3 RESULTS

3.1 Physical Characteristics

3.1.1 Topography and Drainage

The Project study area occurs in central Escondido in the Midway District, approximately 16 miles inland from the Pacific Ocean, on generally flat ground, at approximately 662-756 feet above mean sea level (amsl). The Project study area occurs in a highly urbanized area, surrounded by single-family residences, multi-residential properties, businesses, shopping centers, schools, and a small city park (Oak Hill City Park). Escondido Creek, a concrete-lined channel in the Project area, runs from northeast to southwest through the Project study area.

The Project study area is immediately surrounded to the north, south, east, and west by development consistent with the Project setting. Interstate-15 occurs approximately three miles west, and California State Route 78 occurs approximately one mile east of the Project study area. The nearest open space preserve, Daley Ranch Park, occurs approximately three miles north of the Project study area and has no connectivity to the Project site.

3.1.2 Soils

According to the San Diego County Soil Survey and digital soil maps from the NRCS 2.2 Database, 15 soil types are present in the Project study area as shown in Table 2 below and as depicted on the Soils and Topography map (Figure 3).

Table 2
MAPPED SOILS IN STUDY AREA

Unit Name	Drainage Class	Runoff Class	Formation
Fallbrook sandy loam 9 to 15% slopes, eroded	Well-drained	Medium to rapid runoff	Weathered from granitic rocks
Fallbrook sandy loam 15 to 30% slopes, eroded	Well-drained	Medium to rapid runoff	Weathered from granitic rocks
Greenfield sandy loam, 0 to 2% slopes	Well-drained	Slow to medium runoff	Formed in textured alluvium derived from granitic and mixed rock sources

Unit Name	Drainage Class	Runoff Class	Formation
Greenfield sandy loam, 2 to 5% slopes	Well-drained	Slow to medium runoff	Formed in textured alluvium derived from granitic and mixed rock sources
Placentia sandy loam, thick surface, 0 to 2% slopes	Well- or moderately-drained	Slow to rapid runoff	Formed in alluvium from granite and other rocks of similar composition and texture
Placentia sandy loam, thick surface, 2 to 9% slopes	Well- or moderately-drained	Slow to rapid runoff	Formed in alluvium from granite and other rocks of similar composition and texture
Ramona sandy loam, 0 to 2% slopes, Major Land Resource Area (MLRA) 19	Well-drained	Slow to rapid runoff	Formed in alluvium derived mostly from granitic and related rock sources
Ramona sandy loam, 2 to 5% slopes	Well-drained	Slow to rapid runoff	Formed in alluvium derived mostly from granitic and related rock sources
Ramona sandy loam, 5 to 9% slopes	Well-drained	Slow to rapid runoff	Formed in alluvium derived mostly from granitic and related rock sources
Reiff fine sandy loam, 0 to 2% slopes	Well-drained	Slow runoff	Formed in alluvium derived from granitic rock
Visalia sandy loam, 0 to 2% slopes	Well-drained	Slow runoff	Developed from moderately coarse textured dominantly granitic alluvium
Visalia sandy loam, 2 to 5% slopes	Well-drained	Slow runoff	Developed from moderately coarse textured dominantly granitic alluvium
Vista coarse sandy loam, 5 to 9% slopes	Well-drained	Slow to rapid runoff	Formed in material weathered from decomposed granitic rocks
Vista coarse sandy loam, 9 to 15% slopes, MLRA 20	Well-drained	Slow to rapid runoff	Formed in material weathered from decomposed granitic rocks
Vista coarse sandy loam, 15 to 30% slopes, MLRA 20	Well-drained	Slow to rapid runoff	Formed in material weathered from decomposed granitic rocks

