Practices (BMPs) will limit the spread of dust and the project Revegetation Plan will establish a native plant community within any temporarily disturbed areas, thus minimizing the potential for invasive plant species. Increased human presence is a potential short-term indirect impact. During construction, typical BMPs, such as having trash containers on site, a demarcated limit of work, and contractor education, will limit the potential for trash and other human disturbance. The velocity of runoff may also change

during construction and could potentially affect off-site sensitive vegetation communities associated with Shepherd Canyon including erosion and sedimentation. However, the applicant will incorporate methods to control runoff, including a Water Pollution Control Plan (WPCP) or Storm Water Pollution Prevention Plan (SWPPP) to meet National Pollution Discharge Elimination System (NPDES) regulations. Therefore, short-term indirect impacts to off site, adjacent vegetation communities are not considered significant.

As discussed in the introduction of Section 7 above, the only potential long-term indirect impact is the change in storm water discharge hydrology at the existing culvert outfall beneath Antigua Boulevard and the proposed engineered low-flow channel. It is assumed that the project will be designed in accordance with NPDES regulations, as defined by the City's Storm Water Standards Manual (SWSM) and as such, the project is not expected to result in any long-term indirect adverse impacts.

**Waters of the U.S., including Wetlands**

The study area supports southern willow scrub, mulefat scrub, disturbed herbaceous wetlands, and open water all of which are regulated by the USACE, RWQCB, and CDFW as waters of the U.S., including wetlands. Waters of the U.S. are typically affected in the short-term by dust, invasive plant species, and increased human presence and in the long-term by changes in the velocity of runoff during and following construction, which could adversely affect the integrity of downstream resources causing erosion and sedimentation. However, as stated above, the applicant will incorporate methods to control runoff, in accordance with NPDES regulations by incorporating BMPs during construction and designing the project in accordance with City's SWSM. Therefore, short- and long-term indirect impacts to off-site, adjacent jurisdictional waters of the U.S., including wetlands, are not considered significant.

**Special-Status Plant Species**

There are no special-status plant species with moderate to high potential to occur adjacent to the study area; therefore, indirect impacts to off-site special-status plant species are not expected to occur.

**Special-Status Wildlife Species**

Most of the indirect impacts to vegetation communities previously described can also affect special-status wildlife. Wildlife may also be indirectly affected in the short-term by construction-related noise, which can disrupt normal activities and subject wildlife to higher predation risks. Adverse edge effects can cause degradation of habitat quality through the invasion of pest

species. Breeding birds can be significantly affected by short-term construction-related noise, which can result in the disruption of foraging, nesting, and reproductive activities.

The project study area supports suitable vegetation for bird nesting, including trees associated with the street and property landscaping, and coastal sage scrub vegetation mapped within East Shepherd Canyon. This is nesting habitat for raptors and songbirds protected by the Migratory Bird Treaty Act. Indirect impacts from construction-related noise may occur to breeding wildlife if construction occurs during the breeding season (i.e., February 1 through September 15). Wildlife that would be significantly affected by noise, based on suitable habitat in the project vicinity and in accordance with the City's Land Development Manual Biology Guidelines (June 2012), may occur up to 300 feet from the project work areas. Species whose breeding/nesting may be significantly impacted by noise include all raptor species (regardless of location relative to the MHPA) and California gnatcatchers (within the MHPA only). This impact would be considered a significant impact, absent mitigation **(BIO-3)**.

## 7.3 Consistency with the MSCP

The following outlines the proposed project's consistency with applicable MSCP policies and guidelines as set forth in Section 1.4 and 1.5 of the City's MSCP Subarea Plan.

Approximately 4.18 acres of the 6.41-acre project study area is located within MHPA lands and is associated with the vector habitat remediation improvements. Direct impacts to the MHPA represent the minimum necessary to correct and remediate the mosquito vector habitat hazard on site.

The MSCP establishes specific guidelines that limit activities that occur within the MHPA. In general, activities occurring within the MHPA must conform to these guidelines and, wherever feasible, should be located in the least sensitive areas.

In accordance with Section 1.4.1 (Compatible Land Uses) of the City's MSCP Subarea Plan, the following land uses are considered conditionally compatible with the biological goals and objectives of the MSCP and thus are allowed within the City's MHPA:

- Passive recreation
- Utility lines and roads per the directives outlined in Section 1.4.2 of the MSCP
- Limited water facilities and other essential public facilities
- Limited low density residential uses
- Brush management (Zone 2)

- Limited agriculture

Because the project proposes to improve existing hydrology and infrastructure, which is considered a conditionally compatible use within the MHPA as outlined above, the project is consistent with Section 1.4.1 of the City's MSCP Subarea Plan.

Because of their importance and difficulty finding alternate locations, public infrastructure projects are often given special consideration by the MSCP. Section 1.4.2 (General Planning Policies and Design Guidelines) of the MSCP Subarea Plan outlines planning policies and design guidelines for various potential uses in MHPA lands. To document the proposed project's consistency with Section 1.4.2 of the City's Subarea Plan, a matrix has been prepared outlining the applicability of each policy and how the project intends on demonstrating consistency with said policy (Table 6). The City's MSCP Subarea Plan also contains policies found in Section 1.4.3 (Land Use Adjacency Guidelines), which are designed to help limit the impact of activities located adjacent to MHPAs.

The project is a compatible land use within the MHPA and follows the siting criteria outlined in Subsection 1.4.2 of the MSCP. Because a substantial portion of the project occurs within the MHPA, the project is required to document compliance with the MSCP Land Use Adjacency Guidelines Subsection 1.4.3. A matrix has been prepared documenting the project's compliance with the MSCP (Table 6). The evaluation provided in the following matrix documents the applicable guidelines and the project's compliance with the MSCP.

**Table 6**
**Project Consistency Determination with the MSCP Subarea Plan**

| MSCP Subarea Plan Section 1.4.1 | Applicability | Implementation |
|---|---|---|
| The following land uses are considered conditionally compatible with the biological objectives of the MSCP and thus will be allowed within the City's MHPA:<br>• Passive recreation<br>• Utility lines and roads in compliance with policies described in Section 1.4.2<br>• Limited water facilities and other essential public facilities<br>• Limited low density residential uses<br>• Brush management (Zone 2)<br>• Limited agriculture | The project proposes to improve drainage flow from an existing culvert pipe headwall to correct a vector control concern and as such is considered a compatible land use within the City's MHPA. | N/A |

## Table 6
## Project Consistency Determination with the MSCP Subarea Plan

| MSCP Subarea Plan Section 1.4.2 | Applicability | Implementation |
|---|---|---|
| *Roads and Utilities* | | |
| All proposed utility lines (e.g., sewer, water, etc.) should be designed to avoid or minimize intrusion into the MHPA. These facilities should be routed through developed or developing areas rather than the MHPA, where possible. If no other routing is feasible, then the lines should follow previously existing roads, easements, rights-of-way and disturbed areas, minimizing habitat fragmentation. | Construction of the engineered, low-flow channel and energy dissipator is expected to impact 0.37 acre of MHPA lands. The proposed improvements have been sited to occur in previously disturbed areas to the maximum extent feasible in order to minimize impacts to MHPA. However, impacts to wetlands vegetation within Shepherd Canyon are unavoidable and represent the minimum necessary to improve hydrology in the area, thereby removing mosquito breeding habitat and mitigating the current public health and safety threat. | N/A |
| All new development for utilities and facilities within or crossing the MHPA shall be planned, designed, located and constructed to minimize environmental impacts. All such activities must avoid disturbing the habitat of MSCP covered species and wetlands. If avoidance is infeasible, mitigation will be required. | Minimal impacts to MHPA lands (i.e., 0.37 acre) are necessary to complete the proposed vector habitat remediation improvements and include a rock energy dissipator at the existing Antigua Boulevard culvert outfall to stabilize the culvert pipe headwall daylight point and allow flows exiting the culverts to percolate and an engineered, low-flow channel to improve channel flow. All planned work is associated with improving existing infrastructure and will provide an overall net benefit to the MHPA by restoring proper creek functions and hydrology which, in turn, improves wetland quality, diversity, wildlife habitat, and water quality. Impacts to California gnatcatcher and least Bell's vireo could occur in MHPA lands if work is to occur during the breeding season for these species. | Project construction will be phased to avoid the breeding season for California gnatcatcher (March 1-August 15) and least Bell's vireo (March 15 – September 15). If avoidance of the breeding season is infeasible, pre-construction protocol-level surveys for these species shall be conducted and proper noise attenuation features, nest buffers, and nest avoidance will be implemented in the event that nesting California gnatcatchers and least Bell's vireo are observed within 300 feet of the work site. |

**Table 6**
**Project Consistency Determination with the MSCP Subarea Plan**

| MSCP Subarea Plan Section 1.4.2 | Applicability | Implementation |
|---|---|---|
| Temporary construction areas and roads, staging areas, or permanent access roads must not disturb existing habitat unless determined to be unavoidable. All such activities must occur on existing agricultural lands or in other disturbed areas rather than in habitat. If temporary habitat disturbance is unavoidable, then restoration of, and/or mitigation for, the disturbed area after project completion will be required. | All vegetated areas temporarily disturbed by construction will be restored with native species. | The contractor shall permanently revegetate all graded, disturbed, or eroded areas that will not be permanently paved or covered by structures. |
| Construction and maintenance activities in wildlife corridors must avoid significant disruption of corridor usage. Environmental documents and mitigation monitoring and reporting programs covering such development must clearly specify how this will be achieved, and construction plans must contain all the pertinent information and be readily available to crews in the field. Training of construction crews and field workers must be conducted to ensure that all conditions are met. A responsible party must be specified. | No direct impacts to wildlife corridors are anticipated. | N/A |
| Roads in the MHPA will be limited to those identified in Community Plan Circulation Elements, collector streets essential for area circulation, and necessary maintenance/emergency access roads. Local streets should not cross the MHPA except where needed to access isolated development areas. | The proposed project does not involve the construction of new roads, trails, or access paths. | N/A |
| Development of roads in canyon bottoms should be avoided whenever feasible. If an alternative location outside the MHPA is not feasible, then the road must be designed to cross the shortest length possible of the MHPA in order to minimize impacts and fragmentation of sensitive species and habitat. If roads cross the MHPA, they should provide for fully functional wildlife movement capability. Bridges are the preferred method of providing for movement, although culverts in selected locations may be acceptable. Fencing, grading and plant cover should be provided where needed to protect and shield animals, and guide them away from roads to appropriate crossings. | The proposed project does not involve the construction of new roads, trails, or access paths. | N/A |
| Where possible, roads within the MHPA should be narrowed from existing design standards to minimize habitat fragmentation and disruption of wildlife movement and breeding areas. Roads must be located in lower quality habitat or disturbed areas to the extent possible. | The proposed project does not involve the construction of new roads, trails, or access paths. | N/A |

**Table 6**
**Project Consistency Determination with the MSCP Subarea Plan**

| MSCP Subarea Plan Section 1.4.2 | Applicability | Implementation |
|---|---|---|
| For the most part, existing roads and utility lines are considered a compatible use within the MHPA and therefore will be maintained. Exceptions may occur where underutilized or duplicative road systems are determined not to be necessary as identified in the Framework Management. | The proposed project does not involve improvements to or construction of utility lines and associated infrastructure in MHPA lands. | N/A |
| *Fencing, Lighting, and Storage* | | |
| 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). | No fencing or permanent barriers are required or proposed as part of the project. | N/A |
| 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. | No temporary or permanent lighting is required or proposed as part of the project. | N/A |
| *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. | Equipment storage and the storage of hazardous or toxic chemicals will not occur within the MHPA. Equipment storage and material stockpiling will occur in designated disturbed upland communities and developed lands. | The project development footprint within and adjacent to MHPA lands will be clearly delineated in the field by the contractor with temporary flagging and/or fencing. |

## Table 6
## Project Consistency Determination with the MSCP Subarea Plan

| MSCP Subarea Plan Section 1.4.2 | Applicability | Implementation |
|---|---|---|
| *Flood Control* | | |
| Flood control should generally be limited to existing agreements with resource agencies unless demonstrated to be needed based on a cost benefit analysis and pursuant to a restoration plan. Floodplains within the MHPA, and upstream from the MHPA if feasible, should remain in a natural condition and configuration in order to allow for the ecological, geological, hydrological, and other natural processes to remain or be restored. | Implementation of the proposed project would eliminate the existing scour pond at the outlet of the Antigua Boulevard culvert, and establish a stabilized positive flow path through the creation of a low-flow channel to reduce the likelihood of standing water in the project area in order to eliminate mosquito breeding habitat. The natural configuration of the floodplain would not be adversely modified following construction.<br><br>Impacts to wetland waters of the U.S. are necessary in order to eliminate mosquito-breeding habitat and as such are unavoidable. These impacts would occur with authorization from appropriate federal, state, or local agencies, and habitat compensation would be required. | Permits authorizing the proposed vector remediation activities will be obtained from the wetlands regulatory agencies (USACE, RWQCB, and CDFW) prior to construction. |
| No berming, channelization, or man-made constraints or barriers to creek, tributary, or river flows should be allowed in any floodplain within the MHPA unless reviewed by all appropriate agencies, and adequately mitigated. Review must include impacts to upstream and downstream habitats, flood flow volumes, velocities and configurations, water availability, and changes to the water table level. | The proposed project does not include new permanent berming or channelization within the MHPA. However, a 64 foot long by 50 foot wide section of rock rip-rap energy dissipation is proposed at the Antigua Boulevard culvert outfall in order to reduce flow velocities as they exit the culvert. Rock boulders will also line the flow flow channel in order to provide energy dissipation. The rip-rap boulders are not anticipated to constrain or restrict flows within the floodplain but rather will encourage flows to course freely and percolate as they flow though the project area. | N/A |

**Table 6**
**Project Consistency Determination with the MSCP Subarea Plan**

| MSCP Subarea Plan Section 1.4.2 | Applicability | Implementation |
|---|---|---|
| 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 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. | Rock rip-rap is proposed at the Antigua Boulevard culvert outfall in order to armor the channel invert in an area that is hydraulically very steep, which would decrease the potential for a scour pond to develop in this same area in the future. The low flow channel will also be lined with rock boulders to dissipate the energy contained in the storm water flow in order to reduce the likelihood of downstream erosion and scour.<br><br>There are no natural material alternatives that would meet the project goals and objectives. All rock rip-rap will be vegetated with willow plantings and other riparian vegetation following construction in order to encourage native habitat revegetation and restoration. | The contractor shall revegetate the rock rip-rap boulders with native willow and riparian plantings following construction. |
| **MSCP Subarea Plan Section 1.4.3** | **Applicability** | **Implementation** |
| *Drainage* | | |
| All new and proposed parking lots and developed areas in and adjacent to the preserve must not drain directly into the MHPA. All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials and other elements that might degrade or harm the natural environment or ecosystem processes within the MHPA. | Ground disturbance for the project will largely consist of construction of the engineered, earthen, low-flow channel, which will create no runoff potential.<br>Consistent with the City Storm Water Standards, existing previously legal drainage which flows toward the MHPA shall be minimized. | The MHPA boundary and the limits of ground disturbance shall be clearly delineated on the construction documents and surveyed by the contractor.<br><br>At the conclusion of the project, the existing grade will be restored and the current drainage patterns will be unchanged. |

**Table 6**
**Project Consistency Determination with the MSCP Subarea Plan**

| MSCP Subarea Plan Section 1.4.3 | Applicability | Implementation |
|---|---|---|
| *Toxics* | | |
| Land uses, such as recreation and agriculture, that use chemicals or generate by-products such as manure, that are potentially toxic or impactive to wildlife, sensitive species, habitat, or water quality need to incorporate measures to reduce impacts caused by the application and/or drainage of such materials into the MHPA. | No hazardous construction materials storage would be allowed which could impact the adjacent MHPA (including fuel or sediment) and any drainage from the construction site must be clear of such materials.<br><br>Consistent with the City Storm Water Standards, existing previously legal drainage which flows toward the MHPA shall be minimized. | The contractor shall ensure all areas for staging, storage of equipment and materials, trash, equipment maintenance, and other construction related activities are within the limits of the project Area of Potential Effect (APE). |
| *Lighting* | | |
| Lighting of all developed areas adjacent to the MHPA should be directed away from the MHPA. Where necessary, development should provide adequate shielding with non-invasive plant materials (preferably native), berming, and/or other methods to protect the MHPA and sensitive species from night lighting. | No additional permanent lighting or night work is proposed for this project. | N/A |

**Table 6**
**Project Consistency Determination with the MSCP Subarea Plan**

| MSCP Subarea Plan Section 1.4.3 | Applicability | Implementation |
|---|---|---|
| *Noise* | | |
| Uses in or adjacent to the MHPA should be designed to minimize noise impacts. Berms or walls should be constructed adjacent to commercial areas, recreational areas, and any other use that may introduce noises that could impact or interfere with wildlife utilization of the MHPA. Excessively noisy uses or activities adjacent to breeding areas must incorporate noise reduction measures and be curtailed during the breeding season of sensitive species. Adequate noise reduction measures should also be incorporated for the remainder of the year. | Direct impacts to nesting water birds are not anticipated from the project description as no trees would be removed or existing shore bird nesting areas disturbed; however, covered species have a moderate to high potential to forage, roost, and nest in the area and adjacent to the project vicinity at both work locations. | Protocol surveys may be required for potential impacts to certain avian species during their breeding season:<br>California gnatcatcher (3/1-8/15). Although California gnatcatcher was not observed on site, limited, but suitable, foraging and nesting habitat is present at this location and in areas immediately bordering the work site.<br><br>Least Bell's vireo (3/15-9/15): The project study area supports suitable habitat for this species; however, the habitat is fragmented and occurs in scattered patches intermixed with coastal sage scrub and herbaceous wetlands. North and East Shepherd Canyon both quickly transition from wet, willow-dominated habitats to dry, sparsely vegetated intermittent stream channels dominated by eucalyptus woodland and more upland shrubs and scrub habitat. It is unlikely that least Bell's vireo will migrate from upland habitats west across Via Valarta and Portobelo Drive from Mission Trails Regional Park where riparian habitat is more optimal for foraging and breeding. However, a moderate potential exists for this species to occur based on the presence of suitable habitat within the study area.<br><br>Southwestern willow flycatcher (5/1-8/30): N/A |

**Table 6**
**Project Consistency Determination with the MSCP Subarea Plan**

| MSCP Subarea Plan Section 1.4.3 | Applicability | Implementation |
|---|---|---|
| *Barriers* | | |
| New development adjacent to the MHPA may be required to provide barriers (e.g., non-invasive vegetation, rocks/boulders, fences, walls, and/or signage) along the MHPA boundaries to direct public access to appropriate locations and reduce domestic animal predation. | The proposed project involves the construction of an engineering, earthen low-flow channel and a rock energy dissipator on the down-gradient side of four, 48" culverts beneath Antigua Boulevard. Once the channel is constructed it will be revegetated with ecologically appropriate vegetation to improve wetland functions and values and enhance wildlife use of this area. Construction of the energy dissipator will be necessary to ensure full operability to the new engineered low-flow channel and to help water drain through the site more efficiently. However, this structure will be designed such that movement barriers will not occur. No permanent barriers are required or proposed. | N/A |
| *Invasives* | | |
| No invasive non-native plant species shall be introduced into areas adjacent to the MHPA. | Plant species within 100 feet of the MHPA shall comply with the Landscape Regulations (LDC142.0400 and per table 142-04F, Revegetation and Irrigation Requirements) and be non-invasive. | The contractor shall permanently revegetate all graded, disturbed, or eroded areas that will not be permanently paved or covered by structures using native species approved by the City. |
| *Brush Management* | | |
| New residential development located adjacent to and topographically above the MHPA (e.g., along canyon edges) must be set back from slope edges to incorporate Zone 1 brush management areas on the development pad and outside of the MHPA. | The project is not a structural development and would not create any new brush management zones. | N/A |
| *Grading/Land Development* | | |
| Manufactured slopes associated with site development shall be included within the development footprint for projects within or adjacent to the MHPA. | No manufactures slopes are associated with the proposed project. | N/A |

**Table 6**
**Project Consistency Determination with the MSCP Subarea Plan**

| MSCP Subarea Plan Section 1.5.2 | Applicability | Implementation |
|---|---|---|
| *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 will temporarily displace 0.06 acre of native sage scrub habitat outside of MHPA lands due to equipment staging and access. Following project completion, the temporarily impacted areas will be revegetated and restored in place.<br><br>The project will also permanently displace 0.41 acre of southern willow scrub to construct the drainage improvements needed to address the vector habitat concern. | A revegetation plan has been prepared featuring native species that are typical of the area and erosion control features including silt fence and straw fiber rolls, where appropriate. The wetland revegetation areas will be monitored and maintained for a minimum 5 years to meet resource agency monitoring requirements and to ensure adequate establishment and sustainability of the plantings/seedings. This plan has been submitted to DSD for review and approval. |

Because direct impacts to MHPA lands associated with the project are minimal (i.e., 0.42 acre) and targeted for restoration following construction, the project will not impact the goals and objectives of the City's Subarea Plan. Thus, the project is consistent with the guidelines and policies of the MSCP.

## 7.4 Wetlands Deviation Analysis

Based on the Wetland Deviations adopted by the City on June 6, 2012, wetland impacts, outside of the Coastal Overlay Zone, may be considered only pursuant to one of the three following options: Essential Public Project (EPP) Option; Economic Viability Option; or Biologically Superior Option. Based on the project description detailed in Section 6 of this report, the Tierrasanta Vector Habitat Remediation Project is considered an EPP since it will remediate a public health and safety issue through the removal of a scour pond, sediment, and vegetation (both native and non-native) from a portion of East Shepherd Canyon in order to eliminate mosquito breeding habitat. The proposed project has received grant funding under the County of San Diego Department of Health through the Vector Habitat Remediation Program (VHRP), a program designed to further reduce and/or eliminate mosquito breeding grounds in established wetlands, flood control facilities, effluent treatment ponds, and stormwater management facilities. The goal of VHRP is to fund projects that eliminate or reduce mosquito-breeding

habitat in a manner that protects human populations and animals from mosquito-borne diseases with the need to balance the water quality, biological, aesthetic, and hydrologic values. Wetland impacts are anticipated to result due to the nature of the project the purpose of which is to eliminate mosquito breeding habitat.

Alternatives to the proposed project are required under the wetland regulations of the City. These alternatives need to address: 1) No project alternative; 2) Wetlands avoidance alternative; and 3) Wetland impact minimization alternative. These alternatives are described below.

**No Project Alternative**

Under this alternative, the scour pond would persist and continue to host breeding mosquitos in close proximity to homes, roads, and park users. This would result in no cost and no impacts to wetlands. The No Project Alternative would result in a business-as-usual situation and would not assist in the reduction of mosquitoes that transmit diseases such as the West Nile virus and Zika virus, which are growing concerns throughout San Diego County, with increasing cases of the viruses in humans and animals every year. In addition, this alternative would not achieve any of the project objectives established by the VHRP.

**Wetlands Impact Avoidance Alternative**

For this alternative, because improvements to an existing stagnant, scour pond must occur within East Shepherd Canyon in order to improve drainage and eliminate mosquito breeding habitat, there is no feasible method or alternate project location that would completely avoid impacts to City wetlands (southern willow scrub) while still serving the purpose of eliminating mosquito breeding habitat.

**Wetland Impact Minimization Alternatives**

This alternative avoids the need to construct a low flow channel from the existing culvert outfall beneath Antigua Boulevard to the 108-inch diameter culvert beneath Santo Road and would simply backfill the existing scour pond at the downstream end of the Antigua Boulevard culvert to eliminate the pond and thereby eliminate the mosquito-breeding habitat. This alternative would be the least costly alternative but it would only serve as a temporary solution as it would not prevent a re-establishment of the scour pond in the future and thus does not meet the goals and objectives of the project and the grant requirements established by the VHRP.

**Other Alternatives Evaluated**

The proposed project was selected as the least costly practicable alternative that would reliably mitigate mosquito-breeding habitat and reduce the likelihood of reoccurrence as required by the VHRP. The proposed project will eliminate the existing scour pond at the outlet of the Antigua Boulevard culvert, establish a stabilized positive flow path to reduce the likelihood of standing water and reduce the likelihood of a scour pond reoccurring at the culvert outlet in the future. The proposed outlet/low-flow channel will allow for re-establishment of native riparian vegetation and provide a free draining flow path to the Santo Road culvert. Two additional alternatives were evaluated during the planning process, Alternative A and B. Neither alternative would minimize wetland impacts nor would they meet the goals and objectives of the project established by the VHRP. Alternative A would extend the existing culverts to Santo Road and tie directly into the existing upstream culvert headwall on the easterly side of Santo Road. This alternative would effectively meet the project goals of eliminating vector habitat and reduce the likelihood of reoccurrence but the cost would be 7 to 10 times that of the chosen alternative and there would be extensive permanent impacts to southern willow scrub. Alternative B would construct an impact basin at the downstream end of the Antigua Road culvert and backfill the existing scour pond at the downstream end of the culvert to eliminate the pond thereby eliminating mosquito-breeding habitat. This alternative would effectively eliminate the vector habitat and reduce the likelihood of re-establishment in the future. However, this alternative was deemed infeasible because the size of the reinforced concrete impact basin structure needed at the Antigua Boulevard culvert outlet would be considerably large at 10-feet tall by 50-feet wide by 10-feet long.

# 8 MITIGATION

This section describes the mitigation measures (MMs) required to avoid indirect impacts to breeding birds and to limit potential runoff into the MHPA. These MMs will reduce identified and potential significant impacts to a level that is less than significant pursuant to CEQA.

**BIO-1** Direct, permanent impacts to 0.41 acre of southern willow scrub subject to regulation by the USACE, RWQCB, CDFW, and City will occur due to project implementation.

**MM-1** Mitigation for direct, permanent impacts to 0.41 acre of southern willow scrub habitat will be provided at 3:1 ratio in accordance with the current City's Land Development Manual Biology Guidelines (June 2012) and will include a combination of on-site rehabilitation/restoration and establishment within the

newly constructed, earthen low-flow channel at a 1.06:1 ratio, totaling 0.43 acre, and either the allocation of credits off site at a roughly 2:1 ratio at a City owned and operated, resource-agency approved mitigation bank or the purchase of credits at an approved off-site mitigation bank in San Diego County. Thus, the project will be required to provide 1.23-acres of restoration and enhancement to compensate for direct impacts to southern willow scrub. The on-site restoration program will focus on revegetating the newly constructed channel with species typical of southern willow scrub habitat in the area in order to satisfy the state and federal "no net loss" policy. Please refer to the "Compensatory Wetland Mitigation and Monitoring Plan for the Tierrasanta Scour Pond Vector Habitat Remediation Project, City of San Diego, CA" prepared by Dudek (January 2017) for additional details regarding the on-site restoration and revegetation proposal. Table 7 summaries the impacts and mitigation below.

**Table 7**
**Impacts and Mitigation for the Tierrasanta Scour Pond Vector Habitat Remediation Project**

| Vegetation Community | Impact Acreage | Mitigation Ratio | Mitigation Type | Mitigation Acreage Provided |
|---|---|---|---|---|
| | | | SWS Rehabilitation (On site) | 0.41 |
| | | | SWS Establishment (On site) | 0.02 |
| Southern Willow Scrub | 0.41 | 3:1 | Wetland Mitigation Bank Credits (Off site) | 0.80 |
| | | | **Total** | **1.23** |

**MM-1(a)** State and federal law regulates impacts to southern willow scrub. The applicant will be required to obtain a Section 404 Nationwide Permit from the USACE, Section 401 Water Quality Certification from the RWQCB, and a Section 1602 Lake and Streambed Alteration Agreement from CDFW prior to construction.

**BIO-2** Construction-related direct and indirect impacts may occur to breeding wildlife, including the federally threatened California gnatcatcher and state and federally endangered least Bell's vireo, if construction occurs during the breeding season (i.e., February 1 through September 15) (March 1 through August 15 for breeding California gnatcatchers) (March 15 through September 15 for breeding least Bell's vireo).

**MM-2(a)** The following general measures shall be implemented prior to construction to protect breeding wildlife from construction-related impacts.

1. **Biologist Verification** – The owner/permittee shall provide a letter to the City's Mitigation Monitoring Coordination (MMC) section stating that a Project Biologist (Qualified Biologist) as defined in the City's Biological Guidelines (2012), has been retained to implement the project's biological monitoring program. The letter shall include the names and contact information of all persons involved in the biological monitoring of the project.
2. **Preconstruction Meeting** – The Qualified Biologist shall attend the preconstruction meeting, discuss the project's biological monitoring program, and arrange to perform any follow up mitigation measures and reporting including site-specific monitoring, restoration or revegetation, and additional fauna/flora surveys/salvage.
3. **Biological Documents** – The Qualified Biologist shall submit all required documentation to MMC verifying that any special mitigation reports including but not limited to, maps, plans, surveys, survey timelines, or buffers are completed or scheduled per City Biology Guidelines, MSCP, ESL ordinance, project permit conditions; CEQA; state and federal endangered species acts (ESAs); and/or other local, state or federal requirements.
4. **BCME** – The Qualified Biologist shall present a Biological Construction Mitigation/Monitoring Exhibit (BCME) which includes the biological documents in C above. In addition, include: restoration/revegetation plans, plant salvage/relocation requirements (e.g., coastal cactus wren plant salvage, burrowing owl exclusions, etc.), avian or other wildlife surveys/survey schedules (including general avian nesting and USFWS protocol), timing of surveys, wetland buffers, avian construction avoidance areas/noise buffers/ barriers, other impact avoidance areas, and any subsequent requirements determined by the Qualified Biologist and the City ADD/MMC. The BCME shall include a site plan, written and graphic depiction of the project's biological mitigation/monitoring program, and a schedule. The BCME shall be approved by MMC and referenced in the construction documents.