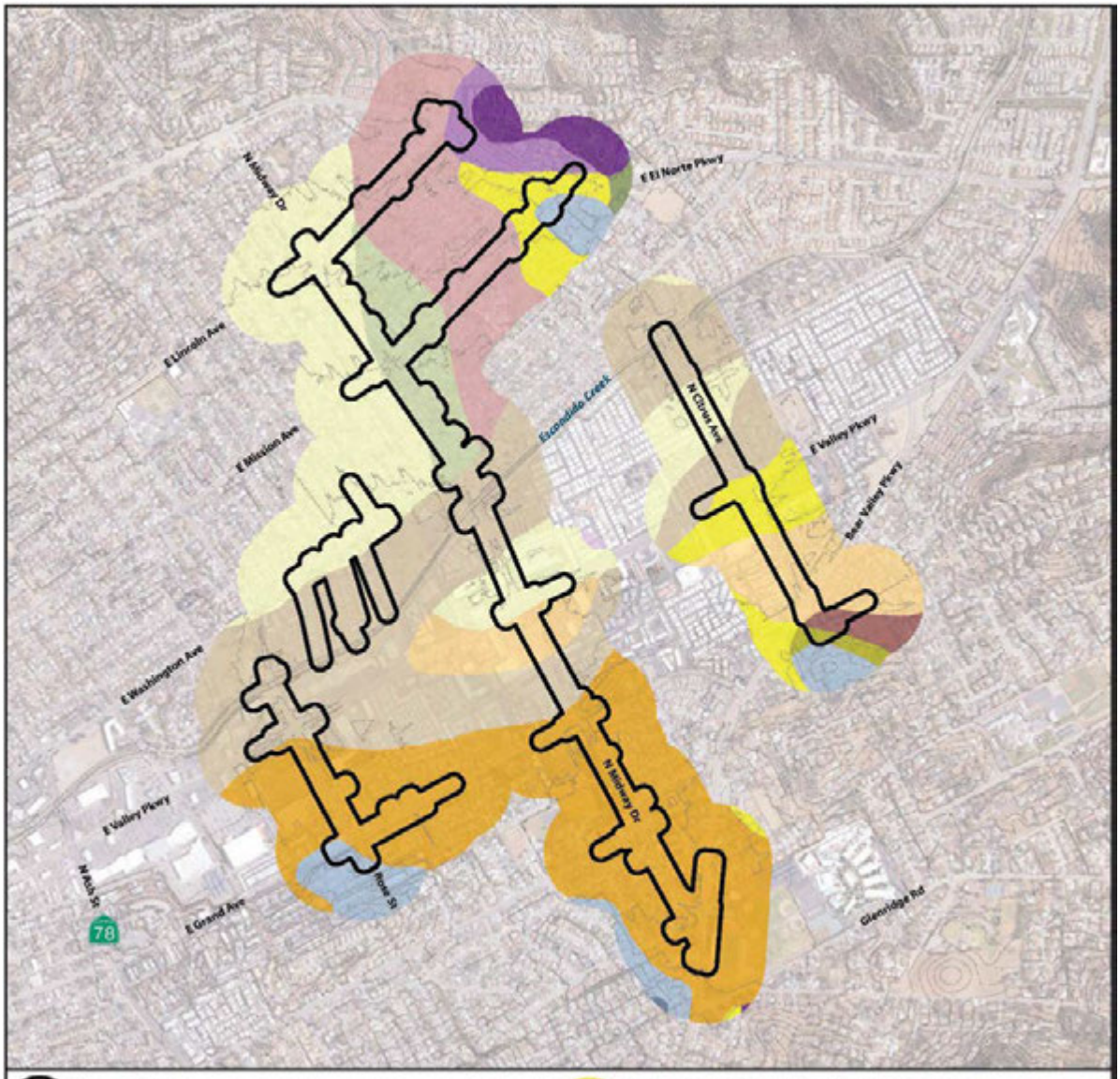


Figure 3

Soils and Topography

East Valley Parkway & Midway Drive
Drainage Improvements

3.1.3 Watershed and Hydrologic Setting

The Project area is located within the Upper Escondido Creek subwatershed of the Carlsbad Hydrologic Unit (watershed). The Carlsbad Hydrologic Unit is approximately 210 square miles and extends from the headwaters of Escondido Creek above Lake Wohlford in the east to the Pacific Ocean in the west at the San Elijo Lagoon (SDRWQCB 2002). This hydrologic unit is bordered by San Luis Rey Hydrologic Unit to the north and San Dieguito Hydrologic Unit to the east and south. The Project area is located within the San Marcos Hydrologic Subarea.

The Carlsbad Hydrologic Unit includes one small coastal lagoon (Loma Alta Slough) and four major coastal lagoons, including Buena Vista, Agua Hedionda, Batiquitos, and San Elijo (SDRWQCB 2002). Water flow through the Project site occurs exclusively through Escondido Creek (Figure 4).

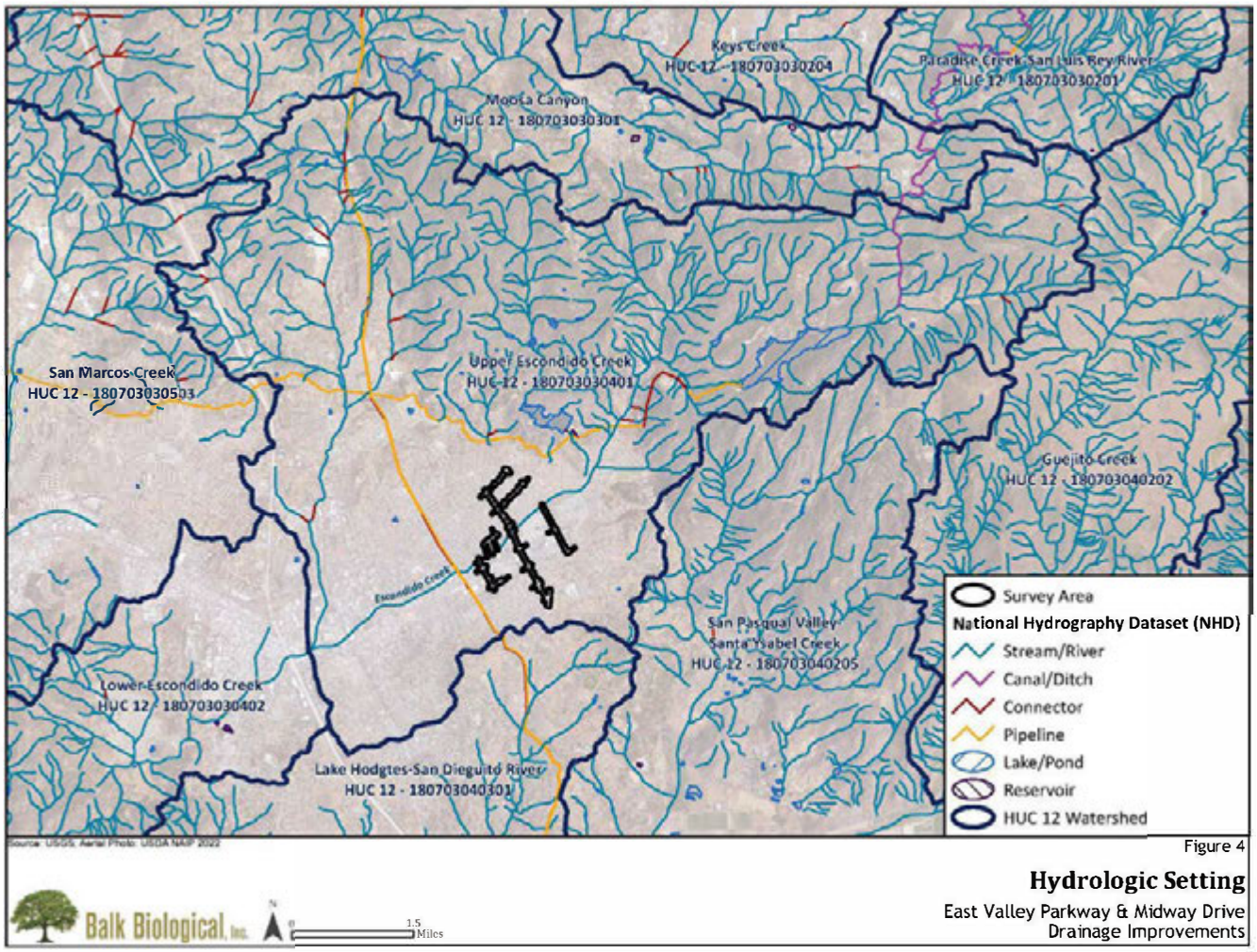


Figure 4

Hydrologic Setting

East Valley Parkway & Midway Drive Drainage Improvements

3.2 Biological Resources

The following discussion describes the existing biological conditions within the Project study area, provided as biological resource descriptions.