   **Avian Protection Requirements** – To avoid any direct impacts to **sensitive species**, removal of habitat that supports active nests in the proposed area of disturbance should occur outside of the breeding season for these species (February 1 to September 15). If removal of habitat in the proposed area of

disturbance must occur during the breeding season, the Qualified Biologist shall conduct a 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 the start of construction activities (including removal of vegetation). The applicant shall submit the results of the pre-construction survey to City DSD 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's Biology Guidelines and applicable state and federal laws (i.e., appropriate follow up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report or mitigation plan shall be submitted to the City for review and approval and implemented to the satisfaction of the City. The City's MMC Section and 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 an actively nesting Cooper's hawk is observed on site within the MHPA, a 300-foot impact avoidance area shall be included in the mitigation plan and this buffer shall be established and enforced around the active nest using orange fencing or other clear demarcation method until it has been determined that the young have fledged the nest and/or the nest is no longer active. If nesting birds are not detected during the pre-construction survey, no further mitigation is required.

5. **Resource Delineation** – Prior to construction activities, the Qualified Biologist shall supervise the placement of orange construction fencing or equivalent along the limits of disturbance adjacent to sensitive biological habitats and verify compliance with any other project conditions as shown on the BCME. This phase shall include flagging plant specimens and delimiting buffers to protect sensitive biological resources (e.g., habitats/flora and fauna species, including nesting birds) during construction. Appropriate steps/care should be taken to minimize attraction of nest predators to the site.

6. **Education** – Prior to commencement of construction activities, the Qualified Biologist shall meet with the owner/permittee or designee and the construction crew and conduct an on-site educational session regarding the need to avoid impacts outside of the approved construction area and to protect sensitive flora and fauna (e.g., explain the avian and wetland buffers, flag system for

removal of invasive species or retention of sensitive plants, and clarify acceptable access routes/methods and staging areas, etc.).

The following measures shall be implemented during construction to ensure impacts to breeding wildlife are avoided and/or minimized.

7. **Monitoring** – All construction (including access/staging areas) shall be restricted to areas previously identified, proposed for development/staging, or previously disturbed as shown on "Exhibit A" and/or the BCME. The Qualified Biologist shall monitor construction activities as needed to ensure that construction activities do not encroach into biologically sensitive areas, or cause other similar damage, and that the work plan has been amended to accommodate any sensitive species located during the pre-construction surveys. In addition, the Qualified Biologist shall document field activity via the Consultant Site Visit Record (CSVR). The CSVR shall be e-mailed to MMC on the 1st day of monitoring, the 1st week of each month, the last day of monitoring, and immediately in the case of any undocumented condition or discovery.
8. **Subsequent Resource Identification** – The Qualified Biologist shall note/act to prevent any new disturbances to habitat, flora, and/or fauna on site (e.g., flag plant specimens for avoidance during access, etc). If active nests or other previously unknown sensitive resources are detected, all project activities that directly impact the resource shall be delayed until species specific local, state or federal regulations have been determined and applied by the Qualified Biologist.

The following measure shall be implemented immediately following construction.

9. In the event that impacts exceed previously allowed amounts, additional impacts shall be mitigated in accordance with City Biology Guidelines, ESL and MSCP, State CEQA, and other applicable local, state and federal law. The Qualified Biologist shall submit a final BCME/report to the satisfaction of the City ADD/MMC within 30 days of construction completion.

**MM-2(b)** Prior to the preconstruction meeting, the City Manager (or appointed designee) shall verify that the MHPA boundaries and the project requirements regarding the California gnatcatcher and least Bell's vireo, as specified below, are shown on the construction plans.

No clearing, grubbing, grading, or other construction activities shall occur during the California gnatcatcher breeding season (March 1 to August 15) and least Bell's vireo breeding season (March 15 through September 15), until the following requirements have been met to the satisfaction of the City Manager:

1. A Qualified Biologist (possessing a valid ESA 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 decibels [db(a)] hourly average for the presence of the California gnatcatcher. Surveys for California gnatcatcher and least Bell's vireo shall be conducted pursuant to the protocol survey guidelines established by the USFWS within the breeding season prior to the commencement of any construction. If California gnatcatchers and/or least Bell's vireo are present, then the following conditions must be met:

    a. Between March 1 and August 15 (for breeding California gnatcatchers) and between March 15 and September 15 (for breeding least Bell's vireos), no clearing, grubbing, or grading of occupied California gnatcatcher and/or least Bell's vireo habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; **and**

    b. Between March 1 and August 15 (for breeding California gnatcatchers) and between March 15 and September 15 (for breeding least Bell's vireos), no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dB (a) hourly average at the edge of occupied California gnatcatcher and/or least Bell's vireo habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB (a) hourly average at the edge of occupied habitat must be completed by a Qualified Acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the City Manager at least two weeks prior to the commencement of construction activities. Prior to the commencement of construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; **or**

    c. At least two weeks prior to the commencement of construction activities, under the direction of a qualified acoustician, noise

attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dB (a) hourly average at the edge of habitat occupied by the California gnatcatcher and/or least Bell's vireo. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dB (a) hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the Qualified Acoustician or Biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (August 16). Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB (A) hourly average or to the ambient noise level if it already exceeds 60 dB (A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB (A) hourly average or to the ambient noise level if it already exceeds 60 dB (A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

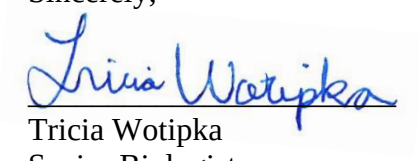
2. If California gnatcatchers and/or least Bell's vireo are not detected during the protocol survey, the Qualified Biologist shall submit substantial evidence to the City Manager and applicable resource agencies which demonstrates whether or not mitigation measures such as noise walls are necessary between March 1 and August 15 (for breeding California gnatcatchers) and between March 15 and September 15 (for breeding least Bell's vireos) as follows:

    a. If this evidence indicates that the potential is high for California gnatcatcher and/or least Bell's vireo 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 these species are anticipated, no mitigation measures would be necessary.

If you have any questions regarding this report, please contact me via telephone at 760.479.4295 or via email at twotipka@dudek.com.

Sincerely,



Tricia Wotipka
Senior Biologist

*Att.:* *Figures 1–5*
*Appendix A, List of Vascular Plant Species Observed within the Project Study Area*
*Appendix B, List of Wildlife Species Observed within the Project Study Area*
*Appendix C, Special-Status Plant Species Potentially Occurring within the Project Study Area*
*Appendix D, Special-Status Wildlife Species Potentially Occurring within the Project Study Area*
*Appendix E, Wetland Determination Data Forms*

*cc:* *Jim Hoyle, Habitat Restoration Science, Inc.*

## REFERENCES CITED

16 U.S.C. 703–712. 1918. Migratory Bird Treaty Act, as amended.

51 FR 16474 16482. Final rule: "Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Least Bell's Vireo." 1986.

AOU (American Ornithologists' Union). 2012. *Check-List of North American Birds: List of the 2,078 Bird Species Known From the AOU Check-list Area*. Accessed from http://www.aou.org/checklist/north/full.php.

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,* ed. J.E. Keeley, 149–169. Los Angeles, California: Southern California Academy of Sciences.

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

Bing Maps. 2014. "Project Study Area" [map]. 1:200 feet. www.bing.com/maps/.

Bond, S.I. 1977. "An Annotated List of the Mammals of San Diego County, California." San Diego Society of Natural History.

Bowman, R.H. 1973. *Soil Survey, San Diego Area, California, Part 1*. U.S. Department of Agriculture, Soil Conservation Service and Forest Service. December 1973. Accessed March 2015. http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/CA638/0/part1.pdf.

Bowyer, R.T. 1986. Habitat selection by southern mule deer. California Fish and Game 72: 153-169.

CDFW (California Department of Fish and Wildlife). 2015a. California Natural Diversity Database (CNDDB). RareFind, Version 5. (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp.

CDFW. 2015b. "State and Federally Listed Endangered and Threatened Animals of California." California Natural Diversity Database. CDFW, Biogeographic Data Branch. January 2015. http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.

CDFW. 2015c. "State and Federally Listed Endangered, Threatened, and Rare Plants of California." California Natural Diversity Database. CDFW, Biogeographic Data Branch. January 2015. http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/TEPlants.pdf.

CDFW. California Natural Diversity Data Base. 2015d. "Special Animals List." California Natural Diversity Database. CDFW, Biogeographic Data Branch. January 2015. http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.

CDFW. 2015e. California Natural Diversity Database. 2015. *Special Vascular Plants, Bryophytes, and Lichens List*. California Natural Diversity Database. January 2015. http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.

City of San Diego. 1997. *City of San Diego Final MSCP Subarea Plan*. Prepared by the City of San Diego Community and Economic Development Department. March 1997.

City of San Diego. 2012. San Diego Municipal Code: Land Development Code –Biology Guidelines. As amended April 23, 2012 by Resolution No. R-307376.

CNPS. 2013. Inventory of Rare and Endangered Plants (online edition, v8-01a). Sacramento, California: California Native Plant Society. Accessed September 2013. http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi.

CNPS (California Native Plant Society). 2015. *Inventory of Rare and Endangered Plants*. Online ed. Version 8-01a. Sacramento, California: CNPOS. Accessed January 2015. http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi.

Comrack, L.A. 2008. "Yellow-breasted Chat (*Icteria virens*)." In *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California*, edited by W.D. Shuford and T. Gardali, 351–358. In *Studies of Western Birds 1*. Camarillo, California: Western Field Ornithologists and Sacramento, California: CDFG.

Crother, B.I. 2008. *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in our Understanding*, edited by J.J. Moriarty. 6th ed. Society for the Study of Amphibians and Reptiles (SSAR); Herpetological Circular, no. 37. January 2008. http://www.ssarherps.org/pdf/HC_37_6thEd.pdf.

Dunk, J.R. 1995. "White-Tailed Kite (*Elanus leucurus*)." In *The Birds of North America Online*, edited by A. Poole. Ithaca, New York: Cornell Lab of Ornithology. Accessed December 2011. http://bna.birds.cornell.edu/bna/species/178.

Emmel, T.C., and J.F. Emmel. 1973. *The Butterflies of Southern California.* Science Series 26. Natural History Museum of Los Angeles County. November 30, 1973.

Franzreb, K.E. 1989. *Ecology and Conservation of the Endangered Least Bell's Vireo*. Sacramento, California: U.S. Fish and Wildlife Service. Biological Report 89(1).

Garrett, K., and J. Dunn. 1981. *The Birds of Southern California: Status and Distribution.* Los Angeles, California: Los Angeles Audubon Society.

Goldwasser, S. 1981. *Habitat Requirements of the Least Bell's Vireo*. Final Report. Job IV-38.1. California Department of Fish and Game.

Grinnell, J., and A.H. Miller. 1944. "The Distribution of the Birds of California." *Pacific Coast Avifauna* Number 27. Berkeley, California: Copper Ornithological Club.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Nongame-Heritage Program, California Department of Fish and Game. October 1986.

Jepson Flora Project. 2016. Jepson eFlora. Berkeley, California: University of California. Accessed March 15, 2016. http://ucjeps.berkeley.edu/cgi-bin/get_JM_name_data.pl.

Lichvar, R.W., M. Butterw ick, N.C. Melvin, and W.N. Kirchner. 2014. *The National Wetland Plant List*: 2014 Update of Wetland Ratings. Phytoneuron 2014-41: 1-42.

NABA (North American Butterfly Association). 2012. "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 May 2012. http://www.naba.org/pubs/enames2.html.

Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County.* March 2008. Accessed September 12, 2012. http://www.sdcanyonlands.org/canyon-groups/canyon-group-resources/canyon-enhancement-guide/189-canyon-enhancement-planning-guide-materials.

Parnell, J.F. 1969. "Habitat Relations of the Parulidae during Spring Migration." *Auk* 86:505–521.

Patten, M.A., G. McCaskie, and P. Unitt. *Birds of the Salton Sea*. Berkley and Los Angeles, California: University of California Press.

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.

Salata, L.R. 1983a. *Status of the Least Bell's Vireo on Camp Pendleton, California.* Prepared for the U.S. Fish and Wildlife Service; Laguna Niguel, California. January 1983

Salata, L.R. 1983b. *Status of the Least Bell's Vireo on Camp Pendleton, California: A Report on Research Done in 1983.* Prepared for the U.S. Fish and Wildlife Service; Laguna Niguel, California. December 1983.

SDNHM (San Diego Natural History Museum). 2002. "Butterflies of San Diego County. Revised September 2002." Accessed May 2012 at http://www.sdnhm.org/archive/research/entomology/sdbutterflies.html.

SanGIS (San Diego Geographic Information Source). 2015. San Diego Geographic Information Source. Accessed January 2015. http://www.sangis.org/

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. *A Manual of California Vegetation, 2nd Edition*. California Native Plant Society, Sacramento, CA.

Small, A. 1994. *California Birds: Their Status and Distribution.* Vista, California: Ibis Publishing Co.

Stebbins, R.C. 2003. *Western Reptiles and Amphibians*. 3rd ed. Peterson Field Guide. New York, New York: Houghton Mifflin Company.

Unitt, P. 2004. *San Diego County Bird Atlas*. Proceedings of the San Diego Society of Natural History, no. 39. San Diego, California: San Diego Natural History Museum. http://www.sdnhm.org/science/birds-and-mammals/projects/san-diego-county-bird-atlas/.

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

USACE. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (*Version 2.0*). Environmental Laboratory, ERDC/EL TR-08-28. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center. September 2008.

USDA (U.S. Department of Agriculture). 1994. "Hydric Soils." Natural Resources Conservation Service. http://soils.usda.gov/use/hydric/intro.html.

USDA. 2016. "California." State PLANTS Checklist. Accessed April 5, 2016. http://plants.usda.gov/dl_state.html.

USDA. 2016. *Web Soil Survey* [web application]. USDA, Natural Resources Conservation Service. http://websoilsurvey.nrcs.usda.gov/app/.

USDA and NRCS (Natural Resources Conservation Service) 2010. *Field Indicators of Hydric Soils in the United States. A Guide for Identifying and Delineating Hydric Soils*. Version 7.0. 2010. ftp://ftp-fc.sc.egov.usda.gov/NSSC/Hydric_Soils/FieldIndicators_v7.pdf

USFWS (U.S. Fish and Wildlife Service). 1998. *Draft Recovery Plan for the Least Bell's Vireo (*Vireo bellii pusillus*).* Portland, Oregon: USFWS, Region 1. Accessed December 5, 2011. http://ecos.fws.gov/docs/recovery_plan/980506.pdf.

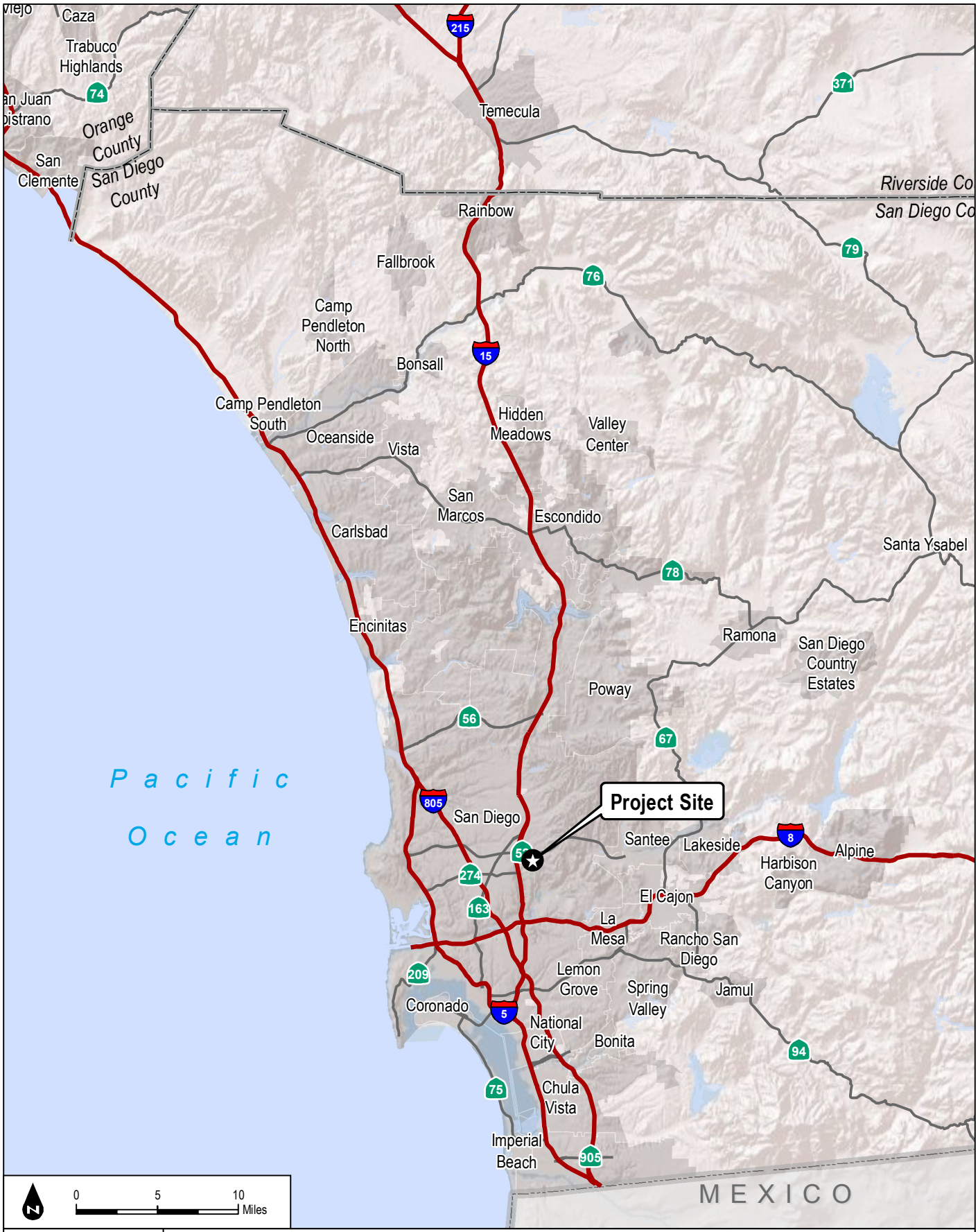
USFWS. 2014. "Service Initiates Status Review of Monarch Butterfly Under the Endangered Species Act." December 29, 2014. Accessed online January 2015. http://www.fws.gov/midwest/news/764.html

USFWS. 2015. "Critical Habitat and Occurrence Data" [map]. Accessed January 2015. http://www.fws.gov/data.

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. 1990a. *California's Wildlife: Volume II. Birds.* Sacramento, California: California Department of Fish and Game.

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

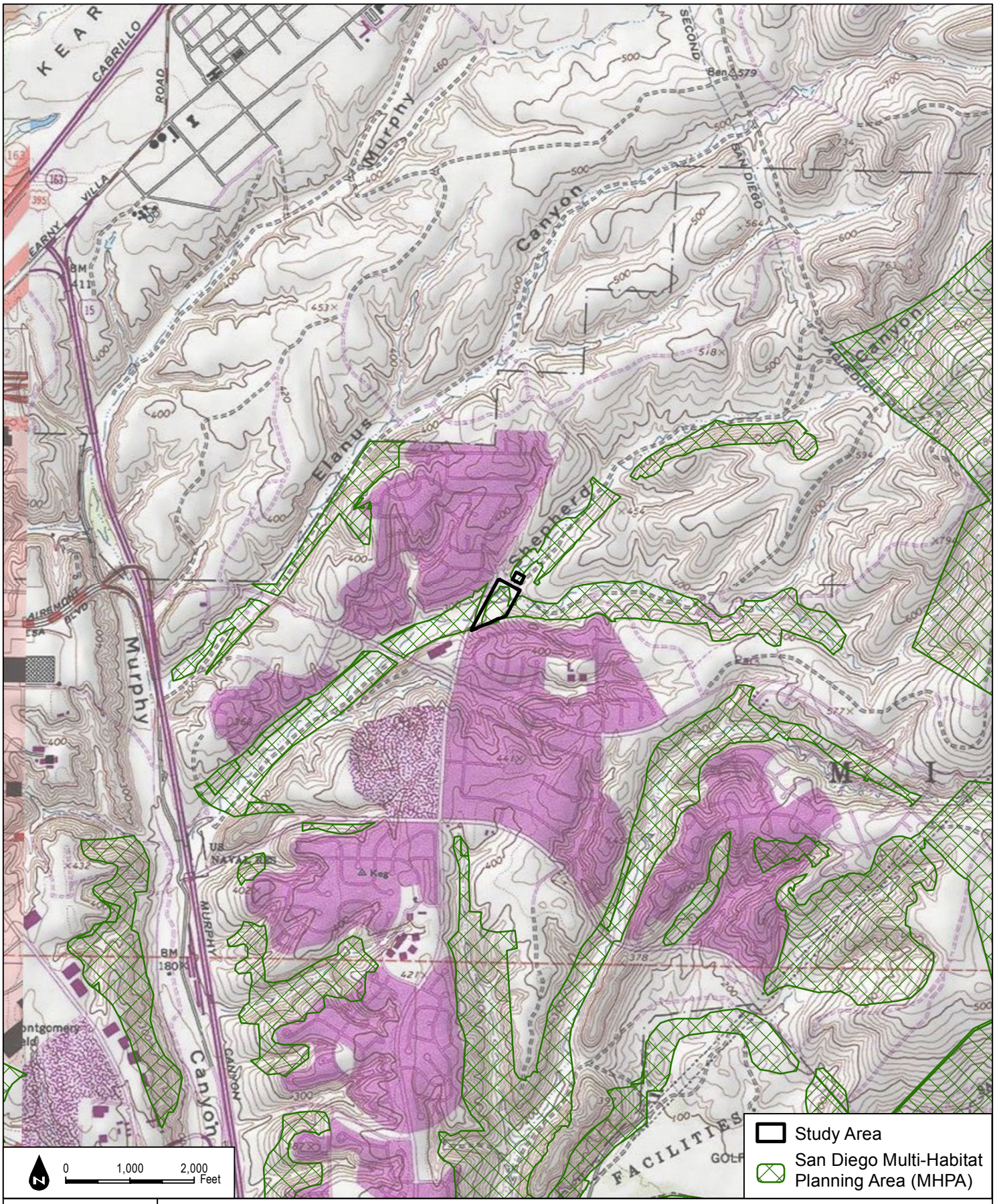



DUDEK

**FIGURE 1**

**Regional Map**

Tierrasanta Scour Pond Vector Habitat Remediation Project




DUDEK

SOURCE: USGS 7.5-Minute Series La Mesa Quadrangle; SanGIS 2016

**FIGURE 2**

Vicinity Map

Tierrasanta Scour Pond Vector Habitat Remediation Project


DUDEK

SOURCE: SanGIS 2016; SANDAG Imagery 2014

**FIGURE 3**

Biological Resoruces

Tierrasanta Scour Pond Vector Habitat Remediation Project


DUDEK

SOURCE: SanGIS 2016; SANDAG Imagery 2014

**FIGURE 4**

Wetland Delineation Map

Tierrasanta Scour Pond Vector Habitat Remediation Project


DUDEK

SOURCE: SanGIS 2016; SANDAG Imagery 2014

**FIGURE 5**

Biological Resources Impacts Map

Tierrasanta Scour Pond Vector Habitat Remediation Project

# APPENDIX A

## *List of Vascular Plant Species Observed within the Project Study Area*

# APPENDIX A
# List of Vascular Plant Species Observed within the Project Study Area

***ADOXACEAE—MUSKROOT FAMILY***

*Sambucus nigra* ssp. *caerulea*—blue elderberry

***ANACARDIACEAE—SUMAC OR CASHEW FAMILY***

*Malosma laurina*—laurel sumac

*Rhus integrifolia*—lemonade sumac

* *Schinus terebinthifolius*—Brazilian peppertree

***ARECACEAE—PALM FAMILY***

* *Washingtonia robusta*—Washington fan palm

***ASTERACEAE—SUNFLOWER FAMILY***

* *Sonchus oleraceus*—common sowthistle

*Ambrosia psilostachy*a—Cuman ragweed

*Artemisia californica*—coastal sagebrush

*Baccharis pilularis*—coyotebrush

*Baccharis sarothroides*—desertbroom

*Encelia californica*—California brittlebush

*Erigeron canadensis*—Canadian horseweed

*Isocoma menziesii*—Menzies' goldenbush

*Pseudognaphalium californicum*—ladies' tobacco

*Xanthium strumarium*—rough cocklebur

*Baccharis salicifolia*—mule-fat

* *Centaurea melitensis*—Maltese star-thistle

* *Glebionis coronaria*—crowndaisy

* *Helminthotheca echioides*—bristly oxtongue

* *Sonchus asper* ssp. *asper*—spiny sowthistle

***BRASSICACEAE—MUSTARD FAMILY***

* *Sisymbrium irio*—London rocket

* *Hirschfeldia incana*—shortpod mustard

* *Raphanus raphanistrum*—wild radish

***CAPRIFOLIACEAE—HONEYSUCKLE FAMILY***

*Lonicera hispidula*—pink honeysuckle

***CHENOPODIACEAE—GOOSEFOOT FAMILY***

* *Atriplex semibaccata*—Australian saltbush

* *Chenopodium murale*—nettleleaf goosefoot

***CYPERACEAE—SEDGE FAMILY***

*Carex athrostachya*—slenderbeak sedge
*Bolboschoenus maritimus*—no common name
* *Cyperus involucratus*—unbrella plant

***EUPHORBIACEAE—SPURGE FAMILY***

* *Euphorbia peplus*—petty spurge

***FABACEAE—LEGUME FAMILY***

*Acmispon glaber*—common deerweed
* *Medicago polymorpha*—burclover
* *Melilotus albus*—yellow sweetclover
* *Melilotus indicus*—annual yellow sweetclover

***FAGACEAE—OAK FAMILY***

*Quercus agrifolia*—California live oak

***GERANIACEAE—GERANIUM FAMILY***

* *Erodium cicutarium*—redstem stork's bill
*Geranium carolinianum*—Carolina geranium
* *Geranium dissectum*—cutleaf geranium

***GROSSULARIACEAE—GOOSEBERRY FAMILY***

*Ribes speciosum*—fuchsiaflower gooseberry

***LAMIACEAE—MINT FAMILY***

*Salvia apiana*—white sage
*Salvia clevelandii*—fragrant sage
*Salvia mellifera*—black sage
* *Marrubium vulgare*—horehound

***MALVACEAE—MALLOW FAMILY***

*Malacothamnus fasciculatus*—Mendocino bushmallow
* *Malva parviflora*—cheeseweed mallow

***MYRSINACEAE—MYRSINE FAMILY***

* *Lysimachia arvensis*—scarlet pimpernel

***MYRTACEAE—MYRTLE FAMILY***

* *Eucalyptus camaldulensis*—river redgum
* *Eucalyptus globulus*—Tasmanian bluegum
* *Eucalyptus polyanthemos*—redbox

***ONAGRACEAE—EVENING PRIMROSE FAMILY***

* *Oenothera speciosa*—pinkladies

***PAPAVERACEAE—POPPY FAMILY***

*Eschscholzia californica*—California poppy

***PHRYMACEAE—LOPSEED FAMILY***

*Mimulus aurantiacus*—orange bush monkeyflower

***PLATANACEAE—PLANE TREE, SYCAMORE FAMILY***

*Platanus racemosa*—California sycamore

***POACEAE—GRASS FAMILY***

*Muhlenbergia rigens*—deergrass
*Stipa lepida*—foothill needlegrass
* *Avena fatua*—wild oat
* *Bromus diandrus*—ripgut brome
* *Bromus hordeaceus*—soft brome
* *Cortaderia selloana*—Uruguayan pampas grass
* *Cynodon dactylon*—Bermudagrass
* *Digitaria sanguinalis*—hairy crabgrass
* *Festuca perennis*—Italian ryegrass
* *Pennisetum setaceum*—crimson fountaingrass
* *Polypogon monspeliensis*—annual rabbitsfoot grass

***POLYGONACEAE—BUCKWHEAT FAMILY***

*Eriogonum fasciculatum*—Eastern Mojave buckwheat
* *Rumex crispus*—curly dock

***ROSACEAE—ROSE FAMILY***

*Heteromeles arbutifolia*—toyon
*Prunus ilicifolia*—hollyleaf cherry
*Rosa californica*—California wildrose