3.2.1 Vegetation Communities and Land Cover Types

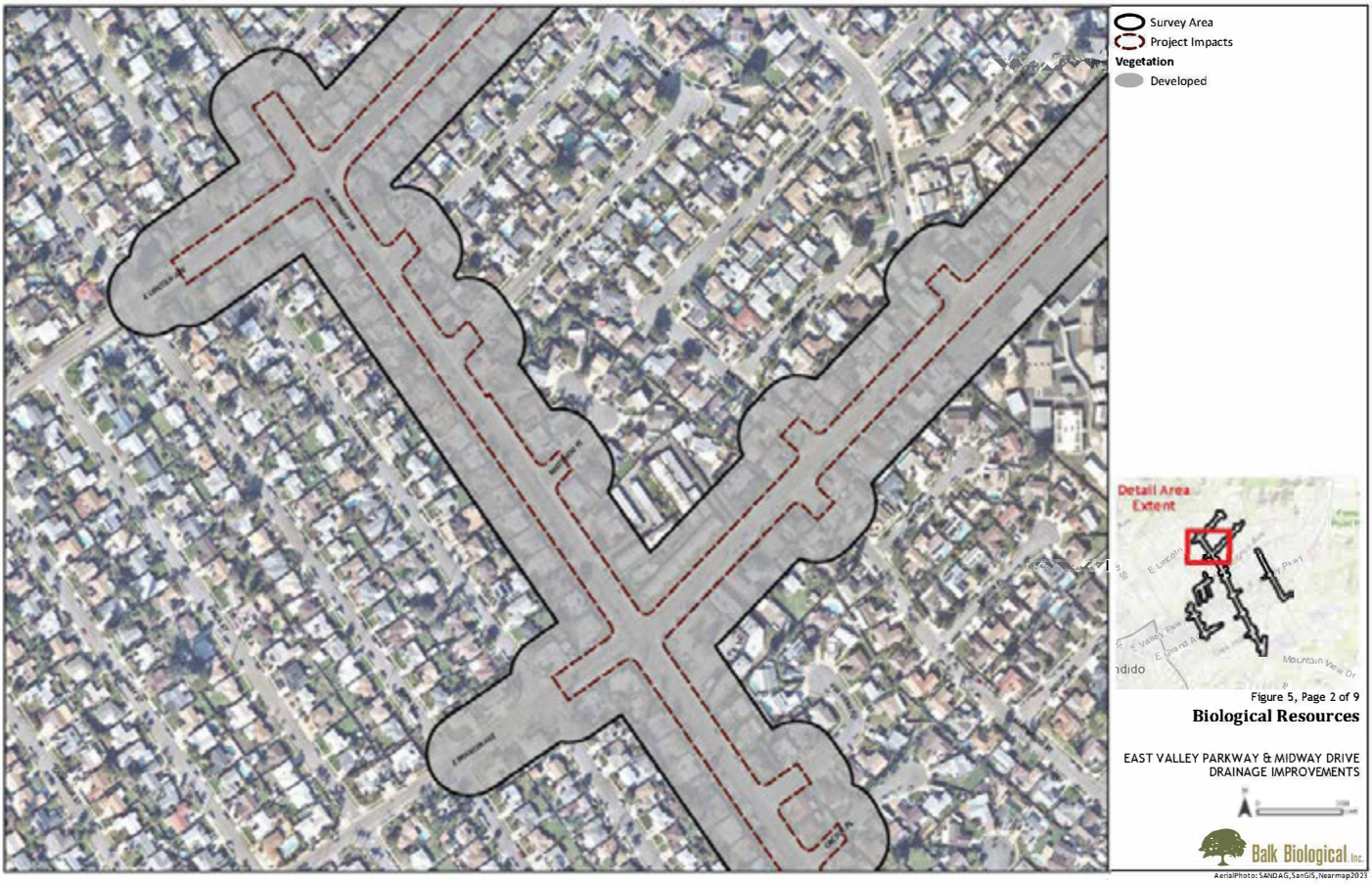
Vegetation communities and land covers were mapped according to Holland (1986) and Oberbauer *et al.* (2008), with a few exceptions. A total of six vegetation communities (or habitats) and land cover types were identified within the Project study area: freshwater marsh, coast live oak woodland, concrete-lined channel, landscaping/ornamental, developed land, and bare ground.

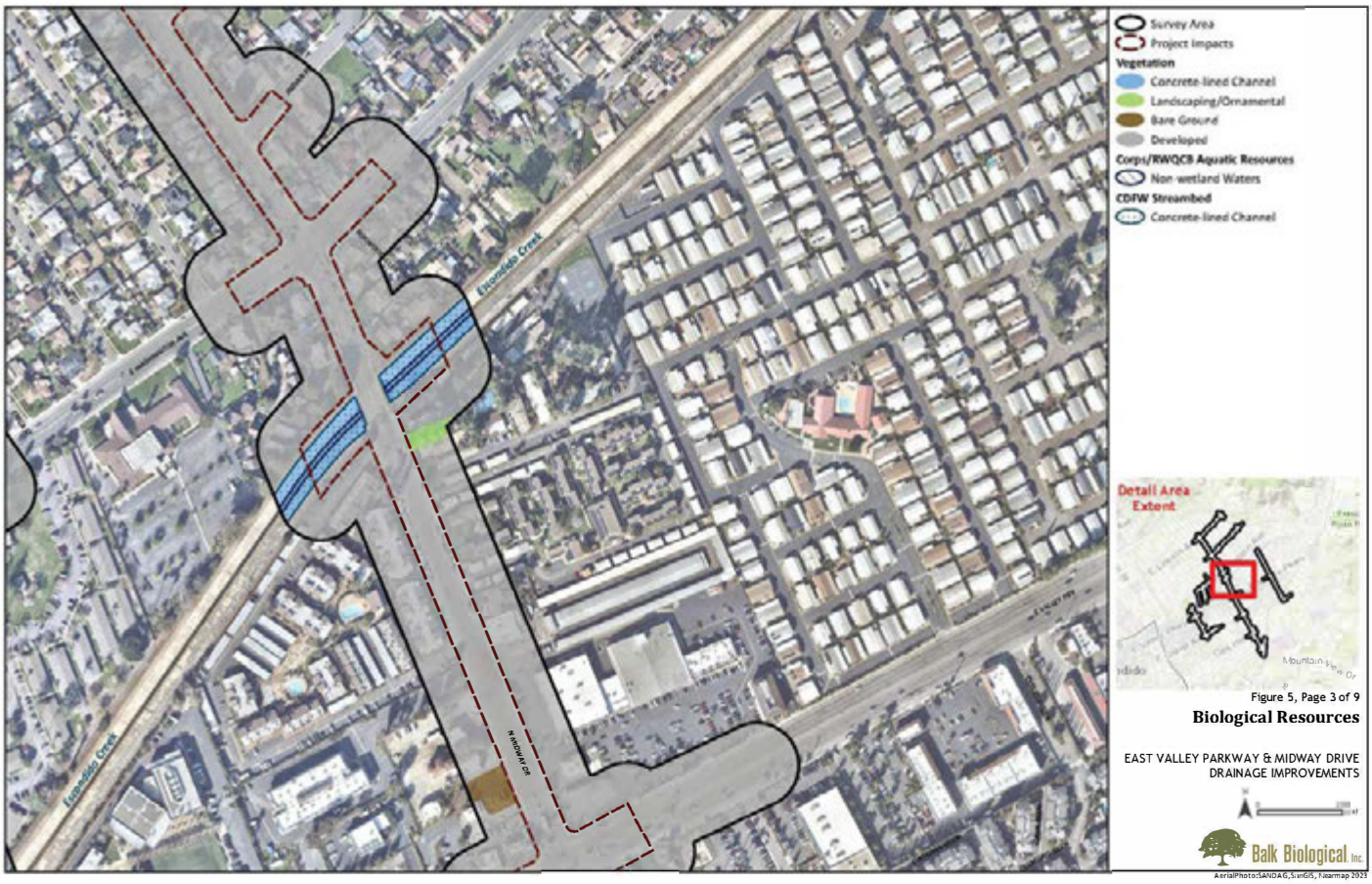
The vegetation communities and land cover types recorded in the study area are described in detail below, their acreages are presented in Table 3, and their spatial distributions are presented on the Biological Resources and Impacts map (Figure 5).

Table 3
Vegetation Communities and Land Cover Types in the Project Study Area

General Vegetation Community/Land Cover Category (Holland/Oberbauer Code)	Vegetation Community/Land Cover Type	Acres inside Project Impact Areas	Acres in Buffer Area (outside Project Impact Areas)	Total Acres Onsite
Disturbed or Developed Areas (10000)	Developed Land	48.4	146.5	194.9
	Bare Ground	0	0.2	0.2
	Landscaping/Ornamental	0.5	4.5	5.0
	Concrete-Lined Channel	0.7	2.3	3.0
Freshwater Marsh (52400)		0	0.02	0.02
Coast Live Oak Woodland (71160)		0	0.2	0.2
Total		**49.6**	**153.7**	**203.3**

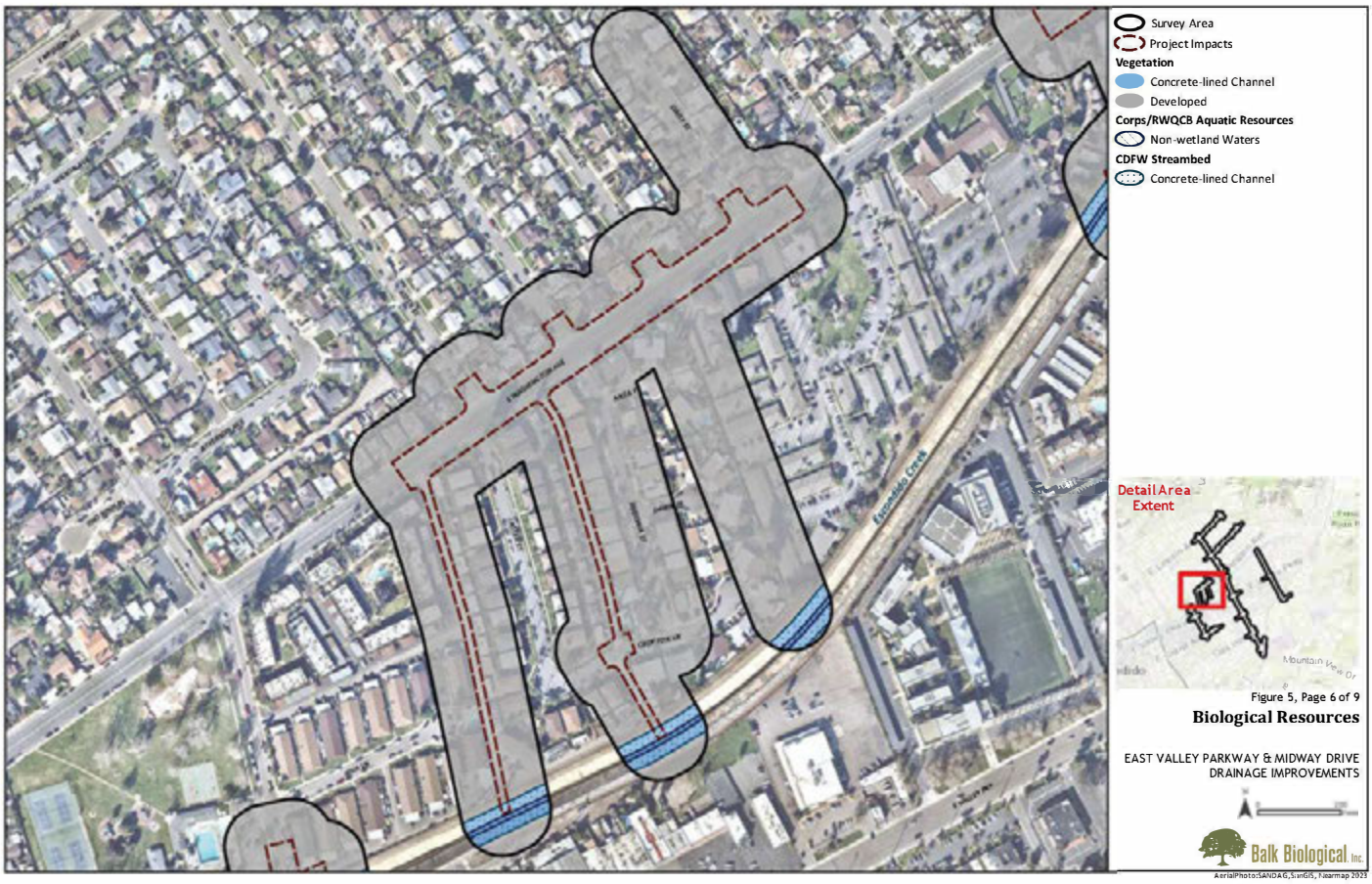

Survey Area
Project Impacts
Vegetation
Landscaping/Ornamental
Developed
Detail Area Extent
Figure 5, Page 1 of 9
Biological Resources
EAST VALLEY PARKWAY & MIDWAY DRIVE DRAINAGE IMPROVEMENTS
Balk Biological Inc.
Aerial Photo: SANDAG, SanGIS, Nearmap 2023