***SALICACEAE—WILLOW FAMILY***

*Salix gooddingii*—Goodding's willow
*Salix lasiolepis*—arroyo willow
*Populus fremontii*—Fremont cottonwood

* signifies introduced (non-native) species

# APPENDIX B

*List of Wildlife Species Observed within the Project Study Area*

# APPENDIX B
# List of Wildlife Species Observed within the Project Study Area

## BIRD

### BUSHTITS

***AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS***

*Psaltriparus minimus*—bushtit

### EMBERIZINES

***EMBERIZIDAE—EMBERIZIDS***

*Melospiza melodia*—song sparrow

*Pipilo maculatus*—spotted towhee

### FINCHES

***FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES***

*Spinus psaltria*—lesser goldfinch

*Haemorhous mexicanus*—house finch

### FLYCATCHERS

***TYRANNIDAE—TYRANT FLYCATCHERS***

*Sayornis nigricans*—black phoebe

*Tyrannus verticalis*—western kingbird

### HAWKS

***ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES***

*Buteo lineatus*—red-shouldered hawk

### HUMMINGBIRDS

***TROCHILIDAE—HUMMINGBIRDS***

*Calypte anna*—Anna's hummingbird

### JAYS, MAGPIES AND CROWS

***CORVIDAE—CROWS AND JAYS***

*Corvus brachyrhynchos*—American crow

*Corvus corax*—common raven

### PIGEONS AND DOVES

***COLUMBIDAE—PIGEONS AND DOVES***

*Zenaida macroura*—mourning dove

### WOOD WARBLERS AND ALLIES

***PARULIDAE—WOOD-WARBLERS***

*Geothlypis trichas*—common yellowthroat
*Icteria virens* – yellow-breasted chat
*Setophaga coronata*—yellow-rumped warbler

### WOODPECKERS

***PICIDAE—WOODPECKERS AND ALLIES***

*Picoides nuttallii*—Nuttall's woodpecker

***TIMALIIDAE – BABBLERS***

*Chamaea fasciata* – wrentit

## INVERTEBRATE

### BUTTERFLIES

***NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES***

*Nymphalis antiopa*—mourning cloak
*Danaus plexippus*—monarch

***PAPILIONIDAE—SWALLOWTAILS***

*Papilio zelicaon*—anise swallowtail

***PIERIDAE—WHITES AND SULFURS***

*Pieris rapae*—cabbage white
*Pontia protodice*—checkered white

## REPTILE

### LIZARDS

***PHRYNOSOMATIDAE—IGUANID LIZARDS***

*Sceloporus occidentalis*—western fence lizard

# APPENDIX C

## *Special-Status Plant Species Potentially Occurring within the Project Study Area*

# APPENDIX C
# Special-Status Plant Species Potentially Occurring within the Project Study Area

| Scientific Name | Common Name | Status (Federal/State/CRPR[1]/MSCP) | Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet) | Potential to Occur |
|---|---|---|---|---|
| *Abronia maritima* | red sand-verbena | None/None/4.2/None | Coastal dunes/perennial herb/Feb–Nov/0–328 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Acanthomintha ilicifolia* | San Diego thorn-mint | FT/CE/1B.1/Covered | Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay, openings/annual herb/Apr–June/33–3150 | Low potential to occur. Site lacks vernal pools and suitable soils. The species is known to occur within the vicinity[2]. |
| *Acmispon prostratus* | Nuttall's acmispon | None/None/1B.1/Covered | Coastal dunes, coastal scrub (sandy)/annual herb/Mar–June (July)/0–33 | Not expected to occur. The site is outside of the species' known elevation range. The species is not known to occur within the vicinity[2]. |
| *Adolphia californica* | California adolphia | None/None/2B.1/None | Chaparral, coastal scrub, valley and foothill grassland; clay/perennial deciduous shrub/Dec–May/148–2428 | Low potential to occur. Site lacks suitable soils; would have been observed. The species is known to occur within the vicinity[2]. |
| *Agave shawii* var. *shawii* | Shaw's agave | None/None/2B.1/None | Coastal bluff scrub, coastal scrub/perennial leaf succulent/Sep–May/33–394 | Not expected to occur. Would have been observed. The species is not known to occur within the vicinity[2]. |
| *Ambrosia chenopodiifolia* | San Diego bur-sage | None/None/2B.1/None | Coastal scrub/perennial shrub/Apr–June/180–509 | Not expected to occur. This species would have been observed. The species is not known to occur within the vicinity[2]. |
| *Ambrosia monogyra* | singlewhorl burrobrush | None/None/2B.2/None | Chaparral, Sonoran desert scrub; sandy/perennial shrub/Aug–Nov/33–1640 | Not expected to occur. No suitable habitat present. The species is known to occur within the vicinity[2]. |
| *Ambrosia pumila* | San Diego ambrosia | FE/None/1B.1/Covered | Chaparral, coastal scrub, valley and foothill grassland, vernal pools; sandy loam or clay, often in disturbed areas, sometimes alkaline/perennial rhizomatous herb/Apr–Oct/66–1362 | Low potential to occur. Would have been observed. The species is known to occur within the vicinity[2]. |
| *Aphanisma blitoides* | aphanisma | None/None/1B.2/Covered | Coastal bluff scrub, coastal dunes, coastal scrub; sandy or gravelly/annual herb/Mar–June/3–1001 | Low potential to occur. Would have been observed. The species is not known to occur within the vicinity[2]. |
| *Arctostaphylos glandulosa* ssp. *crassifolia* | Del Mar manzanita | FE/None/1B.1/Covered | Chaparral (maritime, sandy)/perennial evergreen shrub/Dec–June/0–1198 | Not expected to occur. No suitable habitat present. The species is known to occur within the vicinity[2]. |

| Scientific Name | Common Name | Status (Federal/State/CRPR[1]/MSCP) | Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet) | Potential to Occur |
|---|---|---|---|---|
| *Arctostaphylos otayensis* | Otay manzanita | None/None/1B.2/Covered | Chaparral, cismontane woodland; metavolcanic/perennial evergreen shrub/Jan–Apr/902–5577 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *Artemisia palmeri* | San Diego sagewort | None/None/4.2/None | Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; sandy, mesic/perennial deciduous shrub/(Feb) May–Sep/49–3002 | Moderate potential to occur. However would have been observed if present. The species is known to occur within the vicinity[2]. |
| *Asplenium vespertinum* | western spleenwort | None/None/4.2/None | Chaparral, cismontane woodland, coastal scrub; rocky/perennial rhizomatous herb/Feb–June/591–3281 | Not expected to occur. Site is outside species known elevation range. The species is known to occur within the vicinity[2]. |
| *Astragalus deanei* | Dean's milk-vetch | None/None/1B.1/None | Chaparral, cismontane woodland, coastal scrub, riparian forest/perennial herb/Feb–May/246–2280 | Low potential to occur. Would have been observed. The species is not known to occur within the vicinity[2]. |
| *Astragalus tener* var. *titi* | coastal dunes milk-vetch | FE/CE/1B.1/Covered | Coastal bluff scrub (sandy), coastal dunes, coastal prairie (mesic); often vernally mesic areas/annual herb/Mar–May/3–164 | Not expected to occur. Site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *Atriplex coulteri* | Coulter's saltbush | None/None/1B.2/None | Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland; alkaline or clay/perennial herb/Mar–Oct/10–1509 | Low potential to occur. Site lacks suitable soils; would have been observed. The species is not known to occur within the vicinity[2]. |
| *Atriplex pacifica* | South Coast saltscale | None/None/1B.2/None | Coastal bluff scrub, coastal dunes, coastal scrub, playas/annual herb/Mar–Oct/0–459 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Baccharis vanessae* | Encinitas baccharis | FT/CE/1B.1/Covered | Chaparral (maritime), cismontane woodland; sandstone/perennial deciduous shrub/Aug–Nov/197–2362 | Not expected to occur. No suitable habitat present; would have been observed. The species is not known to occur within the vicinity[2]. |
| *Bergerocactus emoryi* | golden-spined cereus | None/None/2B.2/None | Closed-cone coniferous forest, chaparral, coastal scrub; sandy/perennial stem succulent/May–June/10–1296 | Low potential to occur. Would have been observed. The species is not known to occur within the vicinity[2]. |
| *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/164–1526 | Low potential to occur. Site lacks suitable soils. The species is known to occur within the vicinity[2]. |

| Scientific Name | Common Name | Status (Federal/State/CRPR[1]/MSCP) | Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet) | Potential to Occur |
|---|---|---|---|---|
| *Brodiaea filifolia* | thread-leaved brodiaea | FT/CE/1B.1/Covered | Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay/perennial bulbiferous herb/Mar–June/82–3675 | Low potential to occur. Site lacks suitable soils. The species is not known to occur within the vicinity[2]. |
| *Brodiaea orcuttii* | Orcutt's brodiaea | None/None/1B.1/Covered | Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay, sometimes serpentinite/perennial bulbiferous herb/May–July/98–5551 | Not expected to occur. No suitable habitat present. The species is known to occur within the vicinity[2]. |
| *Calandrinia breweri* | Brewer's calandrinia | None/None/4.2/None | Chaparral, coastal scrub; sandy or loamy, disturbed sites and burns/annual herb/Mar–June/33–4003 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *California macrophylla* | round-leaved filaree | None/None/1B.2/None | Cismontane woodland, valley and foothill grassland; clay/annual herb/Mar–May/49–3937 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Calochortus dunnii* | Dunn's mariposa lily | None/CR/1B.2/Covered | Closed-cone coniferous forest, chaparral, valley and foothill grassland; gabbroic or metavolcanic, rocky/perennial bulbiferous herb/(Feb) Apr–June/607–6004 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *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)/0–984 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Castilleja plagiotoma* | Mojave paintbrush | None/None/4.3/None | Great Basin scrub (alluvial), Joshua tree woodland, lower montane coniferous forest, pinyon and juniper woodland/perennial herb (hemiparasitic)/Apr–June/984–8202 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *Ceanothus cyaneus* | Lakeside ceanothus | None/None/1B.2/Covered | Closed-cone coniferous forest, chaparral/perennial evergreen shrub/Apr–June/771–2477 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *Ceanothus otayensis* | Otay Mountain ceanothus | None/None/1B.2/None | Chaparral (metavolcanic or gabbroic)/perennial evergreen shrub/Jan–Apr/1969–3609 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |

| Scientific Name | Common Name | Status (Federal/State/CRPR[1]/MSCP) | Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet) | Potential to Occur |
|---|---|---|---|---|
| *Ceanothus verrucosus* | wart-stemmed ceanothus | None/None/2B.2/Covered | Chaparral/perennial evergreen shrub/Dec–May/3–1247 | Not expected to occur. No suitable habitat present. The species is known to occur within the vicinity[2]. |
| *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. No suitable habitat present. The species is known to occur within the vicinity[2]. |
| *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. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Chaenactis glabriuscula* var. *orcuttiana* | Orcutt's pincushion | None/None/1B.1/None | Coastal bluff scrub (sandy), coastal dunes/annual herb/Jan–Aug/0–328 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Chamaebatia australis* | southern mountain misery | None/None/4.2/None | Chaparral (gabbroic or metavolcanic)/perennial evergreen shrub/Nov–May/984–3346 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *Chloropyron maritimum* ssp. *maritimum* | salt marsh bird's-beak | FE/CE/1B.2/Covered | Coastal dunes, marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct/0–98 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Chorizanthe leptotheca* | Peninsular spineflower | None/None/4.2/None | Chaparral, coastal scrub, lower montane coniferous forest; alluvial fan, granitic/annual herb/May–Aug/984–6234 | Not expected to occur. Site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *Chorizanthe orcuttiana* | Orcutt's spineflower | FE/CE/1B.1/None | Closed-cone coniferous forest, chaparral (maritime), coastal scrub; sandy openings/annual herb/Mar–May/10–410 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Chorizanthe polygonoides* var. *longispina* | long-spined spineflower | None/None/1B.2/None | Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools; often clay/annual herb/Apr–July/98–5020 | Low potential to occur. Site lacks suitable soils. The species is not known to occur within the vicinity[2]. |
| *Cistanthe maritima* | seaside cistanthe | None/None/4.2/None | Coastal bluff scrub, coastal scrub, valley and foothill grassland; sandy/annual herb/(Feb) Mar–June (Aug)/16–984 | Low potential to occur. The species is not known to occur within the vicinity[2]. |

| Scientific Name | Common Name | Status (Federal/State/CRPR[1]/MSCP) | Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet) | Potential to Occur |
|---|---|---|---|---|
| *Clarkia delicata* | delicate clarkia | None/None/1B.2/None | Chaparral, cismontane woodland; often gabbroic/annual herb/Apr–June/771–3281 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is known to occur within the vicinity[2]. |
| *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/394–3527 | Not expected to occur. Site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *Comarostaphylis diversifolia* ssp. *diversifolia* | summer holly | None/None/1B.2/None | Chaparral, cismontane woodland/perennial evergreen shrub/Apr–June/98–2592 | Not expected to occur. No suitable habitat present. The species is known to occur within the vicinity[2]. |
| *Convolvulus simulans* | small-flowered morning-glory | None/None/4.2/None | Chaparral (openings), coastal scrub, valley and foothill grassland; clay, serpentinite seeps/annual herb/Mar–July/98–2297 | Low potential to occur. Site lacks suitable soils. The species is known to occur within the vicinity[2]. |
| *Corethrogyne filaginifolia* var. *incana* | San Diego sand aster | None/None/1B.1/None | Coastal bluff scrub, chaparral, coastal scrub/perennial herb/June–Sep/10–377 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *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–Sep/49–492 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Cylindropuntia californica* var. *californica* | snake cholla | None/None/1B.1/Covered | Chaparral, coastal scrub/perennial stem succulent/Apr–May/98–492 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Deinandra conjugens* | Otay tarplant | FT/CE/1B.1/Covered | Coastal scrub, valley and foothill grassland; clay/annual herb/May–June/82–984 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Deinandra paniculata* | paniculate tarplant | None/None/4.2/None | Coastal scrub, valley and foothill grassland, vernal pools; usually vernally mesic, sometimes sandy/annual herb/Apr–Nov/82–3084 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Dichondra occidentalis* | western dichondra | None/None/4.2/None | Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/perennial rhizomatous herb/(Jan) Mar–July/164–1640 | Low potential to occur. Limited suitable occurs habitat within the study area. The species is known to occur within the vicinity[2]. |
| *Dicranostegia orcuttiana* | Orcutt's bird's-beak | None/None/2B.1/Covered | Coastal scrub/annual herb (hemiparasitic)/(Mar) Apr–July (Sep)/33–1148 | Low potential to occur. The species is not known to occur within the vicinity[2]. |

| Scientific Name | Common Name | Status (Federal/State/CRPR[1]/MSCP) | Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet) | Potential to Occur |
|---|---|---|---|---|
| *Dudleya blochmaniae* ssp. *blochmaniae* | Blochman's dudleya | None/None/1B.1/None | Coastal bluff scrub, chaparral, coastal scrub, valley and foothill grassland; rocky, often clay or serpentinite/perennial herb/Apr–June/16–1476 | Low potential to occur. Site lacks suitable soils. The species is not known to occur within the vicinity[2]. |
| *Dudleya brevifolia* | short-leaved dudleya | None/CE/1B.1/Covered | Chaparral (maritime, openings), coastal scrub; Torrey sandstone/perennial herb/Apr–May/98–820 | Low potential to occur. Site lacks suitable soils. The species is not known to occur within the vicinity[2]. |
| *Dudleya variegata* | variegated dudleya | None/None/1B.2/Covered | Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial herb/Apr–June/10–1903 | Low potential to occur. Site lacks suitable soils. The species is known to occur within the vicinity[2]. |
| *Dudleya viscida* | sticky dudleya | None/None/1B.2/Covered | Coastal bluff scrub, chaparral, cismontane woodland, coastal scrub; rocky/perennial herb/May–June/33–1804 | Low potential to occur. Site lacks suitable soils. The species is not known to occur within the vicinity[2]. |
| *Ericameria palmeri* var. *palmeri* | Palmer's goldenbush | None/None/1B.1/Covered | Chaparral, coastal scrub; mesic/perennial evergreen shrub/(July) Sep–Nov/98–1969 | Low potential to occur. Would have been observed. The species is known to occur within the vicinity[2]. |
| *Eryngium aristulatum* var. *parishii* | San Diego button-celery | FE/CE/1B.1/Covered | Coastal scrub, valley and foothill grassland, vernal pools; mesic/annual / perennial herb/Apr–June/66–2034 | Low potential to occur. Would have been observed. The species is known to occur within the vicinity[2]. |
| *Euphorbia misera* | cliff spurge | None/None/2B.2/None | Coastal bluff scrub, coastal scrub, Mojavean desert scrub; rocky/perennial shrub/Dec–Aug (Oct)/33–1640 | Low potential to occur. Site lacks suitable soils. The species is not known to occur within the vicinity[2]. |
| *Ferocactus viridescens* | San Diego barrel cactus | None/None/2B.1/Covered | Chaparral, coastal scrub, valley and foothill grassland, vernal pools/perennial stem succulent/May–June/10–1476 | Low potential to occur. Would have been observed. The species is not known to occur within the vicinity[2]. |
| *Frankenia palmeri* | Palmer's frankenia | None/None/2B.1/None | Coastal dunes, marshes and swamps (coastal salt), playas/perennial herb/May–July/0–33 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Fremontodendron mexicanum* | Mexican flannelbush | FE/CR/1B.1/None | Closed-cone coniferous forest, chaparral, cismontane woodland; gabbroic, metavolcanic, or serpentinite/perennial evergreen shrub/Mar–June/33–2349 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Galium proliferum* | desert bedstraw | None/None/2B.2/None | Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland; rocky, carbonate/annual herb/Mar–June/3904–5348 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |

| Scientific Name | Common Name | Status (Federal/State/CRPR[1]/MSCP) | Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet) | Potential to Occur |
|---|---|---|---|---|
| *Geothallus tuberosus* | Campbell's liverwort | None/None/1B.1/None | Coastal scrub (mesic), vernal pools; soil/ephemeral liverwort/N.A./33–1969 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Githopsis diffusa* ssp. *filicaulis* | Mission Canyon bluecup | None/None/3.1/None | Chaparral (mesic, disturbed areas)/annual herb/Apr–June/1476–2297 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *Grindelia hallii* | San Diego gumplant | None/None/1B.2/None | Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland/perennial herb/May–Oct/607–5725 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is known to occur within the vicinity[2]. |
| *Hesperocyparis forbesii* | Tecate cypress | None/None/1B.1/Covered | Closed-cone coniferous forest, chaparral; clay, gabbroic or metavolcanic/perennial evergreen tree/N.A./262–4921 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Heterotheca sessiliflora* ssp. *sessiliflora* | beach goldenaster | None/None/1B.1/None | Chaparral (coastal), coastal dunes, coastal scrub/perennial herb/Mar–Dec/0–4019 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Holocarpha virgata* ssp. *elongata* | graceful tarplant | None/None/4.2/None | Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/annual herb/May–Nov/197–3609 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *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/16–3281 | Low potential to occur. Site lacks suitable soils. The species is known to occur within the vicinity[2]. |
| *Horkelia truncata* | Ramona horkelia | None/None/1B.3/None | Chaparral, cismontane woodland; clay, gabbroic/perennial herb/May–June/1312–4265 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *Isocoma menziesii* var. *decumbens* | decumbent goldenbush | None/None/1B.2/None | Chaparral, coastal scrub (sandy, often in disturbed areas)/perennial shrub/Apr–Nov/33–443 | Low potential to occur; would have been observed. The species is known to occur within the vicinity[2]. |
| *Iva hayesiana* | San Diego marsh-elder | None/None/2B.2/None | Marshes and swamps, playas/perennial herb/Apr–Oct/33–1640 | Moderate potential to occur. Would have been observed if present. The species is known to occur within the vicinity[2]. |

| Scientific Name | Common Name | Status (Federal/State/CRPR[1]/MSCP) | Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet) | Potential to Occur |
|---|---|---|---|---|
| *Juncus acutus* ssp. *leopoldii* | southwestern spiny rush | None/None/4.2/None | Coastal dunes (mesic), meadows and seeps (alkaline seeps), marshes and swamps (coastal salt)/perennial rhizomatous herb/(Mar) May–June/10–2953 | Moderate potential to occur. Would have been observed if present. The species is known to occur within the vicinity[2]. |
| *Lasthenia glabrata* ssp. *coulteri* | Coulter's goldfields | None/None/1B.1/None | Marshes and swamps (coastal salt), playas, vernal pools/annual herb/Feb–June/3–4003 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Lepechinia cardiophylla* | heart-leaved pitcher sage | None/None/1B.2/Covered | Closed-cone coniferous forest, chaparral, cismontane woodland/perennial shrub/Apr–July/1706–4495 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *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/1001–3297 | Not expected to occur. Site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *Lepidium virginicum* var. *robinsonii* | Robinson's pepper-grass | None/None/4.3/None | Chaparral, coastal scrub/annual herb/Jan–July/3–2904 | Low potential to occur; would have been observed. The species is known to occur within the vicinity[2]. |
| *Leptosyne maritima* | sea dahlia | None/None/2B.2/None | Coastal bluff scrub, coastal scrub/perennial herb/Mar–May/16–492 | Low potential to occur; would have been observed. The species is not known to occur within the vicinity[2]. |
| *Lycium californicum* | California box-thorn | None/None/4.2/None | Coastal bluff scrub, coastal scrub/perennial shrub/(Dec) Mar–Aug/16–492 | Low potential to occur; would have been observed. The species is not known to occur within the vicinity[2]. |
| *Microseris douglasii* ssp. *platycarpha* | small-flowered microseris | None/None/4.2/None | Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/annual herb/Mar–May/49–3510 | Low potential to occur. Site lacks suitable soils. The species is not known to occur within the vicinity[2]. |
| *Mimulus aurantiacus* var. *aridus* | low bush monkeyflower | None/None/4.3/None | Chaparral (rocky), Sonoran desert scrub/perennial evergreen shrub/Apr–July/2461–3937 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *Mimulus diffusus* | Palomar monkeyflower | None/None/4.3/None | Chaparral, lower montane coniferous forest; sandy or gravelly/annual herb/Apr–June/4003–6004 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |

| Scientific Name | Common Name | Status (Federal/State/CRPR[1]/MSCP) | Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet) | Potential to Occur |
|---|---|---|---|---|
| *Mobergia calculiformis* | light gray lichen | None/None/3/None | Coastal scrub; on rocks/crustose lichen (saxicolous)/N.A./33–33 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Monardella hypoleuca* ssp. *lanata* | felt-leaved monardella | None/None/1B.2/Covered | Chaparral, cismontane woodland/perennial rhizomatous herb/June–Aug/984–5167 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *Monardella viminea* | willowy monardella | FE/CE/1B.1/Covered | Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; alluvial ephemeral washes/perennial herb/June–Aug/164–738 | Low potential to occur. Site lacks suitable soils. The species is known to occur within the vicinity[2]. |
| *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)/0–4593 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Myosurus minimus* ssp. *apus* | little mousetail | None/None/3.1/None | Valley and foothill grassland, vernal pools (alkaline)/annual herb/Mar–June/66–2100 | Low potential to occur. Site lacks suitable soils. The species is known to occur within the vicinity[2]. |
| *Nama stenocarpa* | mud nama | None/None/2B.2/None | Marshes and swamps (lake margins, riverbanks)/annual / perennial herb/Jan–July/16–1640 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Navarretia fossalis* | spreading navarretia | FT/None/1B.1/Covered | Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools/annual herb/Apr–June/98–2149 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *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/10–3970 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Nemacaulis denudata* var. *denudata* | coast woolly-heads | None/None/1B.2/None | Coastal dunes/annual herb/Apr–Sep/0–328 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Nemacaulis denudata* var. *gracilis* | slender cottonheads | None/None/2B.2/None | Coastal dunes, desert dunes, Sonoran desert scrub/annual herb/(Mar) Apr–May/-164–1312 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Ophioglossum californicum* | California adder's-tongue | None/None/4.2/None | Chaparral, valley and foothill grassland, vernal pools (margins); mesic/perennial rhizomatous herb/(Dec) Jan–June/197–1722 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |

| Scientific Name | Common Name | Status (Federal/State/CRPR[1]/MSCP) | Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet) | Potential to Occur |
|---|---|---|---|---|
| *Orcuttia californica* | California Orcutt grass | FE/CE/1B.1/Covered | Vernal pools/annual herb/Apr–Aug/49–2165 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *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/10–1001 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Packera ganderi* | Gander's ragwort | None/CR/1B.2/Covered | Chaparral (burns, gabbroic outcrops)/perennial herb/Apr–June/1312–3937 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Pentachaeta aurea* ssp. *aurea* | golden-rayed pentachaeta | None/None/4.2/None | Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, valley and foothill grassland/annual herb/Mar–July/262–6070 | Low potential to occur. Limited suitable habitat occurs within the study area. The species is known to occur within the vicinity[2]. |
| *Phacelia ramosissima* var. *austrolitoralis* | south coast branching phacelia | None/None/3.2/None | Chaparral, coastal dunes, coastal scrub, marshes and swamps (coastal salt); sandy, sometimes rocky/perennial herb/Mar–Aug/16–984 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Phacelia stellaris* | Brand's star phacelia | FC/None/1B.1/None | Coastal dunes, coastal scrub/annual herb/Mar–June/3–1312 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Pickeringia montana* var. *tomentosa* | woolly chaparral-pea | None/None/4.3/None | Chaparral; gabbroic, granitic, clay/evergreen shrub/May–Aug/0–5577 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Pinus torreyana* ssp. *torreyana* | Torrey pine | None/None/1B.2/Covered | Closed-cone coniferous forest, chaparral; sandstone/perennial evergreen tree/N.A./246–525 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Piperia cooperi* | chaparral rein orchid | None/None/4.2/None | Chaparral, cismontane woodland, valley and foothill grassland/perennial herb/Mar–June/49–5200 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Pogogyne abramsii* | San Diego mesa mint | FE/CE/1B.1/Covered | Vernal pools/annual herb/Mar–July/295–656 | Not expected to occur. No suitable habitat present. The species is known to occur within the vicinity[2]. |
| *Pogogyne nudiuscula* | Otay Mesa mint | FE/CE/1B.1/Covered | Vernal pools/annual herb/May–July/295–820 | Not expected to occur. No suitable habitat present.. The species is known to occur within the vicinity[2]. |

| Scientific Name | Common Name | Status (Federal/State/CRPR[1]/MSCP) | Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet) | Potential to Occur |
|---|---|---|---|---|
| *Quercus cedrosensis* | Cedros Island oak | None/None/2B.2/None | Closed-cone coniferous forest, chaparral, coastal scrub/perennial evergreen tree/Apr–May/837–3150 | Not expected to occur. Site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *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 (Aug)/49–1312 | Low potential to occur; would have been observed. The species is known to occur within the vicinity[2]. |
| *Quercus engelmannii* | Engelmann oak | None/None/4.2/None | Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland/perennial deciduous tree/Mar–June/164–4265 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Romneya coulteri* | Coulter's matilija poppy | None/None/4.2/None | Chaparral, coastal scrub; often in burns/perennial rhizomatous herb/Mar–July/66–3937 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Salvia munzii* | Munz's sage | None/None/2B.2/None | Chaparral, coastal scrub/perennial evergreen shrub/Feb–Apr/377–3494 | Low potential to occur; would have been observed. The species is not known to occur within the vicinity[2]. |
| *Selaginella cinerascens* | ashy spike-moss | None/None/4.1/None | Chaparral, coastal scrub/perennial rhizomatous herb/N.A./66–2100 | Low potential to occur. Limited suitable habitat and soils. The species is known to occur within the vicinity[2]. |
| *Senecio aphanactis* | chaparral ragwort | None/None/2B.2/None | Chaparral, cismontane woodland, coastal scrub; sometimes alkaline/annual herb/Jan–Apr/49–2625 | Low potential to occur; would have been observed. The species is known to occur within the vicinity[2]. |
| *Sphaerocarpos drewei* | bottle liverwort | None/None/1B.1/None | Chaparral, coastal scrub; openings, soil/ephemeral liverwort/N.A./295–1969 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Stemodia durantifolia* | purple stemodia | None/None/2B.1/None | Sonoran desert scrub (often mesic, sandy)/perennial herb/Jan–Dec/591–984 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is known to occur within the vicinity[2]. |
| *Stipa diegoensis* | San Diego County needle grass | None/None/4.2/None | Chaparral, coastal scrub; rocky, often mesic/perennial herb/Feb–June/33–2625 | Low potential to occur; would have been observed. The species is not known to occur within the vicinity[2]. |

| Scientific Name | Common Name | Status (Federal/State/CRPR[1]/MSCP) | Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet) | Potential to Occur |
|---|---|---|---|---|
| *Streptanthus bernardinus* | Laguna Mountains jewelflower | None/None/4.3/None | Chaparral, lower montane coniferous forest/perennial herb/May–Aug/2198–8202 | Not expected to occur. No suitable habitat present and site is outside species known elevation range. The species is known to occur within the vicinity[2]. |
| *Stylocline citroleum* | oil neststraw | None/None/1B.1/None | Chenopod scrub, coastal scrub, valley and foothill grassland; clay/annual herb/Mar–Apr/164–1312 | Low potential to occur. Site lacks suitable soils. The species is not known to occur within the vicinity[2]. |
| *Suaeda esteroa* | estuary seablite | None/None/1B.2/None | Marshes and swamps (coastal salt)/perennial herb/May–Oct (Jan)/0–16 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *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/0–164 | Not expected to occur. No suitable habitat present. The species is not known to occur within the vicinity[2]. |
| *Tetracoccus dioicus* | Parry's tetracoccus | None/None/1B.2/Covered | Chaparral, coastal scrub/perennial deciduous shrub/Apr–May/541–3281 | Not expected to occur. The site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |
| *Texosporium sancti-jacobi* | woven-spored lichen | None/None/3/None | Chaparral (openings); on soil, small mammal pellets, dead twigs, and on Selaginella spp./crustose lichen (terricolous)/N.A./951–2165 | Not expected to occur. The site is outside species known elevation range. The species is known to occur within the vicinity[2]. |
| *Triquetrella californica* | coastal triquetrella | None/None/1B.2/None | Coastal bluff scrub, coastal scrub; soil/moss/N.A./33–328 | Low potential to occur. The species is not known to occur within the vicinity[2]. |
| *Viguiera laciniata* | San Diego County viguiera | None/None/4.2/None | Chaparral, coastal scrub/perennial shrub/Feb–June (Aug)/197–2461 | Low potential to occur; would have been observed. The species is known to occur within the vicinity[2]. |
| *Xanthisma junceum* | rush-like bristleweed | None/None/4.3/None | Chaparral, coastal scrub/perennial herb/June–Jan/787–3281 | Not expected to occur. The site is outside species known elevation range. The species is not known to occur within the vicinity[2]. |

[1] Regulatory Status (CDFW 2015; CNPS 2015).
[2] "Vicinity" refers to species recorded in the USGS 7.5-minute La Mesa quadrangle (CNPS 2016).