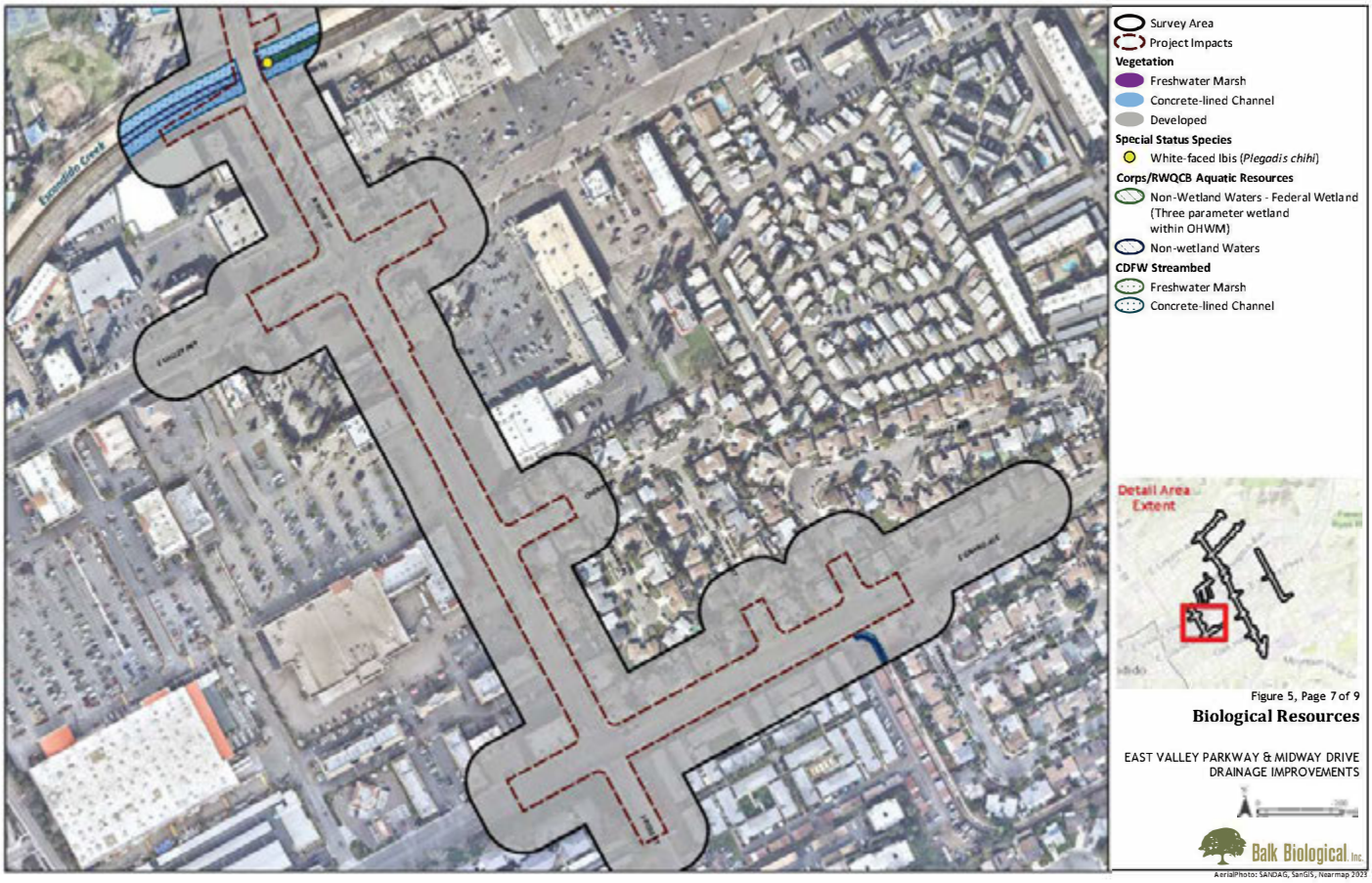

Survey Area
Project Impacts
Vegetation
Developed
Detail Area Extent
Figure 5, Page 2 of 9
Biological Resources
EAST VALLEY PARKWAY & MIDWAY DRIVE DRAINAGE IMPROVEMENTS
Balk Biological, Inc.
AerialPhoto: SANDAG,SanGIS,Nearmap2023


Survey Area
Project Impacts
Vegetation
Concrete-lined Channel
Landscaping/Ornamental
Bare Ground
Developed
Corps/RWQCB Aquatic Resources
Non-wetland Waters
CDFW Streambed
Concrete-lined Channel
Detail Area Extent
Figure 5, Page 3 of 9
Biological Resources
EAST VALLEY PARKWAY & MIDWAY DRIVE DRAINAGE IMPROVEMENTS
Balk Biological Inc.
AerialPhoto:SANDAG,SanGIS, Nearmap 2023


Survey Area
Project Impacts
Vegetation
Coast Live Oak Woodland
Landscaping/Ornamental
Developed
Detail Area Extent
Figure 5, Page 4 of 9
Biological Resources
EAST VALLEY PARKWAY & MIDWAY DRIVE DRAINAGE IMPROVEMENTS
Balk Biological Inc.
AerialPhoto:SANDAG,SanGIS, Nearmap 2023


Survey Area
Project Impacts
Vegetation
Coast Live Oak Woodland
Landscaping/Ornamental
Developed
Detail Area Extent
Figure 5, Page 5 of 9
Biological Resources
EAST VALLEY PARKWAY & MIDWAY DRIVE DRAINAGE IMPROVEMENTS
Balk Biological Inc
AerialPhoto: SANDAG, SanGIS,Nearmap2023


Survey Area
Project Impacts
Vegetation
Concrete-lined Channel
Developed
Corps/RWQCB Aquatic Resources
Non-wetland Waters
CDFW Streambed
Concrete-lined Channel
Detail Area Extent
Figure 5, Page 6 of 9
Biological Resources
EAST VALLEY PARKWAY & MIDWAY DRIVE DRAINAGE IMPROVEMENTS
Balk Biological Inc.
AerialPhoto:SANDAG, SanGIS, Nearmap 2023


Escondido Creek
Survey Area
Project Impacts
Vegetation
Freshwater Marsh
Concrete-lined Channel
Developed
Special Status Species
White-faced Ibis (Plegadis chihi)
Corps/RWQCB Aquatic Resources
Non-Wetland Waters - Federal Wetland (Three parameter wetland within OHWM)
Non-wetland Waters
CDFW Streambed
Freshwater Marsh
Concrete-lined Channel
Detail Area Extent
Figure 5, Page 7 of 9
Biological Resources
EAST VALLEY PARKWAY & MIDWAY DRIVE DRAINAGE IMPROVEMENTS
Balk Biological, Inc.
AerialPhoto: SANDAG, SanGIS, Nearmap 2023


Survey Area
Project Impacts
Vegetation
Concrete-lined Channel
Landscaping/Ornamental
Developed
Corps/RWQCB Aquatic Resources
Non-wetland Waters
CDFW Streambed
Concrete-lined Channel
Detail Area Extent
Figure 5, Page 8 of 9
Biological Resources
EAST VALLEY PARKWAY & MIDWAY DRIVE DRAINAGE IMPROVEMENTS
Balk Biological Inc.


Survey Area
Project Impacts
Vegetation
Landscaping/Ornamental
Developed
Detail Area Extent
Figure 5, Page 9 of 9
Biological Resources
EAST VALLEY PARKWAY & MIDWAY DRIVE DRAINAGE IMPROVEMENTS
Balk Biological Inc.
AerialPhoto:SANDAG,SanGIS,Nearmap2023

3.2.1.1 Disturbed or Developed Areas (10000)

According to Oberbauer *et al.* 2008, urban/developed 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.

Developed Land

All of the streets, residential and business properties, sidewalks, and parking lots were mapped as developed land within the Project study area. The majority of the Project study area, including the footprint of the reinforced concrete storm drain pipeline and buffer area, was mapped as developed land. A total of 194.9 acres of developed land was mapped onsite (48.4 acres within Project impact areas and 146.5 acres within the Project buffer).

Bare Ground

A small, vacant dirt lot was mapped as bare ground within the Project study area. Bare ground has been differentiated from developed land due to the lack of any development (pavement, concrete, structures, or landscaping). A total of 0.2 acre of bare ground was mapped onsite, all outside of the Project impact areas.

Landscaping/Ornamental

This land cover type is described by Oberbauer *et al.* (2008) as an area where non-native ornamental species and landscaping have been installed and maintained. Landscaping/ornamental areas within the Project study area occur primarily on large residential plots, apartment complexes, and near parks and schools. This land cover supports a variety of ornamental species in the Project study area, including but not limited to Italian cypress (*Cupressus sempervirens*), ornamental pine (*Pinus* sp.), pepper trees (*Schinus* sp.), various palms and ornamental flowering trees, and Bermuda grass (*Cynadon dactylon*). A total of 5.0 acres of landscaping/ornamental land was mapped onsite (0.5 acre within Project impact areas 4.5 acres within the Project buffer).

Concrete-Lined Channel

Concrete-lined channels have been developed for the rapid conveyance of water from urban areas. In the Project study area, Escondido Creek, which originates in the upper headwaters in Bear Valley above Lake Wohlford, has been channelized to manage the large volume of runoff from storm events within the City. A total of 3.0 acres of concrete-lined channel was mapped onsite (0.7acre within Project impact areas and 2.3 acres within the Project buffer). The aquatic resources delineation determined that the Escondido Creek channel and an associated tributary channel near East Grand Avenue are non-wetland waters of the U.S. jurisdictional to the ACOE and RWQCB and streambeds jurisdictional to CDFW (see Section 3.2.2 for additional information).

3.2.1.2 Freshwater Marsh (52400)

Freshwater marsh is dominated by perennial, emergent monocots and is permanently flooded by fresh water (Oberbauer *et. al.* 2008). Within the Project study area, a small area of freshwater marsh associated with a temporary sediment deposit occurs within the concrete-lined channel of Escondido Creek and is primarily dominated by common spike rush (*Eleocharis palustris*), broadleaf cattail (*Typha latifolia*), rabbitsfoot grass (*Polypogon monspeliensis*), and watercress (*Nasturtium officinale*). A total of 0.023 acre of freshwater marsh was mapped onsite, all outside of the Project impact areas.

3.2.1.3 Coast Live Oak Woodland (71160)

Coast live oak woodland is typically dominated by a single tree species, coast live oak (*Quercus agrifolia*), and may have an understory of shrub species such as toyon (*Heteromeles arbutifolia*), currants (*Ribes* sp.), laurel sumac (*Malosma laurina*), or elderberry (*Sambucus* sp.) (Oberbauer *et. al* 2008), or grassland in open woodlands. The coast live oak woodland in the Project study area has been manicured for the purposes of contributing to City beautification and is associated with Oak Hill City Park, which is adjacent to Oak Hill Elementary School and a large single-family residence. A small building, Oak Hill Activity Center, is located in the park, and the adjacent residential property has various ornamental and native plantings contributing to the vegetation composition of this community, including Bermuda grass, ornamental agave (*Agave* sp.), century plant (*Agave americana*), spineless yucca (*Yucca elephantipesis*), jade plant (*Crassula ovata*), Barbary fig (*Opuntia ficus-indica*), California sagebrush (*Artemisia californica*), white sage (*Salvia apiana*), Cleveland sage (*Salvia clevelandii*), and toyon. A total of 0.2 acre of coast live oak woodland was mapped onsite, all outside of the Project impact areas.

3.2.2 Aquatic Resources

An aquatic resources delineation was conducted onsite to determine the type and extent of potential aquatic resources jurisdictional to the ACOE, RWQCB, and CDFW. Within the Project study area, potential aquatic resources were observed along the Escondido Creek channel and along a minor tributary to the Creek located in the southwestern portion of the Project study area near East Grand Avenue (see Figure 5). These potential aquatic resources are described below, according to agency jurisdiction.

Federal Aquatic Resources

Wetland Waters

No potential federal wetland waters occur within the Project study area. Aquatic resources exhibiting all three wetland parameters (*i.e.,* evidence of hydrophytic vegetation, hydric soils, and wetland hydrology) were largely absent throughout the Project study area since the only features present were concrete-lined channels. Only one location within the Escondido Creek channel representing the emergent freshwater marsh associated with a sediment deposit exhibited all three wetland parameters, but because the freshwater marsh occurs below the ordinary high water mark (OHWM) and is likely a temporary situation (as a storm event or routine maintenance will likely remove it), this aquatic resource is delineated as a potential non-wetland water of the U.S., as discussed below.

Non-wetland Waters

Boundaries of potential non-wetland waters of the U.S. within the Project study area were determined by the presence of an OHWM and "relatively permanent flow". Linear aquatic resources delineated within the Project study area include the concrete-lined Escondido Creek channel supporting perennial flows and a smaller tributary to Escondido Creek near East Grand Avenue, which is also concrete-lined and supports intermittent flows. Evidence of an OHWM consisted of water stains and evidence of fallen debris being washed away. The water staining indicator was consistently observed throughout the channels within the Project study area. Due to the clear connection to downstream waters, and the strong evidence of surface flow below the OHWM, both channels would be considered potential Relatively Permanent Waters (RPWs) that are tributaries to Traditionally Navigable Waters (TNWs, *i.e.,* the San Elijo Lagoon and the Pacific Ocean).

An area of freshwater marsh present within the Escondido Creek channel near North Rose Steet is also considered to be a potential non-wetland waters because it is below the OHWM. As noted

above, the marsh is associated with a temporary sediment deposit within the concrete-lined channel and despite it qualifying as a 3-parameter wetland, it is established well below the OHWM.

State Aquatic Resources

All federal waters described above also fall within the CWA Section 401 authority of the RWQCB and Section 1602 authority of the CDFW. Additionally, the CDFW takes jurisdiction of aquatic resources extending beyond the OHWM to the top of bank and/or edge of riparian canopy.

Potential aquatic resources subject to CDFW jurisdiction but not USACE or RWQCB jurisdiction consist of the engineered channel banks above the OHWM. The top of bank associated with the non-wetland waters mapped throughout the Project study area was delineated at the crest of the channel slope. The CDFW-jurisdictional streambed includes areas of open water and the area of concrete-lined channel located below the top of bank.

Non-Jurisdictional Features

Four concrete-lined ditches and two bioretention basins were evaluated as part of the field delineation, and these were determined to be non-jurisdictional features constructed in uplands that were not associated with any historically mapped features (NWI 2024, NHD 2024). Three of the brow ditches are located near El Norte Parkway in the northern portion of the Project study area and the fourth brow ditch is present near East Grand Avenue. The ditches function to prevent erosion by capturing runoff and channeling it around a new housing development and an undeveloped lot. All of the brow ditches discharge into the City storm drain system, with one of the northern brow ditches entering a relatively small, vegetated bioretention basin, before discharging into the storm drain system.

Two bioretention basins are present in the northern portion of the Project study area. As noted above, a smaller basin is present east of Lincoln Avenue and north of El Norte Parkway and is fed by a brow ditch that captures some runoff from an adjacent housing development. A larger bioretention basin/bio-swale is present west of East Lincoln Avenue and appears to capture the bulk of the runoff from the adjacent housing development. Both basins are constructed in uplands, landscaped with ornamental vegetation and regularly maintained. They do not support hydrophytic vegetation within the Project study area and are not considered to be potential jurisdictional aquatic resources.

Table 4
Potential Waters of the U.S. and State Occurring within the Project Study Area

Type of Jurisdictional Waters	Type of Habitat[1]	Cowardin Classification[2]	Acres of Aquatic Resources		Linear Feet of Aquatic Resources	
			Study Area	Impact Area	Study Area	Impact Area
Jurisdictional Waters of the U.S. (USACE, RWQCB)						
Escondido Creek: Non-wetland Waters	Developed/ concrete-lined channel	Riverine intermittent streambed, seasonally flooded, excavated	0.57	0.11	1768	385
Escondido Creek: Non-wetland Waters (Federal 3-parameter Wetland Below OHWM)	Freshwater Marsh	Riverine intermittent streambed, vegetated, seasonally flooded, excavated	0.02	--	135	--
Grand Ave Channel, Non-wetland Waters	Developed/ concrete-lined channel	Riverine intermittent streambed, seasonally flooded, excavated	0.01	--	112	--
Subtotal Jurisdictional Waters of the U.S.			*0.60*	*0.11*	*2014*	*385*
Jurisdictional Waters of the State (CDFW)						
Escondido Creek, Concrete-lined Channel	Developed/ concrete-lined channel	Riverine intermittent streambed, seasonally flooded, excavated	2.95	0.71	1768	385
Escondido Creek, Freshwater Marsh	Freshwater Marsh	Riverine intermittent streambed, vegetated, seasonally flooded, excavated	0.02	--	135	--
Grand Ave Channel, Concrete-lined Channel	Developed/ concrete-lined channel	Riverine intermittent streambed, seasonally flooded, excavated	0.04	--	112	--
Subtotal Jurisdictional Waters of the State			*3.01*	*0.71*	*2014*	*385*
Grand Total Jurisdictional Waters			**3.01**	**0.71**	**2014**	**385**

1 Oberbauer *et al.* 2008.
2 Cowardin *et. al.* 1979.

3.2.3 Floral Diversity

A total of 62 species of vascular plants, including 8 native and 54 non-native, was recorded during the reconnaissance surveys for the project. A list of all plant species observed in the study area during surveys is provided in Appendix A, *Plant Species Observed within the Project Study Area*, of this report. No special-status plant species were observed in the Project study area.

3.2.4 Wildlife Diversity

Wildlife species that were observed or detected during field surveys by sight, calls, tracks, scat, or other signs were recorded directly onto a field notebook. Binoculars (8 x 42) were used to aid in

the identification of wildlife. A total of seven wildlife species were recorded during the biological surveys for the project study area. One wildlife species observed within the study area, white-faced ibis, is a special-status species (see Section 3.2.6).

A list of all wildlife species observed in the study area during the surveys is provided in Appendix B, *Wildlife Species Observed within the Project Study Area* of this report.

3.2.5 Special-Status Plants

Plant species are considered sensitive if they have been listed or are candidates for listing by the federal and/or state governments as rare, endangered, or threatened ("listed species"); have a CRPR of 1–4; and/or are included as a covered species under the MHCP as implemented by the Escondido Subarea Plan. An evaluation of known California Natural Diversity Database records within a five-mile radius of the site was conducted. Additionally, elevation, habitat, and soils present within the Project study area were evaluated to determine the potential for various special-status species to occur. The level of probability for occurrence of a given species within the Project study area is categorized as observed, high, moderate, low, or no potential to occur, based on the following criteria:

Present – Species was detected during Project surveys.

No Potential – The study area does not provide suitable habitat, the species is known to be restricted to habitats or specific areas outside of the study area, and/or the species is considered extirpated from the area.

Low Potential – Suitable habitat was found within the study area, but in very limited area and/or in a highly disturbed state.

Moderate Potential – Suitable habitat was found within the study area, but in a moderately limited area and/or in a moderately disturbed state.

High Potential –Suitable, high quality habitat is present, and the species is known to occur within the vicinity.

A general plant survey was conducted during vegetation/land cover mapping on September 16, 2024, to identify any species in the study area that was blooming or otherwise observable in that period. A rare plant survey was not conducted because the site supports limited suitable habitat and contains low diversity of plant species. No special-status plants were observed during the general plant survey.

There are no special-status plant species with a moderate to high potential to occur within the Project study area, which is consistent with the highly urbanized and developed landscape of the Project area. The potential for special-status plants is low or not expected due to the high level of developed and disturbed habitat that exists on site. The potential for sensitive plant species included in the California Natural Diversity Database records within five miles of the site to occur in the Project study area is described in Appendix C, *Special-Status Plant Species Potentially Occurring within the Project Study Area*.

3.2.6 Special-Status Wildlife

Sensitive wildlife species are those listed as federal/state endangered or threatened, candidate for listing, fully protected by CDFW, California Watch List (WL), California Species of Special Concern (SSC), or covered species in the MHPA as implemented by the Escondido Subarea Plan. An evaluation of known California Natural Diversity Database records in a five-mile radius of the site was conducted. Additionally, elevation, habitat, and soils present within the Project study area were evaluated to determine the potential for various special-status species to occur.

Special-status wildlife species observed, or with a low, moderate, or high potential to occur in the Project study area are summarized in Appendix D, *Special-Status Wildlife Species Observed or Potentially Occurring in the Project Study Area*. The level of probability for occurrence of a given species within the Project study area is determined based on the following criteria:

Present – Species was detected during Project surveys.

No Potential – The study area does not provide suitable habitat, the species is known to be restricted to habitats or specific areas outside of the study area, and/or the species is considered extirpated from the area.

Low Potential – Suitable habitat was found within the study area, but in very limited area and/or in a highly disturbed state.

Moderate Potential – Suitable habitat was found within the study area, but in a moderately limited area and/or in a moderately disturbed state.

High Potential –Suitable, high quality habitat is present, and the species is known to occur within the vicinity.

One general biological reconnaissance survey of the Project area was conducted according to the methods presented in Section 2 above, on September 16, 2024. One special-status wildlife species, white-faced ibis, was observed within the Project study area during the general biological survey and is further discussed below. No other special-status wildlife species were determined to have moderate or high potential to occur within the Project study area. In general, there is low potential for special-status wildlife to use the Project site and buffer due to the lack of available native habitat and connectivity to other undeveloped areas.

3.2.6.1 White-faced Ibis

White-faced ibis (*Plegadis chihi*) is a CDFW watch list species (nesting colony) and is covered by the MHCP. White-faced ibis nests in freshwater marshes and forages in shallow water and wet grass (Unitt 2004). Two nesting colonies for this species occur in northern San Diego County at Guajome Lake and in the San Luis River valley at the mouth of Keys Canyon, and white-faced ibis are frequently observed wintering throughout the county (Unitt 2004). This species' population is affected by loss of wetland habitat.

Suitable foraging habitat for white-faced ibis occurs within the shallow, freshwater marsh habitat in the concrete-lined channel of Escondido Creek adjacent to the Project work area, and three individuals of this species was observed foraging in this location at the Rose Creek Street crossing during the biological survey (Figure 5, page 7). This species nests in colonies and the small patch of freshwater marsh onsite is not suitable for a nesting colony; therefore, there is no suitable nesting habitat within the Project study area.

3.3 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the immigration and emigration of animals. Wildlife corridors contribute to population viability by (1) assuring the continual exchange of genes between populations, which helps maintain genetic diversity; (2) providing access to adjacent habitat areas, representing additional territory for foraging and mating; (3) allowing for a greater carrying capacity; and (4) providing

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

Habitat linkages are patches of native habitat that function to join two larger patches of habitat. They serve as connections between habitat patches and help reduce the adverse effects of habitat fragmentation. Although individual animals may not move through a habitat linkage, the linkage does represent a potential route for gene flow and long-term dispersal. Habitat linkages may serve as both habitat and avenues of gene flow for small animals such as reptiles and amphibians. Habitat linkages may be represented by continuous patches of habitat or by nearby habitat "islands" that function as "stepping stones" for dispersal.

The Escondido Subarea Plan identifies five large areas of natural habitats located in the northeastern, eastern, southern, southwestern, and northwestern portions of the City (Ogden and CBI 2001). The Project site is not located within a designated Biological Core Linkage Area (BCLA) (Ogden and CBI 2001). The Escondido Subarea plan describes the BCLA as being equivalent to a biologically preferred preserve alternative because it identifies all large, contiguous areas of habitat and important functional linkages and movement corridors between them (Ogden and CBI 2001). The Project is located within a highly urbanized area that is surrounded by high-density commercial and residential development. Human activity and considerable vehicle traffic in and surrounding the site inhibit wildlife movement through the Project site. Escondido Creek, as it flows through the Project site, may allow terrestrial animals to move through the City; however, the urban development that borders this drainage is a deterrent to wildlife mobility and it is expected that wildlife movement most likely occurs in the areas identified in the BCLA, and not within the Project study area.