**Federal Designations:**
FE: Species listed as endangered by USFWS

FT: Species listed as threatened by USFWS

**State Designations:**

ST: State threatened

SE: State endangered

**San Diego Multiple Species Conservation Program:**

Covered: MSCP Covered Species

**CRPR:**

California Rare Plant Rank (CRPR)

1A: Plants presumed extinct in California

1B: Plants rare, threatened, or endangered in California and elsewhere

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

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

4: Plants of limited distribution–a watch list

CBR: Considered but Rejected

**Threat Ranks:**

0.1: Seriously threatened in California (high degree/immediacy of threat)

0.2: Fairly threatened in California (moderate degree/immediacy of threat)

0.3: Not very threatened in California (low degree/immediacy of threats or no current threats known)

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# APPENDIX D

## *Special-Status Wildlife Species Potentially Occurring within the Project Study Area*

# APPENDIX D
# Special-Status Wildlife Species Potentially Occurring within the Project Study Area

| Scientific Name | Common Name | Status: Federal/State/Other/MSCP | Habitat | Potential to Occur |
|---|---|---|---|---|
| *Amphibians* | | | | |
| *Anaxyrus californicus* | arroyo toad | FE / SSC/ None/Covered | Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding(typically 3rd order); adjacent stream terraces and uplands for foraging and wintering | Low potential to occur. Limited suitable habitat and site lacks stream channels with pools and riffles for breeding. The species is not known to occur within the vicinity*. |
| *Spea hammondii* | western spadefoot | None / SSC/ None/ None | Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley-foothill woodlands, pastures, and other agriculture. | Low potential to occur. The site in general supports limited suitable habitat for this species. The species is known to occur within the vicinity*. |
| *Reptiles* | | | | |
| *Anniella pulchra pulchra* | silvery legless lizard | None/SSC/ None/None | Stabilized dunes, beaches, dry washes, chaparral, scrubs, and pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils | Low potential to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Aspidoscelis hyperythra* | orangethroat whiptail | None/SSC/None/ Covered | Low-elevation coastal scrub, chaparral, and valley–foothill hardwood | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Aspidoscelis tigris stejnegeri* | San Diegan tiger whiptail | None/None/ None/None | Open areas in semiarid grasslands, scrublands, and woodlands | Low potential to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| Charina trivirgata | rosy boa | None/None/ None/None | Desert & chaparral from the coast to the Mojave & Colorado deserts. prefers moderate to dense vegetation & rocky cover. | Low potential to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Chelonia mydas* | green turtle | FT/None/ None/None | Shallow waters of lagoons, bays, estuaries, mangroves, eelgrass, and seaweed beds | Not expected to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Crotalus ruber* | red diamondback rattlesnake | None/SSC/ None/None | Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |

| Scientific Name | Common Name | Status: Federal/State/Other/MSCP | Habitat | Potential to Occur |
|---|---|---|---|---|
| *Diadophis punctatus similis* | San Diego ringneck snake | None/None/ None/None | Moist habitats including wet meadows, rocky hillsides, gardens, farmland grassland, chaparral, mixed-conifer forest, and woodland habitats | Not expected to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Phrynosoma blainvillii* | Blainville's horned lizard | None/SSC/None/ 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 | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Plestiodon skiltonianus interparietalis* | Coronado Island skink | None/SSC/ None/None | Woodlands, grasslands, pine forests, and chaparral; rocky areas near water | Not expected to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Salvadora hexalepis virgultea* | coast patch-nosed snake | None/SSC/ None/None | Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites | Not expected to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Thamnophis hammondii* | two-striped gartersnake | None/SSC/ None/None | Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Birds* | | | | |
| *Accipiter cooperii* (nesting) | Cooper's hawk | None/WL/ None/ Covered | Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water | Moderate potential to forage and nest onsite. The study area supports stands of eucalyptus, tall sycamore trees, and larger willows. |
| *Agelaius* tricolor (nesting colony) | tricolored blackbird | BCC/SE,SSC/None/Covered | Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Aimophila ruficeps canescens* | southern California rufous-crowned sparrow | None / WL/ None/ Covered | Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Ammodramus savannarum* (nesting) | grasshopper sparrow | None/SSC/None/None | Nests and forages in moderately open grassland with tall forbs or scattered shrubs used for perches | Not expected to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |

| Scientific Name | Common Name | Status: Federal/State/Other/MSCP | Habitat | Potential to Occur |
|---|---|---|---|---|
| *Aquila chrysaetos* (nesting & wintering) | golden eagle | BCC/FP, WL/None/ Covered | Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats | Not expected to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Artemisiospiza belli belli* | Bell's sage sparrow | BCC / WL/ None/ 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 | Low potential to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Athene cunicularia* (burrow sites & some wintering sites) | burrowing owl | BCC / SSC/ None/ Covered | Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Buteo swainsoni* (nesting) | Swainson's hawk | BCC / ST/ None/ Covered | Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agriculturals areas such as wheat and alfalfa fields and pasture | Not expected to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Campylorhynchus brunneicapillus sandiegensis* (San Diego & Orange Counties only) | coastal cactus wren | BCC / SSC/ None/ Covered | Southern cactus scrub patches | Not expected to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Charadrius alexandrinus nivosus* (nesting) | western snowy plover | FT,BCC/CSC/None/Covered | On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Coccyzus americanus occidentalis* (nesting) | western yellow-billed cuckoo | FT, BCC / SE/ None/ None | Nests in dense, wide riparian woodlands and forest with well-developed understories | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |

| Scientific Name | Common Name | Status: Federal/State/Other/MSCP | Habitat | Potential to Occur |
|---|---|---|---|---|
| *Elanus leucurus* (nesting) | white-tailed kite | None / FP/ None/ 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 occur. Nesting opportunities are present within tall, mature eucalyptus trees, although this species prefers woodlands or oak groves. Suitable foraging habitat is limited due to the fragmented context of the study area and its close proximity to residential development. The species is not known to occur within the vicinity* |
| *Empidonax traillii extimus* (nesting) | southwestern willow flycatcher | FE / SE/ None/Covered | Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration | Low potential to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Eremophila alpestris actia* | California horned lark | None / WL/ None/ None | Nests and forages in grasslands, disturbed lands, agriculture, and beaches; nests in alpine fell fields of the Sierra Nevada | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Falco mexicanus* (nesting) | prairie falcon | BCC / WL/ None/ None | Forages in grassland, savanna, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs | Not expected to occur. No suitable habitat on site. The species is known to occur within the vicinity*. |
| *Falco peregrinus anatum* (nesting) | American peregrine falcon | FDL/SDL,FP/None/ Covered | Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present | Low potential to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Icteria virens* (nesting) | yellow-breasted chat | None/SSC/ None/ None | Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush | Observed foraging in East Shepherd Canyon during 2016 surveys. Nesting potential is low due to narrow urbanization of the existing canyon and sparse patches of riparian habitat. |
| *Ixobrychus exilis* (nesting) | least bittern | BCC / SSC/ None/ None | Nests in freshwater and brackish marshes with dense, tall growth of aquatic and semi-aquatic vegetation | Not expected to occur. No suitable habitat on site. The species is known to occur within the vicinity*. |
| *Laterallus jamaicensis coturniculus* | California black rail | BCC / ST, FP/ None/ 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 habitat on site. The species is not known to occur within the vicinity*. |

| Scientific Name | Common Name | Status: Federal/State/Other/MSCP | Habitat | Potential to Occur |
|---|---|---|---|---|
| *Pandion haliaetus* (nesting) | osprey | None / WL/ None/ None | Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Passerculus sandwichensis beldingi* | Belding's savannah sparrow | None / SE/ None/Covered | Nests and forages in coastal saltmarsh dominated by pickleweed (Salicornia spp.) | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Pelecanus occidentalis californicus* (nesting colonies & communal roosts) | California brown pelican | FDL / SDL, FP/ None/ Covered | Forages in warm coastal marine and estuarine environments; in California, nests on dry, rocky offshore islands | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Phalacrocorax auritus* (nesting colony) | double-crested cormorant | None/WL/ None/ 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. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Polioptila californica californica* | coastal California gnatcatcher | FT / SSC/ None/ 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 | Moderate potential to occur. Coastal sage scrub was mapped within the study area and extends offsite and east of the project for several contiguous miles. The species is known to occur within the vicinity*. |
| *Setophaga petechia* (nesting) | yellow warbler | BCC / SSC/ None/ None | Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Sternula antillarum browni* (nesting colony) | California least tern | FE / SE, FP/ None/Covered | Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Vireo bellii pusillus* (nesting) | least Bell's vireo | FE / SE/ None/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 | Moderate potential to occur, low potential to nest due to limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Mammals* | | | | |
| *Antrozous pallidus* | pallid bat | None/SSC/WBWG: H/ None | Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees | Low potential to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |

| Scientific Name | Common Name | Status: Federal/State/Other/MSCP | Habitat | Potential to Occur |
|---|---|---|---|---|
| *Chaetodipus californicus femoralis* | Dulzura pocket mouse | None / SSC/ None/ None | Open habitat, coastal scrub, chaparral, oak woodland, chamise chaparral, mixed-conifer habitats; disturbance specialist; 0 to 3,000 feet above mean sea level | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Chaetodipus fallax fallax* | northwestern San Diego pocket mouse | None / SSC/ None/ None | Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon–juniper, and annual grassland | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Choeronycteris mexicana* | Mexican long-tongued bat | None/SSC/ WBWG:H/ None | Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon–juniper woodland; roosts in caves, mines, and buildings | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Corynorhinus townsendii* | Townsend's big-eared bat | None / SC, SSC/ WBWG: H/ None | Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels | Not expected to occur. No suitable vegetation present. |
| *Euderma maculatum* | spotted bat | None /SSC/WBWG:H/ None | Foothills, mountains, desert regions of southern California, including arid deserts, grasslands, and mixed-conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Eumops perotis californicus* | western mastiff bat | None/SSC/ WBWG:H/ None | Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Lasionycteris noctivagans* | silver-haired bat | None / None/ WBWG:M / None | Old-growth forest, maternity roosts in trees (primarily woodpecker hollows), large-diameter snags 50 feet aboveground; hibernates in hollow trees, under sloughing bark, in rock crevices, and occasionally in buildings, mines, and caves; forages in or near coniferous or mixed deciduous forest, often following stream or river drainages | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Lasiurus blossevillii* | western red bat | None / SSC/ WBWG:H / 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. Limited suitable habitat on site. The species is known to occur within the vicinity*. |

| Scientific Name | Common Name | Status: Federal/State/Other/MSCP | Habitat | Potential to Occur |
|---|---|---|---|---|
| *Lasiurus cinereus* | hoary bat | None/None/WBWG:M/ None | Forest, woodland riparian, and wetland habitats; also juniper scrub, riparian forest, and desert scrub in arid areas; roosts in tree foliage and sometimes cavities, such as woodpecker holes | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Lasiurus xanthinus* | western yellow bat | None / SSC/ WBWG:H / 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. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Lepus californicus bennettii* | San Diego black-tailed jackrabbit | None / SSC/ None/ None | Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Myotis ciliolabrum* | western small-footed myotis | None/None/ WBWG:LM / None | Arid woodlands and shrublands, but near water; roosts in caves, crevices, mines, abandoned buildings | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Myotis evotis* | long-eared myotis | None/None/ WBWG:LM / None | Nearly all brush, woodland, and forest habitats from sea level to 9,000 feet above mean sea level, but prefers coniferous habitats; forages along habitat edges, in open habitats, and over water; roosts in buildings, crevices, under bark, and snags; uses caves as night roosts | Low potential to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Myotis yumanensis* | Yuma myotis | None / None/ WBWG:LM / None | Riparian, arid scrublands and deserts, and forests associated with water (streams, rivers, tinajas); roosts in bridges, buildings, cliff crevices, caves, mines, and trees | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Neotoma lepida intermedia* | San Diego desert woodrat | None / SSC/ None/ None | Coastal scrub, desert scrub, chaparral, cacti, rocky areas | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Nyctinomops femorosaccus* | pocketed free-tailed bat | None / SSC/ WBWG:M / 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 dropoffs, caverns, and buildings | Not expected to occur. No suitable habitat on site. The species is known to occur within the vicinity*. |
| *Nyctinomops macrotis* | big free-tailed bat | None / SSC/ WBWG:MH / None | Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water | Not expected to occur. No suitable habitat on site. The species is known to occur within the vicinity*. |

| Scientific Name | Common Name | Status: Federal/State/Other/MSCP | Habitat | Potential to Occur |
|---|---|---|---|---|
| *Perognathus longimembris pacificus* | Pacific pocket mouse | FE / SSC/ None/ None | Fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Taxidea taxus* | American badger | None / SSC/ None/Covered | Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils | Low potential to occur. Limited suitable habitat on site. The species is not known to occur within the vicinity*. |
| | | | *Invertebrates* | |
| *Branchinecta sandiegonensis* | San Diego fairy shrimp | FE /None/None/ Covered | Vernal pools, non-vegetated ephemeral pools | Not expected to occur. No suitable habitat on site. The species is known to occur within the vicinity*. |
| *Callophrys thornei* | Thorne's hairstreak | None /None/None/ Covered | Interior cypress woodland dominated by host plant Hesperocyparis forbesii (Tecate cypress) | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Cicindela gabbii* | western tidal-flat tiger beetle | None / None/ None/ None | Inhabits estuaries and mudflats along the coast of Southern California | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Cicindela hirticollis gravida* | sandy beach tiger beetle | None / None/ None/ None | Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Cicindela latesignata latesignata* | western beach tiger beetle | None / None/ None/ None | Mudflats and beaches in coastal Southern California | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Cicindela senilis frosti* | senile tiger beetle | None / None/ None/ None | Inhabits marine shoreline, from Central California coast south to saltmarshes of San Diego; also found at Lake Elsinore | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Coelus globosus* | globose dune beetle | None / None/ None/ None | Inhabitant of coastal sand dune habitat; erratically distributed from Ten Mile Creek in Mendocino County south to Ensenada, Mexico | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |

| Scientific Name | Common Name | Status: Federal/State/Other/MSCP | Habitat | Potential to Occur |
|---|---|---|---|---|
| *Danaus plexippus* | monarch | None / None/ None/ None | Wind-protected tree groves with nectar sources and nearby water sources. | Was observed in flight during 2016 surveys in lower Shepherd Canyon. No recorded overwintering sites are present in the study area or in proximity to the site. Therefore, there is a low potential to overwinter. Stands of eucalyptus trees present onsite along Antigua Boulevard and adjacent to a residential development to the south. |
| *Euphydryas editha quino* | Quino checkerspot | FE / None/ None/ None | Annual forb lands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; and host plants. | Low potential to occur. Limited suitable habitat occurs on site. The species is known to occur within the vicinity*. |
| *Helminthoglypta coelata* | mesa shoulderband | None / None/ None/ None | Coastal San Diego County: found in rock slides, beneath bark, and among coastal vegetation. | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Lycaena hermes* | Hermes copper | FC / None/ None/ None | Coastal sage scrub, southern mixed chaparral supporting at least 5% cover of host plant Rhamnus crocea | Low potential to occur. Limited suitable habitat on site. The species is known to occur within the vicinity*. |
| *Melitta californica* | California mellitid bee | None / None/ None/ None | Desert regions of southwestern Arizona, southeastern California, and Baja California, Mexico; also collected from Torrey Pines, San Diego County | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Panoquina errans* | wandering skipper | None /None/None/ Covered | Salt marsh from Los Angeles to Baja, Mexico | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Streptocephalus woottoni* | Riverside fairy shrimp | FE / None/ None/ Covered | Deep, long-lived vernal pools, vernal pool-like seasonal ponds, stock ponds; warm water pools that have low to moderate dissolved solids | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |
| *Tryonia imitator* | mimic tryonia (=California brackishwater snail) | None / None/ None/ None | Coastal lagoons, estuaries and salt marshes | Not expected to occur. No suitable habitat on site. The species is not known to occur within the vicinity*. |

The federal and state status of species is based on the Special Animals List (January 2015) (CDFG 2015).

* "Vicinity" refers to species recorded in the USGS 7.5-minute La Mesa quadrangle (CDFW 2016).

**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

**San Diego Multiple Species Conservation Program:**

Covered: MSCP Covered Species

**Other:**

WBWG Western Bat Working Group
L: Species is stable globally but there may be localized conservation concerns.
M: Species warrants closer evaluation, research, and conservation actions
H: Species are imperiled or are at high risk of imperilment

# APPENDIX E

*Wetland Determination Data Forms*

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierrasanta Vector Habitat Remediation Project City/County: San Diego Sampling Date: 7 February 2016

Applicant/Owner: City of San Diego (Owner) State: CA Sampling Point: DS-1

Investigator(s): Tricia L. Wotipka Section, Township, Range: Section 28, Range 2 West, Township 15 South

Landform (hillslope, terrace, etc.): Gentle hillslope Local relief (concave, convex, none): None Slope (%): < 5%

Subregion (LRR): C - Mediterranean California Lat: 32° 49' 58.65" N Long: 117° 06' 01.63" W Datum:

Soil Map Unit Name: Riverwash (Rm) NWI classification: Palustrine Scrub-Shrub

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: Sampling point borders an existing dirt trail within mapped coastal sage scrub habitat. The sampling point is intended to help demarcate the upland/wetland boundary of East Shepherd Canyon.

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Muhlenbergia rigens* | 5 | No | FAC |
| 2. *Eriogonoum fasciculatum* | 35 | Yes | UPL |
| 3. *Ambrosia psilostachya* | 25 | Yes | FACU |
| 4. *Cynodon dactylon* | 35 | Yes | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 100 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

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

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 3 (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 | 60 | x 4 = | 240 |
| UPL species | 35 | x 5 = | 175 |
| Column Totals: | 100 (A) | | 430 (B) |

Prevalence Index = B/A = 4.30

**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:

## SOIL

Sampling Point: DS-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[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-14 | 10YR3/2 | 100 | --- | | | | Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks:

## 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)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

**Wetland Hydrology Present?** Yes ○ No ◉

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

Remarks:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierrasanta Vector Habitat Remediation Project City/County: San Diego Sampling Date: 7 February 2016

Applicant/Owner: City of San Diego (Owner) State: CA Sampling Point: DS-2

Investigator(s): Tricia L. Wotipka Section, Township, Range: Section 28, Range 2 West, Township 15 South

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

Subregion (LRR): C - Mediterranean California Lat: 32° 49' 58.47" N Long: 117° 06' 01.74" W Datum:

Soil Map Unit Name: Riverwash (Rm) NWI classification: Palustrine Scrub-Shrub

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** | |
| Wetland Hydrology Present? | Yes (●) | No ( ) | **within a Wetland?** | **Yes (●) No ( )** |

Remarks: Sampling point is just at the wetland boundary where evidence of an ordinary high water mark is clearly discernible.

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis salicifolia* | 45 | Yes | FAC |
| 2. *Populus fremontii* | 20 | Yes | FACW |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 65 % | | |
| **Herb Stratum** | | | |
| 1. *Rumex crispus* | 30 | Yes | FAC |
| 2. *Polypogon monspeliensis* | 35 | Yes | FACW |
| 3. *Muhlenberguia rigens* | 20 | Yes | FAC |
| 4. *Helminthotheca echioides* | 5 | No | FACU |
| 5. *Geranium dissectum* | 10 | No | UPL |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 100 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

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

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 55 | x 2 = | 110 |
| FAC species | 95 | x 3 = | 285 |
| FACU species | 5 | x 4 = | 20 |
| UPL species | 10 | x 5 = | 50 |
| Column Totals: | 165 (A) | | 465 (B) |

Prevalence Index = B/A = 2.82

**Hydrophytic Vegetation Indicators:**

- [x] Dominance Test is >50%
- [x] 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:

## SOIL

Sampling Point: DS-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[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR 2/1 | 100 | | | | | Loam | |
| 6-14 | 10YR 2/1 | 100 | 7.5YR 5/4 | 3 | C | M | Silt Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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[4]:**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## 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)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ◉ No ○ Depth (inches): 1"

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

**Wetland Hydrology Present?** Yes ◉ No ○

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

Remarks:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierrasanta Vector Habitat Remediation Project City/County: San Diego Sampling Date: 7 February 2016

Applicant/Owner: City of San Diego (Owner) State: CA Sampling Point: DS-3

Investigator(s): Tricia L. Wotipka Section, Township, Range: Section 28, Range 2 West, Township 15 South

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

Subregion (LRR): C - Mediterranean California Lat: 32° 49' 58.40" N Long: 117° 06' 01.83" W Datum:

Soil Map Unit Name: Riverwash (Rm) NWI classification: Palustrine Scrub-Shrub

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: Sampling point is within a herbaceous wetland opening surrounded by patches of arroyo willows.

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Salix lasiolepis* | 20 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 20 % | | |
| **Herb Stratum** | | | |
| 1. *Rumex crispus* | 45 | Yes | FAC |
| 2. *Festuca perennis (aka Lolium perenne)* | 40 | Yes | FAC |
| 3. *Ambrosia psilostachya* | 10 | No | FACU |
| 4. *Helminthotheca echioides* | 5 | No | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 100 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

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

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 20 | x 2 = | 40 |
| FAC species | 85 | x 3 = | 255 |
| FACU species | 15 | x 4 = | 60 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 120 (A) | | 355 (B) |

Prevalence Index = B/A = 2.96

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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:

## SOIL

Sampling Point: DS-3

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-3 | 10YR 3/2 | 100 | --- | | | | Silt Loam | |
| 3-14 | 10YR 3/1 | 100 | 10YR 5/6 | 2 | C | M | Clay Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## 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)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ◉ No ○ Depth (inches): 1"

Water Table Present? Yes ◉ No ○ Depth (inches): 6"

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

**Wetland Hydrology Present?** Yes ◉ No ○

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

Remarks:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierrasanta Vector Habitat Remediation Project City/County: San Diego Sampling Date: 7 February 2016

Applicant/Owner: City of San Diego State: CA Sampling Point: DS-A

Investigator(s): Tricia L. Wotipka Section, Township, Range: Section 28, Range 2 West, Township 15 South

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

Subregion (LRR): C - Mediterranean California Lat: 32° 50' 01.16" N Long: 117° 06' 00.14" W Datum:

Soil Map Unit Name: Riverwash (Rm) NWI classification: Palustrine Scrub-Shrub

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: Sampling point is in North Shepherd Canyon approximately 10-15 feet from an existing 4-48" culvert pipe headwall in mapped, dense southern willow scrub habitat.

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 65 | Yes | FACW |
| 2. *Salix gooddingii* | 35 | Yes | FACW |
| 3. | | | |
| 4. | | | |
| Total Cover: | 100% | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *Baccharis salicifolia* | 10 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | 10 % | | |
| **Herb Stratum** | | | |
| 1. *Rumex crispus* | 25 | Yes | FAC |
| 2. *Ambrosia psilostachya* | 35 | Yes | FACU |
| 3. *Sonchus asper* | 15 | Yes | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 75 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 25 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 100 | x 2 = | 200 |
| FAC species | 50 | x 3 = | 150 |
| FACU species | 35 | x 4 = | 140 |
| UPL species | | x 5 = | 0 |
| Column Totals: | 185 (A) | | 490 (B) |

Prevalence Index = B/A = 2.65

**Hydrophytic Vegetation Indicators:**

- [X] Dominance Test is >50%
- [X] 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:

## SOIL

Sampling Point: DS-A

**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[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-14 | 10YR 4/2 | 100 | 7.5YR 5/6 | 3 | C | M | Silt Loam | Organic material present. |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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[4]:**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

## 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)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

**Wetland Hydrology Present?** Yes ◉ No ○

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

Remarks:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierrasanta Vector Habitat Remediation Project City/County: San Diego Sampling Date: 15 April 2016

Applicant/Owner: City of San Diego State: CA Sampling Point: DS-B

Investigator(s): Tricia L. Wotipka Section, Township, Range: Section 28, Range 2 West, Township 15 South

Landform (hillslope, terrace, etc.): Manufactured slope Local relief (concave, convex, none): None Slope (%): 10%

Subregion (LRR): C - Mediterranean California Lat: 32° 50' 00.65" N Long: 117° 06' 00.17" W Datum:

Soil Map Unit Name: Riverwash (Rm) NWI classification: Palustrine Scrub-Shrub

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: Sampling point is on an upland, grassy slope behind and above an existing 4-48" concrete culvert headwall. Flows from North Shepherd Canyon are conveyed through the 4-48"concrete culvert headwall system beneath Antigua Boulevard.

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Eucalyptus polyanthemos* | 25 | Yes | UPL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 25 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Euphorbia peplus* | 35 | Yes | UPL |
| 2. *Pennisetum setaceum* | 30 | Yes | UPL |
| 3. *Bromus diandrus* | 35 | Yes | UPL |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 100 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 25 % % 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: 4 (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 | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | 125 | x 5 = | 625 |
| Column Totals: | 125 (A) | | 625 (B) |

Prevalence Index = B/A = 5.00

**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:

## SOIL

Sampling Point: DS-B

**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[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-14 | 10YR 4/3 | 100 | | | | | Silt Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks:

## 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)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

**Wetland Hydrology Present?** Yes ○ No ◉

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

Remarks:

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierrasanta Vector Habitat Remediation Project City/County: San Diego Sampling Date: 15 April 2016

Applicant/Owner: City of San Diego State: CA Sampling Point: DS-C

Investigator(s): Tricia L. Wotipka Section, Township, Range: Section 28, Range 2 West, Township 15 South

Landform (hillslope, terrace, etc.): Manufactured slope Local relief (concave, convex, none): None Slope (%): 10%

Subregion (LRR): C - Mediterranean California Lat: 32° 50' 00.55" N Long: 117° 06' 00.70" W Datum:

Soil Map Unit Name: Riverwash (Rm) NWI classification: Palustrine Scrub-Shrub

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: Sampling point is adjacent to an existing sidewalk associated with Antigua Boulevard in within a discontiguous patch of southern willow scrub habitat associated with North Shepherd Canyon but well above the ordinary high water mark and well outside the active flow of the creek. This sampling point is within a wetland regulated by the California Department of Fish and Wildlife and City of San Diego.

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis* | 100 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 100% | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Bromus diandrus* | 20 | Yes | UPL |
| 2. *Euphorbia peplus* | 25 | Yes | UPL |
| 3. *Sonchus asper* | 5 | No | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 50 % | | |
| **Woody Vine Stratum** | | | |
| 1. | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 50 % % Cover of Biotic Crust 0 %

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | 100 | x 2 = | 200 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | | x 4 = | 0 |
| UPL species | 45 | x 5 = | 225 |
| Column Totals: | 150 (A) | | 440 (B) |

Prevalence Index = B/A = 2.93

**Hydrophytic Vegetation Indicators:**

- [ ] Dominance Test is >50%
- [x] 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:

## SOIL

Sampling Point: DS-C

**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[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10YR 4/3 | 100 | | | | | Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes ○ No ◉

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

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**Wetland Hydrology Present?** Yes ○ No ◉

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

Remarks: