Appendix M

Conceptual Wetland Mitigation Plan

HELIX Environmental Planning

Cottonwood Sand Mine Project

Conceptual Wetland Mitigation Plan

November 2021 | 02975.00002.002

PDS2018-MUP-18-023
PDS2018-RP-18-001
PDS2018-ER-18-19-007

Prepared for:

County of San Diego
Planning & Development Services
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Prepared for:

New West Investment Group, Inc.
565 N. Magnolia Avenue
El Cajon, CA 92020

Sally Trnka
County-approved Revegetation
Planning Consultant

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

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ACRONYMS AND ABBREVIATIONS

AA	Assessment Area
amsl	above mean sea level
BTR	Biological Resources Technical Report
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CFG	California Fish and Game
County	County of San Diego
CRAM	California Rapid Assessment Method
CWA	Clean Water Act
CWMW	California Wetlands Monitoring Workgroup
CY	Cubic Yards
GPS	global positioning system
ft	feet
HELIX	HELIX Environmental Planning, Inc.
m	meter
MSCP	Multiple Species Conservation Program
MUP	Major Use Permit
NRCS	Natural Resources Conservation Service
PAMA	Pre-Approved Mitigation Area
POC	Point of Connection
Project	Cottonwood Sand Mine Project
ROW	Right-of-Way
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control Board
SDG&E	San Diego Gas & Electric
SDNWR	San Diego National Wildlife Refuge
SHBs	shot-hole borers
SMARA	Surface Mining and Reclamation Act
SR	State Route
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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1.0 INTRODUCTION

This report presents a Conceptual Wetland Mitigation Plan for proposed impacts to wetland habitat and jurisdictional waters resulting from the Cottonwood Sand Mine Project (project) located in the unincorporated communities of Rancho San Diego and Jamul in eastern San Diego County, California. Included in this document is an implementation, maintenance, and monitoring plan for the on-site re-establishment of approximately 1.00 acre of wetland waters and the rehabilitation of 6.13 acres of existing riparian habitat (collectively referred to as mitigation area), as well as the preservation of 15.01 acres of existing riparian habitat for a credit of 22.14 acres. The re-established wetland waters and rehabilitated riparian habitat are expected to approach the functions and services of early successional riparian habitat within five years. Following successful establishment and rehabilitation, these areas would be preserved within the project's biological open space area.

Mitigation proposed in this report would offset project impacts to wetland habitat and water resources under the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA; 33 USC 1344), Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA, and California Department of Fish and Wildlife (CDFW) pursuant to Sections 1600 et seq. of the California Fish and Game (CFG) Code, and to areas considered County of San Diego (County) Resource Protection Ordinance (RPO) wetlands. This report has been prepared in conformance with the County's Report Format and Content Requirements for Revegetation Plans (County 2007).

In addition to the wetland waters re-establishment and riparian rehabilitation addressed in this plan, areas temporarily impacted as part of the project's proposed mining activities will be revegetated pursuant to the Surface Mining and Reclamation Act (SMARA) and Sections 1810 and 6550-6556 of the County's Zoning Ordinance, as well as Section 86.605(d) of the County's Resource Protection Ordinance (RPO) requirements (County 2011), which requires the restoration of wetland buffer areas disturbed as part of mining activities. A total of 11.91 acres of native upland habitat, consisting of Diegan coastal sage scrub, and 109.51 acres of native wetland and riparian habitat will be revegetated as detailed in the project's Conceptual Revegetation Plan (HELIX Environmental Planning, Inc. [HELIX] 2021a). Following completion of all revegetation activities, these areas will likewise be preserved within the project's biological open space area. Revegetation areas are not discussed further in this report.

Nomenclature used in this report follows Holland (1986) and Oberbauer (2008) for vegetation; Jepson eFlora (2020) and Baldwin et al. (2012) for plants; Pelham (2020) and Davenport (2018) for butterflies; Society for the Study of Amphibians and Reptiles (2020) for reptiles and amphibians; American Ornithological Society (2020) for birds; and Bradley et al. (2014) and Tremor et al. (2017) for mammals.

2.0 PROJECT DESCRIPTION

2.1 RESPONSIBLE PARTIES

New West Investment, Inc. (or its successor in interest) will be responsible for financing the installation and five-year maintenance and monitoring of the habitat re-establishment/rehabilitation proposed in this plan. Contact information is provided below:

Contact: Jim Conrad, Owner's Representative
New West Investment, Inc.
565 N. Magnolia
El Cajon, CA 92020
Phone: 619-441-1463

2.2 PROJECT LOCATION

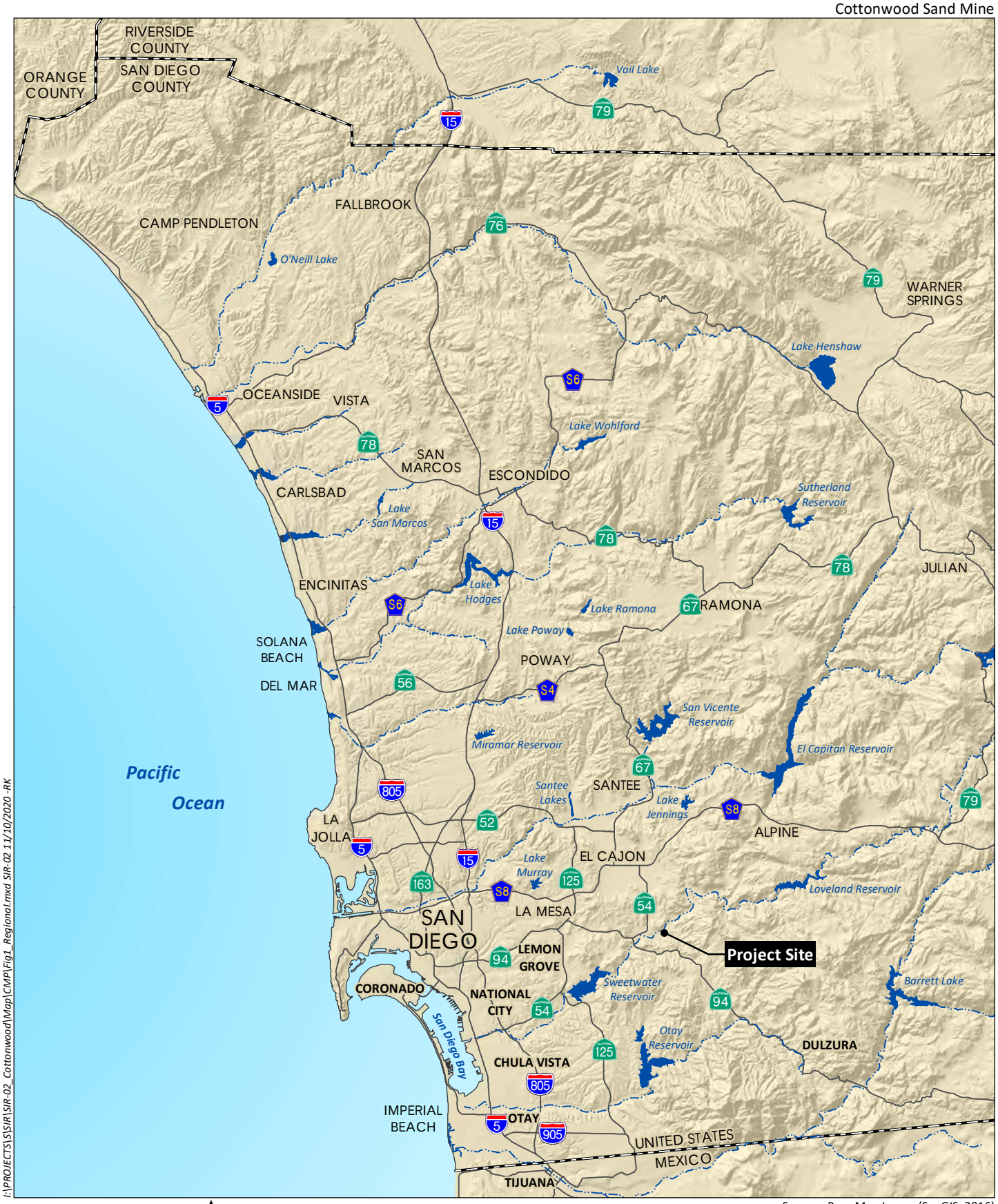
The approximately 280-acre project site is located in the unincorporated community of Rancho San Diego in eastern San Diego County, California (Figure 1, *Regional Location*). It is depicted within unsectioned lands of Township 16 South, Ranges 1 West and 1 East of the Jamul Mountains and El Cajon, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps (Figure 2, *USGS Topograph*y). The site lies north of State Route (SR) 94 and east of SR 54 within the Cottonwood Golf Club. More specifically, the site occurs southeast of Willow Glen Drive, north of Jamul Drive, east of Jamacha Road, and west of Hillsdale Road at 3121 Willow Glen Drive, El Cajon, California (Figure 3, *Aerial Vicinity*). Steele Canyon Road bisects the project site from north to south, near the center of the site. The project site occurs within the following 24 Assessor Parcel Numbers: 506-021-19-00, 506 020-52, 518-012-13, 518-012-14, 518-030-05 through 518-030-08, 518-030-10, 518-030-12, 518 030-13, 518-030-15, 518-030-21, 518-030-22-00, 519-010-15, 519-010-17, 519-010-20, 519-010-21, 519-010-33, 519-010-34, 519-010-37, 519-011-03, 506-021-31, and 506-021-30.

The site is located on unincorporated lands within the South County and Metro-Lakeside-Jamul segments of the County's Multiple Species Conservation Program (MSCP) Subarea Plan (Figure 4, *MSCP Designations*). Within the MSCP, portions of the site along the northeastern, southern, and southeastern boundaries occur within areas identified as Pre-Approved Mitigation Area (PAMA), and Minor Amendment lands occur in the southwestern portion of the site along the Sweetwater River (Figure 4).

2.3 PROJECT SUMMARY

2.3.1 Project Description

The project site is currently occupied by the Cottonwood Golf Club, which consists of two 18-hole golf courses, one east of Steele Canyon Road and the other located to the west. Currently, only the eastern course is operational; operation of the western course was suspended in 2017. The project proposes to convert the two golf courses to a sand mining operation that would be conducted in three phases over 10 years, with a fourth phase for cleanup, equipment removal, and final reclamation (Figure 5, *Mining Phases/Vegetation Communities and Sensitive Resources*). The project's mining operations would extract, process, and transport sand using conventional earth moving and processing equipment. Approximately 4.3 million cubic yards (CY; 6.40 million tons) of material are proposed to be extracted, with approximately 3.8 million CY (5.7 million tons) sand and gravel for market use, with a 10 percent waste factor from the total amount extracted that includes wash fines and materials undesirable for processing. Extraction operations would be limited to a maximum production of 380,000 CY (570,000 tons) of construction grade aggregate (sand) per calendar year. Material extracted and processed at the site would be suitable for construction uses and would be available to customers in San Diego County. Approximately 214 acres of the approximately 250-acre Major Use Permit (MUP) boundary are proposed for extractive use under a phased extraction program. Surface areas not disturbed by mining would either be left in their current condition or be subject to enhancement



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Source: Base Map Layers (SanGIS, 2016)

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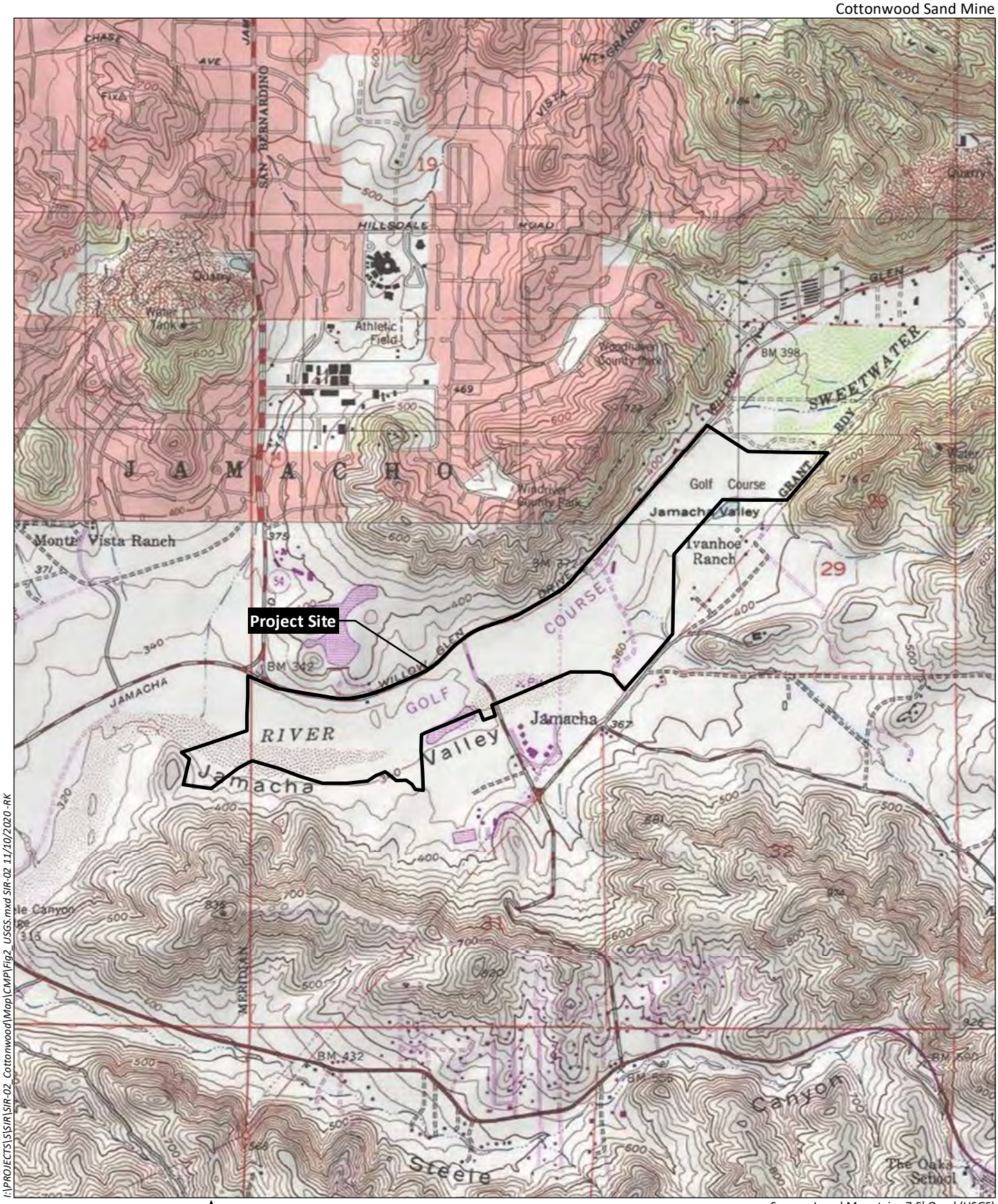
Regional Location

Figure 1



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Source: Jamul Mountains 7.5' Quad (USGS)

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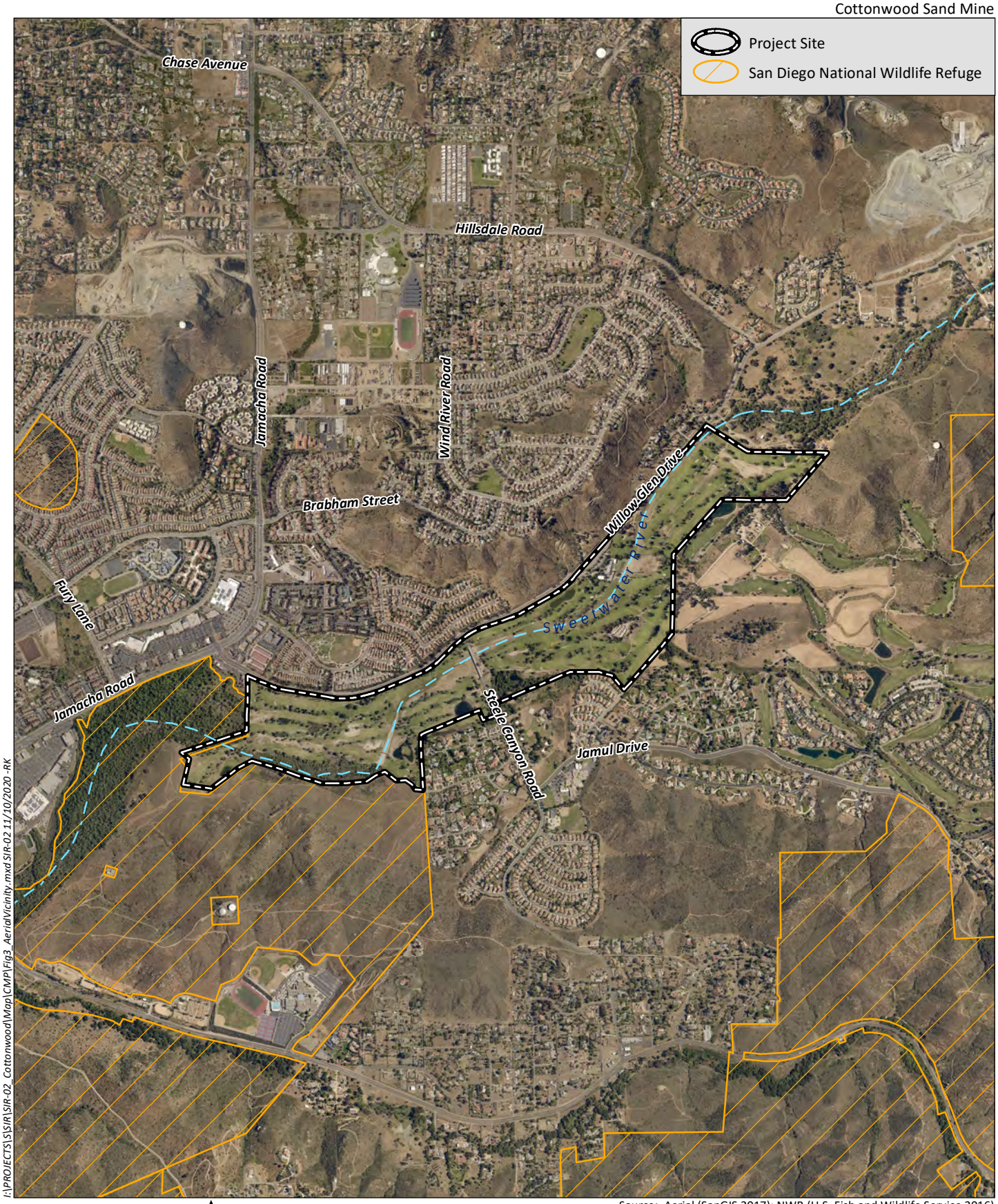
USGS Topography

Figure 2



Source: Aerial (SanGIS 2017); NWR (U.S. Fish and Wildlife Service 2016)

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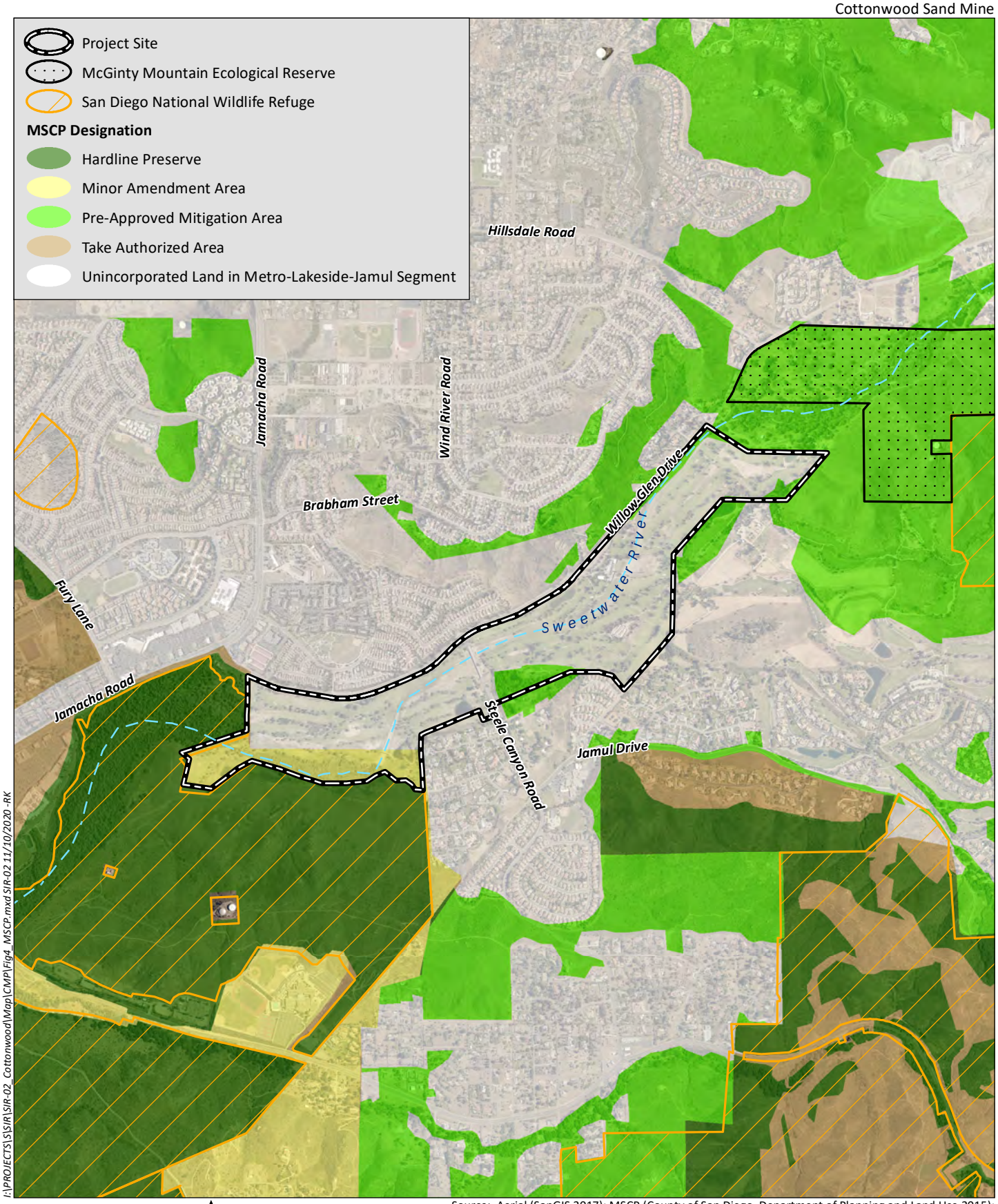
Aerial Vicinity

Figure 3



Source: Aerial (SanGIS 2017); MSCP (County of San Diego, Department of Planning and Land Use 2015); NWR (U.S. Fish and Wildlife Service 2016); Ecological Reserves (CDFW 2013)

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MSCP Designations

Figure 4

- Project Site
- Major Use Permit Boundary
- Phase 1
- Phase 2
- Phase 3
- Phase 4/Proccessing Plant
- Easements and Rights-of-way
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)

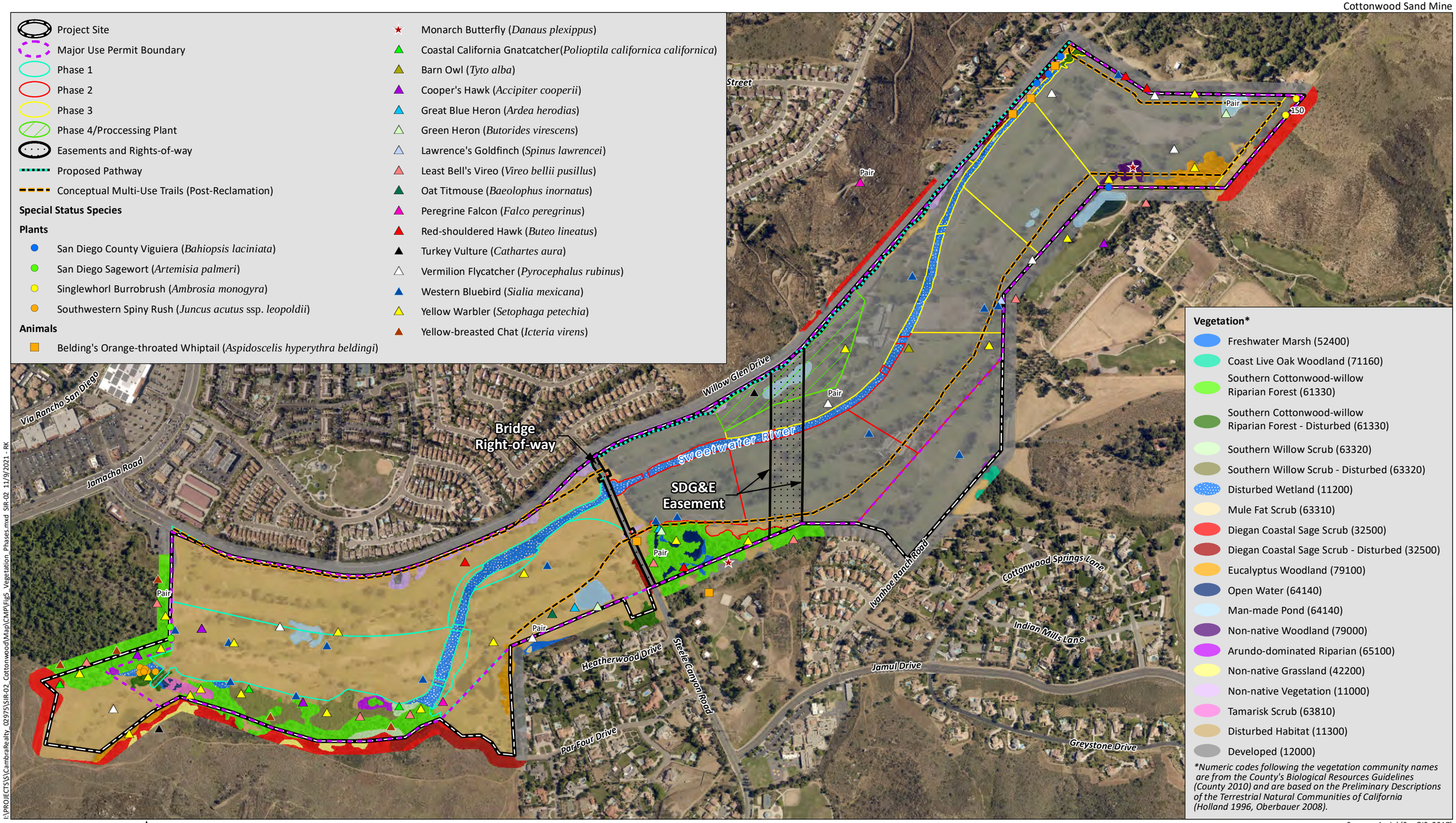
Special Status Species

Plants

- San Diego County Viguiera (*Bahiopsis laciniata*)
- San Diego Sagewort (*Artemisia palmeri*)
- Singlewhorl Burrobrush (*Ambrosia monogyra*)
- Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*)

Animals

- Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)
- Monarch Butterfly (*Danaus plexippus*)
- Coastal California Gnatcatcher(*Polioptila californica californica*)
- Barn Owl (*Tyto alba*)
- Cooper's Hawk (*Accipiter cooperii*)
- Great Blue Heron (*Ardea herodias*)
- Green Heron (*Butorides virescens*)
- Lawrence's Goldfinch (*Spinus lawrencei*)
- Least Bell's Vireo (*Vireo bellii pusillus*)
- Oat Titmouse (*Baeolophus inornatus*)
- Peregrine Falcon (*Falco peregrinus*)
- Red-shouldered Hawk (*Buteo lineatus*)
- Turkey Vulture (*Cathartes aura*)
- Vermilion Flycatcher (*Pyrocephalus rubinus*)
- Western Bluebird (*Sialia mexicana*)
- Yellow Warbler (*Setophaga petechia*)
- Yellow-breasted Chat (*Icteria virens*)



Vegetation*

- Freshwater Marsh (52400)
- Coast Live Oak Woodland (71160)
- Southern Cottonwood-willow Riparian Forest (61330)
- Southern Cottonwood-willow Riparian Forest - Disturbed (61330)
- Southern Willow Scrub (63320)
- Southern Willow Scrub - Disturbed (63320)
- Disturbed Wetland (11200)
- Mule Fat Scrub (63310)
- Diegan Coastal Sage Scrub (32500)
- Diegan Coastal Sage Scrub - Disturbed (32500)
- Eucalyptus Woodland (79100)
- Open Water (64140)
- Man-made Pond (64140)
- Non-native Woodland (79000)
- Arundo-dominated Riparian (65100)
- Non-native Grassland (42200)
- Non-native Vegetation (11000)
- Tamarisk Scrub (63810)
- Disturbed Habitat (11300)
- Developed (12000)

**Numeric codes following the vegetation community names are from the County's Biological Resources Guidelines (County 2010) and are based on the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1996, Oberbauer 2008).*

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0 700 Feet

N

Source: Aerial (SanGIS, 2017)

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Mining Phases/Vegetation Communities and Sensitive Resources

Figure 5

through the removal of invasive species. The existing Sweetwater River channel, and the majority of native habitat that currently exists on the site, would be retained.

The project would be mined in three incremental, and partially overlapping phases, with three to four sub-phases in each major phase. Reclamation would begin after the first sub-phase of mining is complete, and also be conducted on a continuous basis following the completion of each mining sub-phase. Pre-mining activities proposed prior to the initiation of Phase 1 include the restriping of Willow Glen Drive from Steele Canyon Road to the project ingress driveway to provide Class II buffered bike lanes on both sides of the roadway, improvements to the access point from Willow Glen Drive to the Phase 1 excavation area, and installation of screening landscaping and a pedestrian pathway. To facilitate the deceleration of right-turning vehicles into the project ingress driveway, a dedicated right-turn lane would be constructed, which would serve as the primary access for mining operations, material sales, employees, and vendors. Additionally, a pedestrian pathway would be provided along the northern project frontage/Willow Glen Drive east of Steele Canyon Road to provide pedestrian access within the project vicinity where there are no existing sidewalks. Phase 1 would begin with the placement of the processing plant and the conveyor line from the plant to the western portion of the property where excavation would begin. Processing facilities would be located near the center of the project area, adjacent to Willow Glen Drive and west of the existing golf course parking lot. The plant site would consist of the aggregate processing and washing facilities, three settling ponds, a loadout area, and support structures and buildings (e.g., scale, kiosk, and office trailer). A portable conveyor line would be installed to minimize the use of on-site roads to transport excavated materials from the excavation area to the processing plant.

Mining operations would commence in the western portion of the site as part of Phase 1 and proceed east as subsequent phases are initiated: Phase 1 would be located within the area currently occupied by the closed Lakes Course to the west of Steele Canyon Road; Phase 2 would be located in the center of the site, east of Steele Canyon Road, on the currently operating Ivanhoe Course; Phase 3 would be located to the east of Phase 2. Existing vegetation and infrastructure within the golf courses would be incrementally removed as mining operations proceed, with approximately 20 to 30 acres subject to mining at any one time. Each phase would include three to four sub-phases that are less than 30 acres each and would begin reclamation as soon as possible following the completion of extraction activities. Excavation in each sub-phase would be completed before moving the conveyor and excavation equipment to the next sub-phase, and reclamation would begin in the completed sub-phase. Upon approval of the project, the Ivanhoe Course would be closed. The existing golf clubhouse would be demolished near the end of Phase 2 mining. As each phase of mining is completed final contours would be established via grading, all final clean up would be conducted and equipment removed, and the mined area would be reclaimed and revegetated. Following completion of Phase 3 mining, the processing plant would be removed as part of a final Phase 4 consisting of final clean-up and equipment removal from the project site.

Prior to initiating work in a sub-phase, existing vegetation will be cleared, topsoil will be salvaged, and an approximately five-foot-high berm will be installed on either side of the existing low-flow channel to both protect the channel and contain stream flows. To maintain living soil microorganisms, topsoil will be stored on-site in windrows not more than three feet tall, in an area cleared of existing vegetation. The maximum excavation depth is proposed to be 40 feet below the existing land surface, with the average depth of excavation outside the main Sweetwater River channel expected to be approximately 20 feet below the existing land surface. Excavation would not occur within the bottom of the existing low-flow channel in order to retain existing hydrologic characteristics. Up to three temporary channel

crossings would be utilized to transport heavy equipment across the low-flow channel during mining operations. Channel crossings would only be used when there is no water flow in the channel. An operating procedure would be established to maintain communication with Sweetwater Authority prior to, and during, water transfers to ensure channel crossings during water flows are avoided. As soon as excavation within a sub-phase is completed, the conveyor and excavation equipment would be moved to the next sub-phase, and reclamation of the completed sub-phase would begin.

The project proposes to restripe Willow Glen Drive between Steele Canyon Road and the project ingress driveway to provide Class II buffered bike lanes on both sides of the roadway per the County Roadway Standards and the General Plan Mobility Element roadway classification. To facilitate the deceleration of right-turning vehicles into the Project ingress driveway, a dedicated right-turn lane would also be constructed, which would serve as the primary access for mining operations, material sales, employees, and vendors. A new egress point would be established in the approximate center of the existing parking lot. The project also proposes to construct a two-way left-turn lane between the ingress and egress driveways, which would serve as a refuge lane for trucks to complete their outbound maneuver. A pedestrian pathway would be provided along the northern Project frontage/Willow Glen Drive east of Steele Canyon Road to provide pedestrian access within the Project vicinity where there are no existing sidewalks. In addition, a new access point to the property from Willow Glen Drive west of the Steele Canyon Road (Phase 1 area) would be necessary as the clearance height of the bridge that crosses the Sweetwater River on Steele Canyon Road would not allow most large trucks used by service vendors to pass beneath the bridge. Additional access points are proposed to be constructed at the intersection of Willow Glen Drive and Muirfield Drive. The new driveway would be restricted to servicing the mining operations.

The site would be progressively reclaimed following the completion of extraction activities within each subphase area in accordance with the mining and reclamation plan (EnviroMINE 2021). Reclamation would include: (1) removal of all artificial structures; (2) backfilling and grading to achieve final landforms; (3) incorporation of accumulated wash fines and salvaged topsoil (as applicable); (4) establishment of graded pads that would be hydroseeded with an erosion control mix; (5) revegetation of the expanded Sweetwater River floodplain and constructed cut slopes using appropriate native vegetation; and (6) weed control and monitoring of the revegetation areas for a period of five years. Reclamation would be an ongoing process that immediately commences where mining operations have ceased within a given sub-phase area and continues until all mining-related disturbance is reclaimed.

Post-reclamation, the final landform of the overall mining area is proposed to be a relatively flat plain that gently slopes downward from east to west, with an expanded floodplain bisecting the length of the site and graded pads located above the new floodplain. The expanded floodplain is expected to average approximately 250 to 300 feet in width. The existing low-flow channel shall generally be retained in place; this channel is expected to accommodate annual water transfers from Loveland Reservoir to Sweetwater Reservoir that are controlled by the Sweetwater Authority. Reclaimed areas would be restored to an end-use of native vegetation within a widened floodplain, recreational trails, and land suitable for uses allowed by the Open Space land use designation and existing zoning classifications. Maintenance and monitoring of the restored and revegetated native habitat areas would continue until final performance standards are met in all revegetation areas. Following revegetation completion, nearly 52 percent of the project site (142.8 acres) will be preserved in a biological open space (BOS) easement, which will protect these lands in perpetuity, and will restrict future uses to protect their biological value.

2.3.1 Current Environmental Setting and Site Conditions

The project site is generally located within the Sweetwater River Valley ecoregion of southeast San Diego County. It occurs within the boundaries of the Rancho San Diego Specific Plan Area of the Valle de Oro Community Planning Area. Generalized climate in the region is regarded as dry, sub-humid mesothermal, with warm dry summers and cold moist winters. Mean annual precipitation is between 14 and 18 inches, and the mean annual temperature is between 60- and 62-degrees Fahrenheit. The frost-free season is 260 to 300 days.

Approximately 243.6 acres (88 percent) of the site is currently occupied by a public golf course, or is otherwise disturbed by past land uses, including 0.8 acre of non-native woodland, 3.0 acres of eucalyptus woodland, 4.2 acres of non-native vegetation, 3.5 acres of man-made pond, and 232.1 acres of disturbed habitat and developed lands containing a combination of active and inactive golf course areas, in addition to a clubhouse, parking lot, maintenance facilities and other buildings, golf cart paths, and other areas of hardscape or maintained landscaping.

Undeveloped areas are concentrated along the western and eastern edges of the site and consist primarily of native upland scrub and riparian forest communities. The dominant native habitat type present on site is southern cottonwood-willow riparian forest, which covers approximately 12.97 acres (five percent) of the site. The project site occurs within both the northeastern portion of the South County Segment and the southwestern portion of the Metro-Lakeside-Jamul Segment of the adopted County MSCP Subarea Plan (County 1997). Three small areas of PAMA, totaling 16.40 acres (six percent), occur along the northeastern, southeastern, and southern project boundaries (Figure 4). Additionally, approximately 37.79 acres (14 percent) of the site at the southwestern boundary represent a Minor Amendment Area.

Prior to the 1940s, the site was used for commercial ranching and agriculture. In the 1950s, mining for construction aggregates was conducted to the south of Sweetwater River, west of Steele Canyon Road, and adjacent to Willow Glen Drive at the western end of the site. Since the 1960s, the project site has operated as a public golf course. Mineral extraction activities within the site initially occurred to the east of Steele Canyon Road and later expanded to the east side of Steele Canyon Road in the 1960s continuing into the 1970s, as both golf courses were developed and expanded. Construction of the golf course initially began in 1962 and was completed in 1964. Sand extraction activities have continued within the site throughout the years, allowing for the creation of water hazards and expanded fairways associated with golf course improvements.

Land uses in the surrounding area include residential and rural residential developments to the north and south, extractive operations to the east, and an adjacent golf course to the southeast. Open space is present in the hills south, east, and west of the site. The San Diego National Wildlife Refuge (SDNWR) abuts the western end of the site along the Sweetwater River.

2.3.2 Topography and Soils

Elevations on-site generally decrease from east to west across the site, with the lowest elevations (approximately 320 feet (ft) above mean sea level [amsl]) occurring along the southwestern boundary, and the highest elevations (approximately 380 ft amsl) along the northeastern boundary. The Sweetwater River runs through the length of the site entering at the northeastern project boundary and continuing in a mostly east-west direction to the southern boundary, where it exits the site and

continues southwest towards Sweetwater Reservoir. The Sweetwater River extends from its headwaters in the Cuyamaca Mountains (east of the site) to the Pacific Ocean, approximately 15 miles downstream of the site.

Six soil series, which comprise nine soil types, have been mapped on-site (Natural Resources Conservation Service [NRCS] 2016; Figure 6, *Soils*), with the majority classified as sandy loams. Soil types covering the most area on-site include Riverwash and those in the Tujunga series.

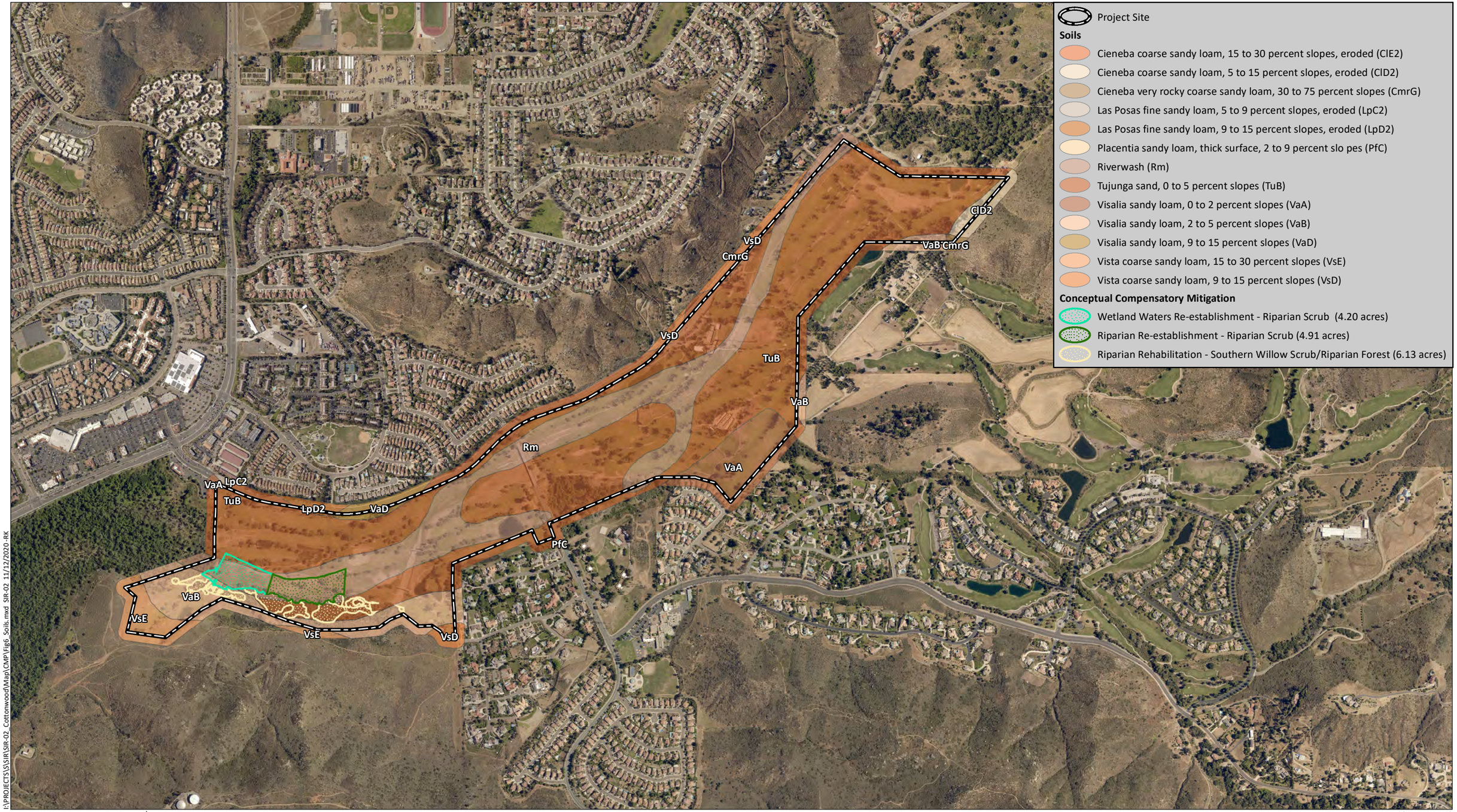
2.3.3 Vegetation Communities

Fourteen vegetation communities/land use types occur on the project site (Table 1, *Existing Vegetation Communities/Land Use Types*; Figure 7, *Vegetation and Sensitive Resources/Impacts*). The numeric codes in parentheses following each community/land use type name are from the Holland classification system (Holland 1986) and as added to by Oberbauer (2008) as presented in the County's Biology Guidelines (County 2010).

Table 1
EXISTING VEGETATION COMMUNITIES/LAND USE TYPES

Vegetation Community[1]	Acres[2]		
	Within MUP	Outside MUP	Total
Tier I[3]			
Disturbed Wetland (11200)	10.41	0	10.41
Freshwater Marsh (52400)	0.31	0	0.31
Southern Cottonwood-willow Riparian Forest (61330)	10.73	2.24	12.97
Southern Cottonwood-willow Riparian Forest - disturbed (61330)	0.86	0.13	0.99
Southern Willow Scrub (63320)	0.80	0	0.80
Southern Willow Scrub - disturbed (63320)	3.87	0	3.87
Tamarisk Scrub (63810)	0.62	0	0.62
Open Water (64140)	0.82	0	0.82
Arundo-dominated Riparian (65100)	0.47	0.07	0.54
Tier II			
Diegan Coastal Sage Scrub (32500)	0.6	0.5	1.1
Diegan Coastal Sage Scrub –disturbed (32500)	0.6	0	0.6
Tier IV			
Non-native Woodland (79000)	0.8	0	0.8
Eucalyptus Woodland (79100)	2.2	0.8	3.0
Non-native Vegetation (11000)	4.2	0	4.2
Disturbed Habitat (11300)	80.7	12.4	93.1
N/A			
Man-made Pond (64140)	3.5	0	3.5
Developed Land (12000)	124.2	14.8	139.0
TOTAL	**245.69**	**30.94**	**276.63**

1 Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
2 Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01; thus, total reflects rounding.
3 County Subarea Habitats and Tiers within the MSCP.



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0 1,000 Feet

Source: Aerial (SanGIS 2017)

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Soils

Figure 6

- Project Site
- Major Use Permit Boundary
- Phase 1
- Phase 2
- Phase 3
- Phase 4/Proccessing Plant
- Impact Area
- Impact Neutral Area
- Roadway Improvement Impacts
- Trail Impacts
- Easements and Rights-of-way
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)

Special Status Species

Plants

- San Diego County Viguiera (*Bahiopsis laciniata*)
- San Diego Sagewort (*Artemisia palmeri*)
- Singlewhorl Burrobrush (*Ambrosia monogyra*)
- Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*)

Animals

- Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)
- Monarch Butterfly (*Danaus plexippus*)
- Coastal California Gnatcatcher(*Polioptila californica californica*)
- Barn Owl (*Tyto alba*)
- Cooper's Hawk (*Accipiter cooperii*)
- Great Blue Heron (*Ardea herodias*)
- Green Heron (*Butorides virescens*)
- Lawrence's Goldfinch (*Spinus lawrencei*)
- Least Bell's Vireo (*Vireo bellii pusillus*)
- Oat Titmouse (*Baeolophus inornatus*)
- Peregrine Falcon (*Falco peregrinus*)
- Red-shouldered Hawk (*Buteo lineatus*)
- Turkey Vulture (*Cathartes aura*)
- Vermilion Flycatcher (*Pyrocephalus rubinus*)
- Western Bluebird (*Sialia mexicana*)
- Yellow Warbler (*Setophaga petechia*)
- Yellow-breasted Chat (*Icteria virens*)

Trail Impacts
Sonett Street
Pair
150
3a
3b
3c
3d
2c
Willow Glen Drive
Bridge
Right-of-way
2a
Sweetwater River
2b
SDG&E
Easement
Trail Impacts
Jamacha Road
Trail Impacts
Trail Impacts
1a-1
1a
1c
1b
Pair
Heatherwood Drive
Steele Canyon Road
Par Four Drive
Ivanhoe Ranch Road
Cottonwood Springs Lane
Indian Mills Lane
Jamul Drive
Greystone Drive

Vegetation*

- Freshwater Marsh (52400)
- Coast Live Oak Woodland (71160)
- Southern Cottonwood-willow Riparian Forest (61330)
- Southern Cottonwood-willow Riparian Forest - Disturbed (61330)
- Southern Willow Scrub (63320)
- Southern Willow Scrub - Disturbed (63320)
- Disturbed Wetland (11200)
- Mule Fat Scrub (63310)
- Diegan Coastal Sage Scrub (32500)
- Diegan Coastal Sage Scrub - Disturbed (32500)
- Eucalyptus Woodland (79100)
- Open Water (64140)
- Man-made Pond (64140)
- Non-native Woodland (79000)
- Arundo-dominated Riparian (65100)
- Non-native Grassland (42200)
- Non-native Vegetation (11000)
- Tamarisk Scrub (63810)
- Disturbed Habitat (11300)
- Developed (12000)

**Numeric codes following the vegetation community names are from the County's Biological Resources Guidelines (County 2010) and are based on the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1996, Oberbauer 2008).*

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Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation and Sensitive Resources/Impacts

Figure 7

Sensitive vegetation communities/habitat types mapped on the project site include disturbed wetland, freshwater marsh, southern cottonwood-willow riparian forest (including disturbed), southern willow scrub (including disturbed), tamarisk scrub, open water, arundo-dominated riparian, and Diegan coastal sage scrub (including disturbed). Non-native woodland, eucalyptus woodland, non-native vegetation, disturbed habitat, man-made pond, and developed lands do not meet the definition of sensitive habitat under the County's Biology Guidelines (County 2010).

2.3.1 Flora

A total of 151 plant species were identified within the project site, of which 69 (46 percent) are native species, and 82 (54 percent) are non-native species (HELIX 2021b).

2.3.2 Wildlife

A total of 97 animal species were observed or otherwise detected on the project site during recent biological surveys, including 11 invertebrate, four amphibian, four reptile, 74 bird, and four mammal species (HELIX 2021b).

2.3.3 Special Status Species

No federal- or state-listed plant species were observed within the project site during recent surveys (HELIX 2021b); however, four species with other special status were observed: singlewhorl burrobrush (*Ambrosia monogyra*), San Diego sagewort (*Artemisia palmeri*), San Diego County viguiera (*Bahiopsis laciniata*), and southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*). Additionally, although not found on-site, U.S. Fish and Wildlife Service (USFWS) critical habitat for the federally endangered San Diego ambrosia (*Ambrosia pumila*) is present in the southwestern portion of the site (Figure 8, *Critical Habitat*).

Two federal- and/or state-listed wildlife species were observed within the project site during recent surveys (HELIX 2021b): coastal California gnatcatcher (*Polioptila californica californica*) and least Bell's vireo (*Vireo bellii pusillus*). An additional 15 other special status animal species were observed or detected on or directly adjacent to the project site: barn owl (*Tyto alba*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), Cooper's hawk (*Accipiter cooperii*), great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), Lawrence's goldfinch (*Spinus lawrencei*), Monarch butterfly (*Danaus plexippus*), oak titmouse (*Baeolophus inornatus*), peregrine falcon (*Falco peregrinus*), red-shouldered hawk (*Buteo lineatus*), turkey vulture (*Cathartes aura*), vermilion flycatcher (*Pyrocephalus rubinus*), western bluebird (*Sialia mexicana*), yellow-breasted chat (*Icteria virens*), and yellow warbler (*Setophaga petechia*). Additionally, USFWS critical habitat for the coastal California gnatcatcher and least Bell's vireo occur in the southwestern portion of the site, and critical habitat for the southwestern willow flycatcher is present immediately adjacent to the site (Figure 8).

2.3.4 Project Impacts and Required Mitigation

A summary of project impacts to biological resources and required mitigation is provided in the Biological Resources Technical Report (BTR; HELIX 2021b). This Conceptual Wetland Mitigation Plan only addresses mitigation for impacts to County sensitive riparian habitat and RPO wetlands and USACE, RWQCB, and CDFW jurisdictional areas. These impacts and mitigation are summarized below. Additionally, and as required by the County's Report Format and Content Requirements for

Revegetation Plans (County 2007), relevant sections of the BTR (i.e., mitigation requirements and habitat being impacted) will be included as an appendix to the Final Wetland Mitigation Plan.

The project would result in impacts to a total of 1.63 acres of riparian habitat or other sensitive natural communities (Table 2, *Project Impacts to Vegetation Communities/Habitat Types*; Figure 7), including 0.5 acre of disturbed wetland, 0.32 acre of southern cottonwood-willow riparian forest, 0.01 acre of arundo-dominated riparian, and 0.8 acre of Diegan coastal sage scrub (including disturbed).

Table 2
PROJECT IMPACTS TO VEGETATION COMMUNITIES/HABITAT TYPES

Vegetation Community[2]	**On-Site Impacts** (Acres)[1]	**Off-Site Road Improvement Impacts** (Acres)[1]	**Total Impacts** (Acres)[1]
Sensitive Vegetation Communities			
Tier I[3]			
Disturbed Wetland (11200)	0.50	0	0.5
Freshwater Marsh (52400)	0	0	0
Southern Cottonwood-willow Riparian Forest – including disturbed (61330)	0.32	0	0.32
Southern Willow Scrub – including disturbed (63320)	0	0	0
Tamarisk Scrub (63810)	0	0	0
Open Water (64140)	0	0	0
Arundo-dominated Riparian (65100)	0.01	0	0.01
Tier II			
Diegan Coastal Sage Scrub – including disturbed (32500)	0.6	0.2	0.8
Subtotal Sensitive Communities	*1.43*	*0.2*	*1.63*
Non-Sensitive Vegetation Communities			
Tier IV			
Non-native Woodland (79000)	0.8	0	0.8
Eucalyptus Woodland (79100)	2.2	<0.1	2.2
Non-native Vegetation (11000)	4.0	1.7	5.7
Disturbed Habitat (11300)	76.6	0.1	76.7
N/A			
Man-made Pond (64100)	3.5	0	3.5
Developed Land (12000)	121.1	2.8	123.9
Subtotal Non-Sensitive Communities	*208.2*	*4.6*	*212.8*
TOTAL	**209.63**	**4.8**	**214.43**

[1] Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01; thus, total does not reflect rounding.
[2] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[3] County Subarea Habitats and Tiers within the MSCP.

In total, the project would impact 0.62 acre of wetland and 0.37 acre of non-wetland waters of the U.S. /State (Figure 9, *Waters of the U.S./Impacts*; Figure 10, *Waters of the State/Impacts*), 17.89 acres of riparian and streambed habitat under CDFW jurisdiction (Figure 11, *CDFW Jurisdictional Areas/Impacts*), and 0.83 acre of County RPO wetland (Figure 12, *County RPO Wetlands/Impacts*).

Cottonwood Sand Mine

Project Site

Critical Habitat

- Coastal California gnatcatcher
- Least Bell's vireo
- San Diego ambrosia
- Southwestern willow flycatcher

Sweetwater River

0 1,000 Feet

N

Source: Aerial (SanGIS 2017)

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Critical Habitat

Figure 8

- Project Site
- Impact Area
- Impact Neutral Area
- Road Widening Impacts
- Sample Point

Non-jurisdictional Features

- Man-made Pond

Non-wetland Waters of the U.S.

- Streambed

Wetland Waters of the U.S.

- Disturbed Wetland
- Freshwater Marsh
- Open Water
- Southern Cottonwood-willow Riparian Forest
- Southern Cottonwood-willow Riparian Forest - Disturbed
- Southern Willow Scrub
- Southern Willow Scrub - Disturbed
- Tamarisk Scrub

Jamacha Way
Seca Street
Sonett Street
Wind River Road
Brabham Street
Hilton Head Road
Willow Glen Drive
Via Rancho San Diego
Jamacha Road
Mexican Canyon Creek
Heatherwood Drive
Steele Canyon Road
Par Four Drive
Ivanhoe Ranch Road
Cottonwood Springs Lane
Indian Mills Lane
Jamul Drive
Greystone Drive

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0 700 Feet

Source: Aerial (SanGIS, 2017)

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HELIX Environmental Planning

Waters of the U.S./Impacts

Figure 9

Cottonwood Sand Mine

- Project Site
- Impact Area
- Impact Neutral Area
- Road Widening Impacts
- Sample Point

Non-jurisdictional Features

- Man-made Pond

Non-wetland Waters of the State

- Streambed

Wetland Waters of the State

- Disturbed Wetland
- Freshwater Marsh
- Open Water
- Southern Cottonwood-willow Riparian Forest
- Southern Cottonwood-willow Riparian Forest - Disturbed
- Southern Willow Scrub
- Southern Willow Scrub - Disturbed
- Tamarisk Scrub

Jamacha Way
Seca Street
Sonett Street
Wind River Road
Brabham Street
Hilton Head Road
Willow Glen Drive
Via Rancho San Diego
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Mexican Canyon Creek
Heatherwood Drive
Steele Canyon Road
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0 700 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the State/Impacts

Figure 10

Cottonwood Sand Mine

- Project Site
- Impact Area
- Impact Neutral Area
- Road Widening Impacts
- Sample Point

Non-jurisdictional Features

- Man-made Pond

CDFW Jurisdictional Areas

- Arundo-dominated Riparian
- Disturbed Wetland
- Freshwater Marsh
- Open Water
- Southern Cottonwood-willow Riparian Forest
- Southern Cottonwood-willow Riparian Forest - Disturbed
- Southern Willow Scrub
- Southern Willow Scrub - Disturbed
- Streambed
- Tamarisk Scrub

Jamacha Way
Seca Street
Sonett Street
Wind River Road
Brabham Street
Hilton Head Road
Via Rancho San Diego
Jamacha Road
Willow Glen Drive
Mexican Canal
Ivanhoe Ranch Road
Cottonwood Springs Lane
Indian Mills Lane
Jamul Drive
Greystone Drive
Steele Canyon Road
Heatherwood Drive
Par Four Drive

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Source: Aerial (SanGIS, 2017)

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HELIX Environmental Planning

CDFW Jurisdictional Areas/Impacts

Figure 11

Cottonwood Sand Mine

- Project Site
- Impact Area
- Impact Neutral Area
- Road Widening Impacts
- Sample Point

Non-jurisdictional Features

- Man-made Pond

County RPO Wetlands

- Arundo-dominated Riparian
- Disturbed Wetland
- Freshwater Marsh
- Open Water
- Southern Cottonwood-willow Riparian Forest
- Southern Cottonwood-willow Riparian Forest - Disturbed
- Southern Willow Scrub
- Southern Willow Scrub - Disturbed
- Tamarisk Scrub

Jamacha Way
Seca Street
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Source: Aerial (SanGIS, 2017)

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HELIX Environmental Planning

County RPO Wetlands/Impacts

Figure 12

A summary of project impacts to jurisdictional wetlands and waterways is provide in Table 3, *Impacts to Jurisdictional Wetlands and Waterways*.

Table 3
IMPACTS TO JURISDICTIONAL WETLANDS AND WATERWAYS (acre[s])[1]

Habitat	USACE	RWQCB	CDFW	County RPO
Wetland Waters of the U.S./State; CDFW Riparian Habitat				
Disturbed Wetland	0.5	0.5	0.5	0.5
Southern Cottonwood-Willow Riparian Forest	0.12	0.12	0.32	0.32
Subtotal	*0.62*	*0.62*	*0.83*	*0.83*
Non-wetland Waters of the U.S./State; CDFW Streambed				
Streambed	0.37	0.37	17.06	0
TOTAL	**0.99**	**0.99**	**17.89**	**0.83**

[1] Areas are presented in acre(s) rounded to the nearest 0.01

Mitigation for impacts to wetlands and waterways shall occur as specified in the BTR for the project (HELIX 2021b), or as otherwise stipulated in the future CWA Section 404 and 401 permit conditions and CDFW Streambed Alteration, that will be obtained for the project prior to impacts to jurisdictional waters and wetlands.

The proposed project is exempt from County RPO requirements pursuant to Section 86.605(d) of the RPO (County 2011). However, the project must implement the following mitigation measures contained in Section 86.605(d) of the RPO as conditions of the project's Major Use Permit:

- Any wetland buffer area shall be restored to protect environmental values of adjacent wetlands;
- In a floodplain, any net gain in functional wetlands and riparian habitat shall result in or adjacent to the area of extraction;
- Native vegetation shall be used on steep slope lands to revegetate and landscape cut and fill areas in order to substantially restore the original habitat value, and slopes shall be graded to produce contours and soils which reflect a natural landform, which is consistent with the surrounding area; and
- Mature riparian woodland may not be destroyed or reduced in size due to sand, gravel, or mineral extraction.

Currently, wetland buffer areas within the project site consist of patches of existing riparian habitat and extensive areas of golf course development bordering the Sweetwater River. To meet the requirements of the RPO, wetland buffer areas disturbed by mining will be restored via a combination of re-establishment of wetland waters as addressed in this plan and native habitat revegetation addressed in the Conceptual Revegetation Plan (HELIX 2021a; Figure 13, *Conceptual Compensatory Mitigation and Reclamation Revegetation Areas*).

The proposed project would involve the widening of the Sweetwater River floodplain by lowering existing upland elevations to a final height of four feet above the existing Sweetwater River low-flow channel. The expanded floodplain will be revegetated with riparian habitat resulting in a net gain of functional wetlands and riparian habitat. Cut slopes constructed along the margins of the expanded floodplain will be revegetated with native upland habitat (i.e., Diegan coastal sage scrub) improving upon the current site conditions and resulting in a biologically superior condition.

Existing RPO wetlands within the project site shall be preserved in place, and their existing environmental values shall be enhanced through the rehabilitation of existing riparian habitat, as detailed in this plan. All riparian re-establishment and rehabilitation addressed in this plan, combined with the native habitat revegetation addressed in the Conceptual Revegetation Plan (HELIX 2021a), shall be preserved within a biological open space easement and managed in perpetuity in accordance with the Conceptual Resource Management Plan (HELIX 2021c).

Mitigation measures presented in the BTR (HELIX 2021b) for impacts to sensitive wetland and riparian habitat and jurisdictional waters and wetlands are summarized below.

BIO-8 Mitigation for impacts to 0.32 acre of southern cottonwood-willow riparian forest, 0.01 acre of arundo-dominated riparian, and 0.50 acre of disturbed wetland shall occur at a 3:1 ratio with at least 1:1 creation (establishment/re-establishment) for a total mitigation requirement of 0.96 acre. Mitigation shall occur through on-site preservation of 15.01 acres of wetland and riparian habitat, on-site rehabilitation of 6.13 acres of riparian habitat, and on-site re-establishment and revegetation of 107.93 acres of riparian habitat for a total of 129.07 acres of wetland riparian habitat to be preserved within the biological open space easement.

BIO-14 Impacts to 0.62 acre of U.S. Army Corps of Engineers (USACE) wetland waters of the U.S. shall be mitigated a minimum 3:1 ratio and 0.37 acre of USACE non-wetland waters of the U.S. shall be mitigated at a minimum 1:1 ratio through one or a combination of the following: on- and/or off-site establishment, re-establishment, rehabilitation, and/or enhancement of 2.23 acres waters of the U.S.; and/or off-site purchase of waters of the U.S. credits at an approved mitigation bank, or other location deemed acceptable by the USACE. Any mitigation completed through the purchase of mitigation credits shall be provided prior to issuance of a grading permit, and prior to use of the premises in reliance of this permit. Any applicant-initiated mitigation must be implemented prior to or concurrent with impacts to waters of the U.S. Impacts to waters of the U.S. would require the issuance of a Section 404 CWA permit from the USACE prior to impacts.

BIO-15 Impacts to 0.83 acre of California Department of Fish and Wildlife (CDFW) jurisdictional riparian habitat (0.32 acre of southern cottonwood-willow riparian forest, 0.01 acre of arundo-dominated riparian, and 0.50 acre of disturbed wetland) shall be mitigated at a 3:1 ratio, totaling 2.49 acres of riparian habitat mitigation. Impacts to 17.06 acres of CDFW streambed shall be mitigated at a minimum 1:1 ratio through one or a combination of the following: on- and/or off-site establishment, re-establishment, rehabilitation, and/or enhancement of 17.06 acres of riparian and/or stream habitat; and/or off-site purchase of riparian and/or stream credits at an approved mitigation bank, or other location deemed acceptable by the CDFW. Combined mitigation for CDFW riparian habitat and streambed totals 19.55 acres. Any mitigation completed through the purchase of mitigation credits shall be provided prior to the approval of any plan, issuance of any permit, and prior to occupancy or use of the premises in reliance of this permit. Any applicant-initiated mitigation must be implemented prior to or concurrent with impacts to CDFW habitat. Impacts to CDFW jurisdictional habitat would require the issuance of a CFG Code Section 1602 Streambed Authorization Agreement from the CDFW prior to impacts.

Table 4, *Impacts and Required Mitigation Summary*, provides a summary of project impacts to riparian habitat and jurisdictional waters and wetlands, as well as all required mitigation associated with these

impacts. The applicable conditions of the Resolution of Approval will be attached to the Final Wetland Mitigation Plan submitted after discretionary approval and prior to issuance of any permit, and prior to occupancy or use of the premises in reliance of this permit.

Table 4
IMPACTS AND REQUIRED MITIGATION SUMMARY[1]

Habitat	Impacts	Required Mitigation			
		Ratio	Establishment	Establishment, Re-establishment, Rehabilitation, and/or Enhancement	Total
USACE/RWQCB Jurisdiction					
Wetland Waters of the U.S./State					
Disturbed Wetland	0.5	3:1	0.50	1.00	1.50
Southern Cottonwood-Willow Riparian Forest	0.12	3:1	0.12	0.24	0.36
Subtotal	*0.62*	--	*0.62*	*1.24*	*1.86*
Non-Wetland Waters of the U.S./State					
Streambed	0.37	1:1	0.37	--	0.37
USACE/RWQCB TOTAL	**0.99**	**--**	**0.99**	**1.24**	**2.23**
CDFW Riparian Habitat and Streambed					
Riparian Habitat					
Disturbed Wetland	0.50	3:1	--	1.50	1.50
Southern Cottonwood-Willow Riparian Forest	0.32	3:1	--	0.96	0.96
Arundo-Dominated Riparian	0.01	3:1	--	0.03	0.03
Subtotal	*0.83*	--	--	*2.49*	*2.49*
Streambed	17.06	1:1	--	17.06	17.06
CDFW TOTAL	**17.89**	**--**	**-**	**19.55**	**19.55**
County RPO Wetlands					
Disturbed Wetland	0.50	3:1	0.50	1.00	**1.50**
Southern Cottonwood-Willow Riparian Forest	0.32	3:1	0.32	0.64	**0.96**
Arundo-Dominated Riparian	0.01	3:1	0.01	0.02	**0.03**
COUNTY RPO WETLANDS TOTAL	**0.83**	**--**	**0.83**	**1.66**	**2.49**

[1] Rounded to the nearest 0.01 acre; totals do not reflect rounding.

3.0 GOALS OF COMPENSATORY MITIGATION

The goal of this Conceptual Wetland Mitigation Plan is to replace and improve functions and services associated with the disturbance and loss of wetland habitat as a result of the proposed project.

3.1 RESPONSIBILITIES

3.1.1 Project Proponent

New West Investment, Inc. (or its successor in interest, in the event a sale of the property takes place) will be responsible for financing the installation, maintenance, and monitoring of the proposed on-site wetland mitigation effort. Ultimately, the on-site wetland mitigation area, together with all biological open space designated on-site, may be transferred in fee title (subject to County approval) to a public or private entity specializing in the long-term management of open space. If such a transfer were to occur

prior to County or Resource Agency (i.e., USACE, RWQCB, and CDFW) sign-off of the on-site wetland mitigation effort, this entity would become responsible for the maintenance program described herein.

3.1.2 County of San Diego

As part of the monitoring program, annual reports prepared by the Restoration Specialist will be submitted to the County, CDFW, USACE, and RWQCB. The County and Resource Agencies will review these reports for completeness and will determine the success of the mitigation effort as it pertains to their specific requirements.

3.1.3 Compensatory Mitigation Project Designer

The Final Wetland Mitigation Plans (i.e., re-establishment and rehabilitation construction drawings) will consist of construction drawings, including irrigation and planting plans, prepared by a California registered landscape architect. These plans will meet the requirements set forth in the County's Report Format and Content Requirements for Revegetation Plans Section 2.11 (County 2007). The landscape architect will inspect the irrigation system prior to seeding and planting, as needed, to help ensure proper installation and complete coverage of the wetland mitigation area while minimizing runoff into the adjacent habitat.

3.1.4 Grading Contractor

Following the completion of all mining activities in each mining subphase, the grading contractor will establish final grades and install salvaged topsoil per the Final Revegetation Plans (grading plans). This contractor will have at least five years of experience in successful mine reclamation grading. Final grading and topsoil application will be coordinated with the Restoration Specialist.

3.1.5 Installation Contractor

The installation contractor will have at least five years of experience in successful native wetland habitat restoration in Southern California and be under the direction of the Restoration Specialist, who will assist the contractor with the installation of the target vegetation type. Different contractors may be used for the installation and maintenance phases of the wetland mitigation effort, or they may be the same entity. The project proponent may change contractors at its discretion, as long as the contractor has the required level of experience, as stated above. Installation may include, but is not limited to, ordering plantings and seed, removing non-native plants and trash, mulching dead trees, installing irrigation lines, container plants and seed, and all maintenance of the mitigation area during the 120-day plant establishment period.

3.1.6 Restoration Specialist

Overall supervision of the installation, maintenance, and monitoring of the on-site wetland mitigation effort will be the responsibility of a qualified Restoration Specialist with at least five years of experience with successful native wetland habitat restoration in Southern California. The Restoration Specialist will oversee the efforts of the installation and maintenance contractor(s) for the duration of the mitigation effort. Specific tasks of the Restoration Specialist include educating all participants with regard to wetland waters re-establishment and riparian rehabilitation goals and requirements, as well as directly overseeing final grading, topsoil application, weeding, planting, and seeding, as well as maintenance

activities for the duration of the five-year maintenance period. The Restoration Specialist will explain to the contractor how to avoid impacts to existing sensitive habitat and sensitive species. When necessary to keep the mitigation effort on track to meeting final success criteria, the Restoration Specialist will provide the project proponent and contractor with a written monitoring memorandum, including a list of items in need of attention. The Restoration Specialist also will conduct annual assessments of the mitigation effort and prepare and submit an annual report to the County and Resource Agencies each year during the five-year maintenance and monitoring period.

3.1.7 Maintenance Contractor

The maintenance contractor will have at least five years of experience in successful native wetland habitat restoration in Southern California and be under the direction of the Restoration Specialist, who will assist the contractor with the maintenance of the target vegetation type. Different contractors may be used for the installation and maintenance phases of the mitigation effort, or they may be the same entity. The project proponent may change contractors at its discretion, as long as the contractor has the required level of experience, as stated above. The contractor will service the entire mitigation area as required, meet the Restoration Specialist at the site when requested, and perform all checklist items in a timely manner as directed by the project proponent. The maintenance contractor will be knowledgeable regarding the maintenance of native habitat and the difference between native and non-native plants. Maintenance would include but not be limited to removal of non-native vegetation and trash, irrigation adjustments and repairs, and potentially re-seeding and/or re-planting. All maintenance activities would be seasonally appropriate and approved by the Restoration Specialist.

3.1.8 Nursery (Seed/Plant Procurement)

Plants and seed may be purchased from a nursery or supplier specializing in native plants or contract grown. Plant and seed material should be locally propagated and collected from central San Diego County, within 25 miles of the site. Plant/seed orders should be placed by the installation contractor at least six months prior to installation.

3.2 TYPES AND AREAS OF HABITAT TO BE ESTABLISHED

To meet the mitigation requirements, wetland water re-establishment, riparian rehabilitation, and riparian preservation are proposed. A total of 1.00 acre of wetland waters will be re-established within the downstream portion of the expanded Sweetwater River floodplain as part of the on-site wetland mitigation effort (Table 5, *Compensatory Mitigation Target Habitats*; Figure 13, *Conceptual Compensatory Mitigation and Reclamation Revegetation*). A total of 6.13 acres of existing riparian habitat in the downstream portion of Sweetwater River will be rehabilitated through non-native species removal, weed control, and installation of native seed and container plants. In addition to wetland waters re-establishment and riparian rehabilitation, 15.01 acres of existing wetland and riparian habitat will be preserved within the project's biological open space.

Table 5
COMPENSATORY MITIGATION TARGET HABITATS (acre[s])[1]

Jurisdictional Resource	Provided Mitigation			
	Establishment	Rehabilitation	Preservation	Total
Freshwater Marsh	-	-	0.31	0.31
Open Water	-	-	0.82	0.82
Riparian Scrub	-	6.13	-	6.13
Riparian Forest	1.00	-	-	1.00
Southern Willow Scrub	-	-	1.05	1.05
Southern Cottonwood-Riparian Forest	-	-	12.83	12.83
TOTAL	**1.00**	**6.13**	**15.01**	**22.14**

[1] Areas are presented in acre(s) rounded to the nearest 0.01.

3.3 FUNCTIONS AND VALUES

The goal of the proposed mitigation effort is to re-establish wetland waters and rehabilitate native riparian habitat with the same or greater functions and values (e.g., habitat for wildlife) as the impacted jurisdictional waters and riparian habitat and preserve additional existing native wetland and riparian habitats. Wetland waters re-establishment and riparian rehabilitation will (1) increase the value of the existing riparian corridor for native flora and fauna; (2) improve areas mapped as USFWS critical habitat for San Diego ambrosia, least Bell's vireo, and coastal California gnatcatcher; (3) provide additional cover for wildlife movement; and (4) provide foraging and nesting habitat for riparian species known from the area, many of which are sensitive, such as least Bell's vireo, yellow warbler, and yellow-breasted chat (HELIX 2021b). The wetland waters re-establishment and riparian rehabilitation, in addition to the preservation of existing native wetland and riparian habitats is expected to provide functions and services typical of naturally occurring intermittent stream channels such as stream-energy dissipation to reduce erosion and improve water quality, groundwater recharge, sediment transport, water purification, and foraging, breeding, live-in, and dispersal habitat for wildlife. At the end of five years of maintenance and monitoring, the established wetland waters and rehabilitated riparian habitat is expected to replace the habitat functions and values disturbed and/or lost from project implementation, and to continue on the trajectory toward developing functions and values of adjacent native streambed and riparian habitat without further active management.

3.4 TIME LAPSE

Compensatory mitigation for impacts to riparian habitat, other sensitive vegetation communities, and jurisdictional waters and wetlands will occur prior to or concurrent with initiation of project grading for Phase 1 (Table 6, *Compensatory Mitigation and Reclamation Revegetation Phasing*). Preservation of existing native riparian habitat and riparian habitat rehabilitation will occur prior to or concurrent with initiation of project grading for Subphase 1A. Initiation of wetland waters re-establishment would occur prior to or during the fall of the year in which project reclamation is completed, and revegetation is initiated for Subphase 1B. Sign off of the on-site wetland mitigation effort is expected by the end of the five-year maintenance and monitoring period.

- Project Site
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- San Diego National Wildlife Refuge
- Biological Open Space (142.82 acres)
- Easements and Rights-of-way
- Limited Building Zone Easement
- Grouted Rip-rap (1.74 acres)

Conceptual Reclamation Revegetation

- Streambed (9.92 acres)
- Riparian Revegetation - Riparian Scrub (85.08 acres)
- Riparian Revegetation - Riparian Forest (14.51 acres)
- Upland Revegetation - Coastal Sage Scrub (11.91 acres)

Conceptual Compensatory Mitigation

- Wetland Waters Re-establishment - Riparian Forest (1.00 acres)
- Riparian Rehabilitation - Riparian Scrub (6.13 acres)
- Riparian Preservation- Freshwater Marsh (0.31 acres)
- Riparian Preservation- Open Water (0.82 acres)
- Riparian Preservation- Southern Cottonwood-willow Riparian Forest (12.83 acres)
- Riparian Preservation- Southern Willow Scrub (1.05 acres)
- Upland Preservation- Coastal Sage Scrub (0.72 acres)

Bridge Right-of-way

SDG&E Towers

Seca St
Sonett St
Aspen Ln
Marlyn Pl
Wind River Rd
Sweetwater River
Mexican Canyon Creek
Ivanhoe Ranch Rd
Hilton Head Rd
Jamacha Rd
Willow Glen Dr
Drainage A
Steele Canyon Rd
Heatherwood Dr
Par Four Dr
Wildwind Dr
Cottonwood Springs Ln
Indian Mills Ln
Jamul Dr
Greystone Dr
Ashley Park Dr
Wentworth Way
Wentworth Dr

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Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Conceptual Reclamation Revegetation and Compensatory Mitigation Areas

Figure 13

Table 6
COMPENSATORY MITIGATION AND RECLAMATION REVEGETATION PHASING

Habitat	Phase 1		Phase 2		Phase 3		Phase 4		Total	
	M[1]	R[1]	M[1]	R[1]	M[1]	R[1]	M[1]	R[1]	M[1]	R[1]
Conceptual Reclamation Revegetation										
Native Habitat Revegetation										
Riparian Forest	0	7.81	0	3.64	0	3.06	0	0	0	14.51
Riparian Scrub	0	28.94	0	28.11	0	28.03	0	0	0	85.08
Streambed (Emergent Wetland)	0	3.86	0	3.40	0	2.66	0	0	0	9.92
Coastal Sage Scrub	0	2.93	0	3.26	0	5.72	0	0	0	11.91
Subtotal	*0*	*43.54*	*0*	*35.15*	*0*	*33.75*	*0*	*0*	*0*	*121.42*
Other Reclamation										
Erosion Control Mix	0	39.63	0	12.34	0	34.79	0	9.33	0	96.09
Revegetation Total	***0***	***83.17***	***0***	***50.75***	***0***	***74.26***	***0***	***9.33***	***0***	***217.51***
Conceptual Compensatory Mitigation										
Wetland Waters Re-Establishment										
Riparian Forest	1.00	0	0	0	0	0	0	0	1.00	0
Rehabilitation										
Riparian Scrub	6.13	0	0	0	0	0	0	0	6.13	0
Preservation										
Open Water	0.31	0	0	0	0	0	0	0	0.31	0
Freshwater Marsh	0.82	0	0	0	0	0	0	0	0.82	0
Southern Cottonwood-Willow Riparian Forest	12.83	0	0	0	0	0	0	0	12.83	0
Southern Willow Scrub	1.05	0	0	0	0	0	0	0	1.05	0
Coastal Sage Scrub	0.72	0	0	0	0	0	0	0	0.72	0
Mitigation Total	**22.86**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**22.86**	**0**
TOTAL	**22.86**	**83.17**	**0**	**50.71**	**0**	**74.26**	**0**	**9.33**	**22.86**	**217.51**

[1] M = Compensatory Mitigation; R = Reclamation Native Habitat Revegetation

3.5 COST

A draft cost of $765,000 ($85,000 for biological monitoring and reporting and $680,000 for installation and maintenance) has been estimated to implement this mitigation effort (including an adjustment for inflation). This cost includes installation, maintenance during a 120-day PEP and five-year maintenance period, and all associated monitoring and reporting. This cost assumes that all grading, fencing, and erosion control will be implemented as part of the overall project; these costs are excluded from this estimate.

4.0 DESCRIPTION OF PROPOSED COMPENSATORY MITIGATION SITE

4.1 SITE SELECTION

All compensatory wetland mitigation, along with revegetation of native upland and wetland habitat as detailed in the Conceptual Revegetation Plan (HELIX 2021a), will occur on-site along the Sweetwater

River and adjacent areas (Figure 13). The downstream portion of the Sweetwater River has been targeted for compensatory mitigation based on its proximity to existing native riparian habitat, both on-site and off-site. On-site native riparian habitat in the southwestern portion of the project site will be rehabilitated and preserved as part of the mitigation effort. Off-site native riparian habitat is located immediately downstream of the mitigation area within the SDNWR.

Wetland waters re-establishment will occur in the southwestern portion of the site, to the north of the existing Sweetwater River channel, in an area that will be lowered in elevation to expand the existing floodplain width (Figure 14, *Conceptual Compensatory Mitigation Areas*). The mapped soils in this area consist of Riverwash and Tujunga sand, which are frequently found in alluvial floodplains within and near wetlands. These upstream portions of the Sweetwater River contribute to the wetland hydrology of the downstream areas, as well as providing a seed source of native riparian species. Site hydrology for the established wetland is expected to be provided by intermittent flows along the existing Sweetwater River and groundwater. As evidenced by the presence of healthy riparian forest habitat upstream and downstream of the site, the sandy soils and periodic flooding limit soil salinity levels. The selected wetland waters re-establishment area also will be easily accessible for maintenance and monitoring activities but will not be accessible to vehicular traffic or regular pedestrian traffic.

On-site preservation of native wetland and riparian habitat will consist of three areas: a small patch of riparian forest in the extreme northeastern portion of the site where Sweetwater River enters the property; existing riparian habitat in the southwestern portion of the site along Sweetwater River; and a patch of riparian forest located directly east of Steele Canyon Road, to the south of Sweetwater River, along the site's southern border. The preserved wetland and riparian habitat east of Steele Canyon Road occurs in an area that was excavated as part of previous sand mining activities. This area was mined to a depth that created conditions suitable to support riparian habitat. These areas have been selected for preservation based on the presence of native wetland and riparian habitats and low non-native cover.

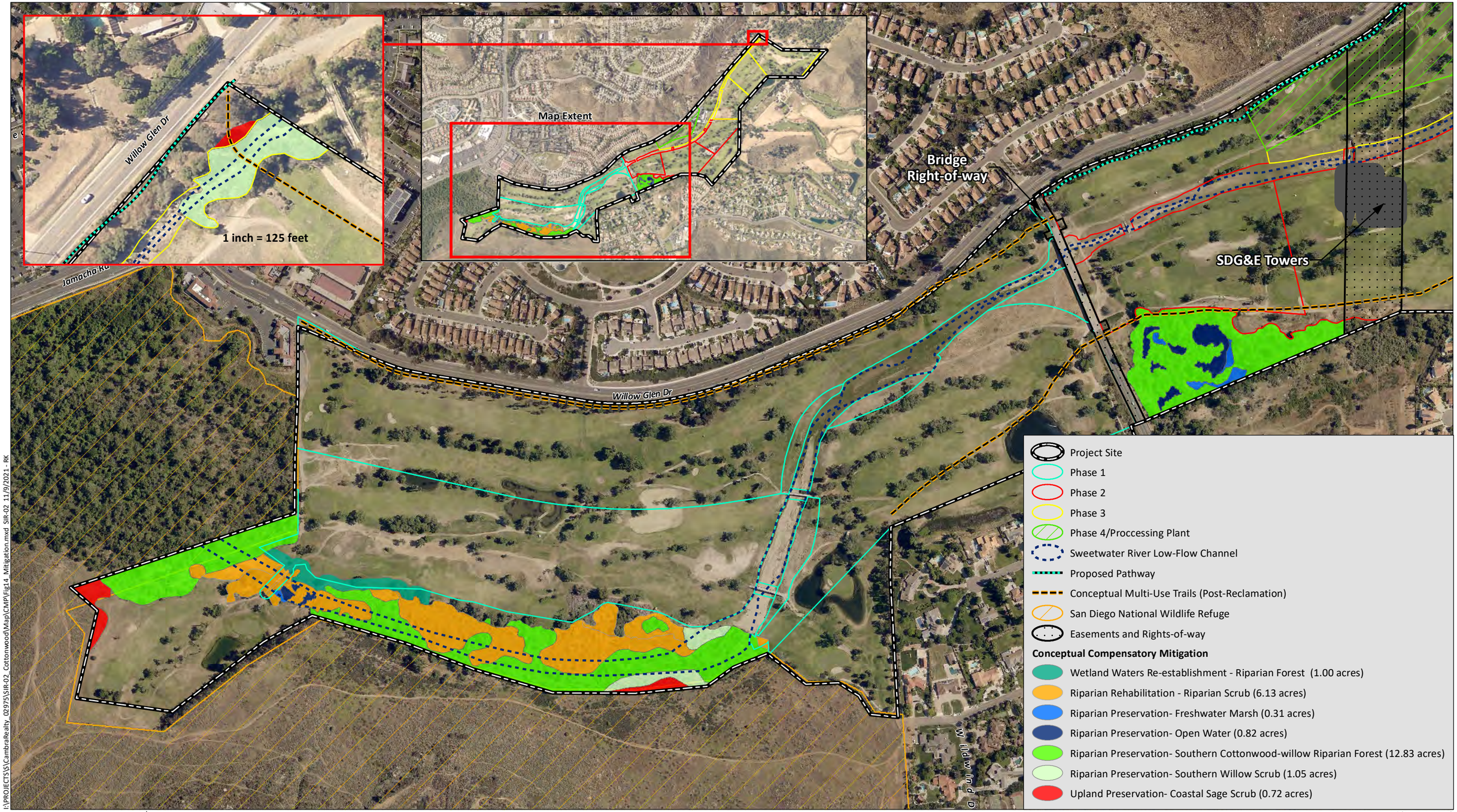
4.2 LOCATION AND SIZE OF COMPENSATORY MITIGATION SITE

Compensatory mitigation for wetland impacts will be provided in three separate locations on-site (Figure 14):

1) Preservation 15.01 acres of riparian habitat in three areas: (1) northeastern portion of the site along Sweetwater River between north 32.7539 and 32.7537 latitude and -116.9051 and -116.9054 west longitude, (2) in the eastern portion of the site to the south of Sweetwater River between approximately 33.7439 and 33.7426 north latitude and between -116.9123 and -116.9160 west longitude, and (3) in the southwestern portion of the site along Sweetwater River between 32.7400 and 32.740797 north latitude and -116.9214 and -116.928754 west longitude; and

2) Re-establishment of 1.00 acre of wetland waters and rehabilitation of 6.13 acres of riparian habitat in the southwestern portion of the site along Sweetwater River between 32.7400 and 32.740797 north latitude and -116.9214 and -116.928754 west longitude.

It is noted that the targeted acreages exceed the anticipated mitigation requirements and allow for contingency acreage as well as helping to ensure success by enhancing the entire lower reach of the existing riparian corridor. Final mitigation requirements will be determined in consultation with the USACE, RWQCB, and CDFW during the wetland permitting process.



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Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Conceptual Compensatory Mitigation Areas

Figure 14

Mitigation for impacts to 0.62 acre of wetland and 0.37 acre of non-wetland waters of the U.S./State will occur through the on-site wetland waters re-establishment of 1.00 acre of wetland waters of the U.S./State and 6.13 acres of rehabilitation of wetland waters of the U.S./State. Thus, there will be no net loss of wetland waters of the U.S./State as summarized in Table 7, *USACE/RWQCB Jurisdictional Resource Mitigation*. An additional 15.01 acres of wetland waters of the U.S./State would also be preserved (Table 7).

Table 7
USACE/RWQCB JURISDICTIONAL RESOURCE MITIGATION (acre[s])[1]

USACE/RWQCB Jurisdictional Resource	Mitigation Obligation[2]	Provided Mitigation[3]			
		Establishment[4]	Rehabilitation	Preservation	Total
Freshwater Marsh	2.23	-	-	0.31	0.31
Open Water		-	-	0.82	0.82
Riparian Scrub		-	6.13	-	6.13
Riparian Forest		1.00	-	-	1.00
Southern Willow Scrub		-	-	1.05	1.05
Southern Cottonwood-Willow Riparian Forest		-	-	12.83	12.83
USACE/RWQCB TOTAL	**2.23**	**1.00**	**6.13**	**15.01**	**22.14**

[1] Areas are presented in acre(s) rounded to the nearest 0.01.
[2] Mitigation obligation reported here is consistent with that identified in the project's BTR (HELIX 2021b) and CEQA documentation.
[3] All compensatory mitigation will occur on-site.
[4] Re-establishment and rehabilitation will consist of wetland waters of the U.S./State.

Mitigation for impacts to 0.83 acre of CDFW riparian habitat and 17.06 acres of unvegetated CDFW streambed will occur through on-site re-establishment of 1.00 acre of riparian habitat, rehabilitation of 6.13 acres of CDFW-jurisdictional riparian habitat, and preservation of 15.01 acres of CDFW-jurisdictional riparian habitat as summarized in Table 8, *CDFW Jurisdictional Resource Mitigation*. Mitigation for unavoidable impacts to CDFW jurisdictional resources will be biologically equivalent or superior to resources being impacted by the project.

Table 8
CDFW JURISDICTIONAL RESOURCE MITIGATION (acre[s])[1]

Jurisdictional Resource	Mitigation Obligation[2]	Provided Mitigation[3]			
		Establishment	Rehabilitation	Preservation	Total
CDFW Riparian Habitat and Streambed					
Freshwater Marsh	19.55	-	-	0.31	0.31
Open Water		-	-	0.82	0.82
Riparian Scrub		-	6.13	-	6.13
Riparian Forest		1.00	-	-	1.00
Southern Willow Scrub		-	-	1.05	0.8
Southern Cottonwood-Willow Riparian Forest		-	-	12.83	12.83
CDFW TOTAL	**19.55**	**1.00**	**6.13**	**15.01**	**22.14**

[1] Areas are presented in acre(s) rounded to the nearest 0.01.
[2] Mitigation obligation reported here is consistent with that identified in the project's BTR (HELIX 2020b) and CEQA documentation.
[3] All compensatory mitigation will occur on-site.

Mitigation for impacts to 0.83 acre of County RPO wetlands will occur through on-site re-establishment of 1.00 acre of riparian habitat, rehabilitation of 6.13 acres of riparian habitat, and preservation of 15.01 acres of existing riparian habitat as summarized in Table 9, *County RPO Wetlands Jurisdictional Resource Mitigation*. Mitigation for unavoidable impacts to County RPO wetlands will be biologically equivalent or superior to resources being impacted by the project.

Table 9
COUNTY RPO WETLANDS JURISDICTIONAL RESOURCE MITIGATION (acre[s])[1]

Jurisdictional Resource	Mitigation Obligation[2]	Provided Mitigation[3]			
		Establishment	Rehabilitation	Preservation	Total
County RPO Wetlands					
Freshwater Marsh	2.49	-	-	0.31	0.31
Open Water		-	-	0.82	0.82
Riparian Scrub		-	6.13	-	6.13
Riparian Forest		1.00	-	-	1.00
Southern Willow Scrub		-	-	1.05	1.05
Southern Cottonwood-Willow Riparian Forest		-	-	12.83	12.83
County RPO TOTAL	**2.49**	**1.00**	**6.13**	**15.01**	**22.14**

[1] Areas are presented in acre(s) rounded to the nearest 0.01.
[2] Mitigation obligation is reported here consistent with that identified in the project's BTR (HELIX 2021b) and CEQA documentation.
[3] All compensatory mitigation will occur on-site.

4.3 FUNCTIONS AND VALUES

The area proposed for wetland waters re-establishment is currently characterized by ruderal vegetation and disturbed habitat associated with previous golf course operation, and a mixture of native and non-native planted landscape trees (Figure 1). The existing functions and values of this area are limited as a result of previous development into a golf course; the area is currently dominated by Bermuda grass (*Cynodon dactylon*) or bare ground. Planted trees within the golf course currently provide potential

breeding habitat for bird species such as the sensitive western bluebird, which was observed throughout the project site (HELIX 2021b).

The portions of the existing riparian habitat that will be rehabilitated currently contain nearly 100 percent cover by tamarisk (*Tamarix* spp.) and giant reed (*Arundo donax*). These patches have limited wildlife use due to the predominance of dense/tall tamarisk trees and other invasive species. Due to the proximity of a more healthy riparian habitat dominated by native trees and shrubs, some bird species, including least Bell's vireo, which was detected within this area during protocol surveys conducted in 2019 (HELIX 2021b), small rodents and mammals, and lizards and amphibians may use the patches of disturbed riparian habitat for foraging, breeding, and live-in habitat. The disturbed riparian areas also contribute to flood conveyance, groundwater recharge, and sediment control in the river.

The existing riparian habitat proposed for preservation provides moderate- to high-quality riparian habitat for local wildlife found within the area. Existing riparian habitat provides foraging, breeding, and live-in habitat for several reptile and amphibian, bird, and small rodent and mammal species observed or detected during project surveys (HELIX 2021b), including the least Bell's vireo, which was confirmed to successfully breed within the existing patch of native riparian habitat located east of Steele Canyon Road. These areas also contribute to flood conveyance, groundwater recharge, and sediment control in the river.

4.4 JURISDICTIONAL DELINEATION

A formal jurisdictional delineation of the project site was conducted by HELIX biologists on September 18 and October 5, 2018. The results of this delineation are summarized in the project Biological Technical Report (HELIX 2021b), and are shown on Figures 8, 9, 10, and 11 of this compensatory wetland mitigation plan.

4.5 PRESENT AND PROPOSED USES

The current general land uses on the project site include a public golf course in addition to expanded fairways associated with golf course improvements. The site currently contains one operational and one abandoned public golf course (golf play and maintenance of landscaped turf in the western portion of the site were discontinued in 2017). Prior sand mining activities within the project site started in the early 1950s to the south of Sweetwater River and continued through the 1970s. Golf courses were constructed in the 1960s and 1970s. Intermittent mining within portions of the site have been ongoing concurrently with golf course operations. The most recent mining activities occurred in the western and southwestern portions of the site between 2007 and 2009, and in the extreme eastern portion of the site in 2016.

Following mining and reclamation activities, the project site will be characterized by an expanded Sweetwater River floodplain and associated riparian corridor. In addition to implementing the wetland waters re-establishment, and riparian rehabilitation and preservation discussed in this plan, the project will also include the revegetation of riparian habitat within the expanded Sweetwater River floodplain and the revegetation of upland habitat on the cut slopes constructed around the outer margins of the widened floodplain. Revegetation activities will occur as part of the project's reclamation and are addressed in the Conceptual Revegetation Plan (HELIX 2021a). The combined wetland mitigation area and native revegetation areas will be preserved within the project's biological open space (Figure 15, *Conceptual Biological Open Space*) that will be managed over the long term by a habitat manager

according to a Resource Management Plan (HELIX 2021c). Hiking trails are proposed to be established around the perimeter of the biological open space area following site reclamation; no hiking trails are proposed within the mitigation area or expanded Sweetwater River floodplain.

There are two easements that bisect the biological open space that will remain following mining activities and site reclamation. One of the easements consists of the Steele Canyon Road bridge right-of-way (ROW) that occurs within the central portion of the site (Figure 7). The Steele Canyon Road bridge ROW comprises the Steele Canyon Road bridge and associated footings that bisect the project's biological open space in a generally north to south direction across Sweetwater River. The Steele Canyon Road bridge ROW has been excluded from the biological open space; therefore, the presence of the bridge ROW is not expected to affect the long-term viability and management of the biological open space.

The second easement consists of a San Diego Gas & Electric (SDG&E) easement, which occurs within the eastern portion of the site, east of Steele Canyon Road, and crosses over the northeastern portion of the project site, where reclamation and revegetation activities are proposed to occur (Figure 13). The SDG&E easement bisects the project's biological open space area but is located outside of the mitigation area. The easement consists of overhead utility lines that run in a north to south direction across the Sweetwater River. Two transmission towers and other associated infrastructure have been excluded from the mitigation site and biological open space; therefore, the presence of the SDG&E easement is not expected to affect the mitigation site and biological open space.

4.6 REFERENCE SITE

Native habitat within the southwestern portion of the site shall be used as a reference site for the on-site wetland waters re-establishment and riparian rehabilitation areas. The mitigation goals and success criteria presented in this plan have been based on visual estimates of native cover noted in the reference site during biological surveys conducted for the biological technical report (HELIX 2021b).

5.0 IMPLEMENTATION PLAN

This section provides the details for the execution of the on-site wetland mitigation plan.

5.1 RATIONALE FOR EXPECTING IMPLEMENTATION SUCCESS

The proposed wetland waters re-establishment effort is anticipated to be successful based on the following: (1) the area selected for re-establishment is immediately adjacent to healthy existing wetland waters and riparian habitat; (2) the presence of appropriate soils within the proposed wetland re-establishment area; (3) flows through the nearby Sweetwater River channel, and associated groundwater levels, are expected to provide sufficient hydrology to support riparian vegetation within the wetland waters re-establishment area; (4) the use of plantings and seed of native species known to occur on-site; (5) the use of temporary irrigation to aid plant establishment; and (6) a financial commitment to ensure the long-term management of the mitigation lands.

Wetland rehabilitation is expected to be successful because these areas consist of weed-infested pockets of riparian habitat within a larger area that is dominated by healthy southern cottonwood-willow riparian forest and southern willow scrub habitat. In addition, hydrology inputs into this area are

- Project Site
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- Open Space Conceptual Signage Location
- Existing Fencing
- Proposed Fencing
- Easements and Rights-of-way
- Limited Building Zone Easement
- Biological Open Space
- Non-Biological Open Space
- Additional Reclaimed Areas*
- Retained in Existing Condition

**Additional reclaimed areas are composed of graded upland pads located outside of the expanded Sweetwater River floodplain that will be seeded with an erosion control seed mix.*

Jamacha Way
Sonett St
Aspen Ln
Wind River Rd
Sweetwater River
Sea Pines Rd
Via Rancho San Diego
Bridge Right-of-way
Augusta Ct
SDG&E Towers
Ivanhoe Ranch Rd
Access Road
Jamacha Rd
Hilton Head Rd
Willow Glen Dr
SDG&E Easement
Cottonwood Springs Ln
Ashley Park Dr
Steele Canyon Rd
Indian Mills Ln
Wentworth Way
Heatherwood Dr
Jamul Dr
Par Four Dr
Greystone Dr

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Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Proposed Biological Open Space

Figure 15

not expected to change following reclamation, native plantings and seed would be installed, and temporary irrigation would be used to help establish native cover.

Riparian habitat preservation is anticipated to be successful because these areas already contain healthy riparian habitat with low cover by non-native and invasive vegetation. These areas will be preserved in their current state within the BOS, with no maintenance or monitoring proposed under this plan. The preserve areas will be managed in accordance with the project's Conceptual Resource Management Plan (HELIX 2021c).

5.2 FINANCIAL ASSURANCES

A revegetation agreement shall be signed and notarized by the property owner following approval of this restoration plan and be accompanied by the required security as agreed upon by the County.

5.3 SCHEDULE

Mitigation should be initiated at the same time or prior to the initiation of project site grading/impacts to jurisdictional resources as detailed above in Table 6. Rehabilitation of existing riparian habitat will occur prior to or concurrent with initiation of project grading for Phase 1A. Initiation of the wetland waters re-establishment should occur during the fall of the year in which project reclamation is completed for Phase 1B. Irrigation, plantings, and seed can be installed in the wetland waters re-establishment area following reclamation and final grading of this area. Monitoring of the mitigation effort will begin during the initial weeding of the riparian rehabilitation area and will continue through five years after the wetland waters re-establishment has been installed. Maintenance of the mitigation area will begin following completion of installation and will continue through establishment sign-off.

Grading of the wetland waters re-establishment area and initial weed control within the riparian rehabilitation area will follow the bird breeding season timing restrictions outlined in more detail below.

5.4 SITE PREPARATION

5.4.1 Fencing

As part of the project design, temporary fencing will be installed around the perimeter of the project site where fencing is currently not present or in need of repair. Temporary environmental fencing shall be installed around active work areas to protect sensitive biological resources, such as Sweetwater River and native vegetation communities. No temporary fencing is proposed to be installed around the wetland waters re-establishment or riparian rehabilitation areas since these would be located within the Sweetwater River floodplain and are expected to periodically flood.

5.4.2 Grading

Grading the wetland waters re-establishment area shall be completed as part of site reclamation immediately following completion of mining operations within Phase 1B. Reclamation would include grading of all final slopes and topographic features and incorporation of accumulated wash fines and salvaged topsoil. The wetland waters re-establishment area will be graded in accordance with the Final Revegetation Plans, which will lower elevations of the existing upland areas to a height of approximately four feet above the existing low-flow channel. Graded areas within the expanded Sweetwater River

floodplain shall be left in a rough grade state with micro topographic relief that mimics natural topography. Planting and irrigation should not be installed until the Restoration Specialist has approved the grading. Grading of the riparian rehabilitation area would not be required as the existing native habitat, and current site elevations would be conserved in their current state.

Grading and final reclamation of the wetland waters re-establishment area will occur outside of the general bird nesting season (February 1 to August 31), coastal California gnatcatcher nesting season (March 1 to August 15),), and least Bell's vireo nesting season (March 15 to September 15) to avoid impacts to nesting birds. If grading and reclamation activities must occur during the bird breeding season, the relevant mitigation measures contained in the project's BTR (HELIX 2021b), such as preconstruction surveys, shall be implemented.

5.4.3 Removal of Non-native Vegetation

The wetland waters re-establishment will have been recently graded and is not expected to require any initial weed control. Within the riparian rehabilitation area, non-native vegetation will be removed prior to the installation of native plants and seed. Initial vegetation removal will either occur outside of the general bird nesting season (February 1 to August 31) and least Bell's vireo breeding season (March 15 to September 15) to avoid impacts to nesting birds, or a nesting bird survey will need to be conducted by a qualified biologist pursuant to the relevant mitigation measures contained in the BTR (HELIX 2021b). Non-native vegetation will be removed by hand or through the use of wetland-approved herbicide. The Restoration Specialist will provide guidance to the maintenance contractor on how weeding should be accomplished.

5.4.4 Soil Amendments

No soil amendments are recommended for the wetland waters re-establishment area due to the proximity of healthy native riparian habitat and soils mapping, indicating that soils in this area consist of Riverwash and Tujunga sand (Figure 6; NRCS 2016), both appropriate for riparian habitat. Soil amendments are likewise not expected for the riparian rehabilitation area because this area will not be graded, and native riparian vegetation is growing in adjacent, similar soils.

5.4.5 Erosion Control

Erosion control measures will be installed upstream of the wetland waters re-establishment area wherever deemed necessary to prevent sediment movement into this area from nearby mining. This erosion control may include, but is not limited to, organic matting, fiber rolls (straw wattles), and silt fencing. Given the relatively flat topography of the wetland waters re-establishment area, no additional erosion control is anticipated within this area.

5.5 PLANTING PLAN

5.5.1 Plant Palettes/Seed Mixes

Concurrent with the start of project mining activities, native seed, container plants, and cuttings (if feasible) will be installed in the riparian rehabilitation area (Table 10, *Riparian Scrub/Forest Rehabilitation Plant Palette*) after one cycle of grow and kill weed control has been conducted. Plantings will be irrigated with well water. After subphase 1B mining is completed and site preparation and irrigation installation have been completed, native plantings and seed will be installed within the

wetland waters re-establishment area (Table 11, *Wetland Waters and Riparian Habitat Re-Establishment [Riparian Scrub] Plant Palette*).

The species selected for planting and seeding within the wetland waters re-establishment and riparian rehabilitation areas have been observed within the on-site riparian habitat or are known to occur within the surrounding area. All plants and seed should be obtained from southern San Diego County, whenever possible. Container stock orders or production from seed may be needed up to 12 months prior to the anticipated installation date. Species substitutions, quantity changes, or use of commercial seed may be allowed, if necessary, at the discretion of the Restoration Specialist. The Restoration Specialist must approve all seed and container stock orders, including source locations, prior to ordering. The Restoration Specialist must inspect all plant material prior to installation; root bound material, any material with Argentine ants or other pests, and any other plants deemed damaged will not be accepted. Fast-growing annual species that are quick to germinate will be included in the seed mix to provide initial cover and help protect against soil erosion. Slower-growing perennials will provide long-term cover and further protection against erosion.

Table 10
RIPARIAN SCRUB/FOREST REHABILITATION PLANT PALETTE (6.13 acres)

CONTAINER STOCK[1]					
Scientific Name	**Common Name**	**Spacing on Center (feet)**	**Grouping Size**	**Number Per Acre**	**Quantity Required**
Baccharis salicifolia	mule fat	6	10	230	1,410
Distichlis spicata	saltgrass	10	3	50	307
Platanus racemosa	western sycamore	15	2	25	153
Populus fremontii ssp. *fremontii*	western cottonwood	15	2	25	153
Salix exigua	sand bar willow	8	4	90	552
Salix gooddingii	black willow	12	5	120	736
Salix laevigata	red willow	12	5	120	736
Salix lasiolepis	arroyo willow	12	5	120	736
Sambucus nigra	blue elderberry	10	3	85	521
			TOTAL	**865**	**5,304**

SEED MIXTURE[1]				
Scientific Name	**Common Name**	**% Purity / Germination**	**Pounds per Acre**	**Pounds Required**
Ambrosia psilostachya	western ragweed	45/45	4	25
Anemopsis californica	yerba mansa	55/80	1	6
Artemisia douglasiana	Douglas' sagewort	15/40	3	18
Artemisia palmeri	Palmer's sagebrush	20/50	2	12
Baccharis salicifolia	mule fat	10/20	3	18
Bolboschoenus maritimus	bulrush	90/60	1	6
Cyperus eragrostis	tall flatsedge	80/75	1	6
Distichlis spicata	saltgrass	90/75	1	6
Eleocharis macrostachya	pale spike-rush	95/60	1	6
Isocoma menziesii	goldenbush	18/40	1	6
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	0.5	3
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5	3
Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5	3
Pluchea odorata	salt marsh fleabane	30/40	2	12
		TOTAL	**21.5**	**130**

[1] Substitutions require approval of the Restoration Specialist.

Table 11
WETLAND WATERS RE-ESTABLISHMENT (RIPARIAN FOREST) PLANT PALETTE (1.00 acre)

CONTAINER STOCK[1]					
Scientific Name	**Common Name**	**Spacing on Center (ft.)**	**Grouping Size**	**Number Per Acre**	**Quantity Required**
Artemisia dracunculus	tarragon	5	5	100	100
Baccharis salicifolia	mule fat	6	10	230	230
Distichlis spicata	saltgrass	10	3	150	150
Iva hayesiana	San Diego marsh elder	5	5	120	120
Platanus racemosa	western sycamore	15	3	50	50
Populus fremonti ssp. *fremontii*	western cottonwood	15	3	50	50
Salix exigua	sand bar willow	8	5	120	120
Salix gooddingii	black willow	12	5	150	150
Salix laevigata	red willow	12	5	200	200
Salix lasiolepis	arroyo willow	12	5	200	200
Sambucus nigra	blue elderberry	10	3	50	50
			TOTAL	**1,420**	**1,420**

SEED MIXTURE[1]				
Scientific Name	**Common Name**	**%Purity/ Germination**	**Pounds per Acre**	**Pounds Required**
Ambrosia psilostachya	western ragweed	45/45	4	4
Ambrosia pumila	San Diego ambrosia	-	0.5	0.5
Anemopsis californica	yerba mansa	55/80	1	1
Artemisia douglasiana	Douglas' sagewort	15/40	3	3
Artemisia palmeri	Palmer's sagebrush	20/50	2	2
Baccharis salicifolia	mule fat	10/20	3	3
Baccharis sarothroides	broom baccharis	7/42	1	1
Bolboschoenus maritimus	alkali bulrush	90/60	1	1
Croton californicus	California croton	90/40	1	1
Eleocharis macrostachya	pale spike-rush	95/60	1	1
Isocoma menziesii	goldenbush	18/40	1	1
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	1	0.5
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5	0.5
Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5	0.5
Pluchea odorata	salt marsh fleabane	30/40	2	2
		TOTAL	**22.5**	**22.5***

[1] Substitutions require approval of the Restoration Specialist.
* No less than 20 lbs. per acre of seed shall be installed.

5.5.2 Container Plantings

Container stock should be one-gallon size, rooted appropriately (i.e., neither root bound nor insufficiently developed), and should be installed in holes that are the same size as the planting container and backfilled afterward. Holes will be dug with mechanical augers where possible and by hand elsewhere. Plants should be installed in a way that mimics natural plant distribution; therefore, container plantings will be installed in groupings proportional to their density per acre.

5.5.3 Cuttings

Any riparian tree or shrub cuttings would be in addition to the container plantings and seed specified in Tables 9 and 10. If feasible, cuttings should be collected from within the existing riparian corridor or the same watershed by personnel experienced in cutting collection and installation. Any species listed for planting can also be readily grown from cuttings installed directly into the ground, with the exception of blue elderberry (*Sambucus nigra*) and western sycamore (*Platanus racemosa*).

Prior to taking cuttings, it is essential that all equipment being used, typically consisting of a bucket of water and wood cutters, is sterilized so no pathogen cross-contamination occurs. To maintain genetic diversity within the restored areas, no more than 10 cuttings should be taken from any one plant. Ideally, cuttings should be stored in water for approximately one week to encourage root development following planting.

In general, willow (*Salix* spp.) and cottonwood (*Populus fremontii*) pole cuttings should be at least three feet long and 0.75 to 1.25 inches in diameter, with the end that will be inserted into the ground (snipped closest to the tree trunk) cut at a 45-degree angle to facilitate soil penetration and maximize surface area for root growth. Mule fat (*Baccharis salicifolia*) cuttings can be slightly smaller. Any foliage or side branches should be stripped from each cutting to minimize water translocation and allow the cutting to put its energy into root growth.

Cuttings should be installed a few feet into the ground such that the base of the cutting is at the water table. If the cutting is not in the water table or getting surface water (e.g., from supplemental irrigation), it will quickly dry out and die. Typically, a pole cutting is installed two to three feet deep. Cuttings should be installed in groupings according to the spacing recommendations made in Tables 9 and 10. Smaller species such as mule fat can be interspersed between larger over-story plants such as willows and cottonwoods.

5.5.4 Seed

Within the wetland waters re-establishment and rehabilitation areas, seed will be dispersed by hand and/or with the use of a rotary seed applicator and raked into the soil as needed.

5.6 IRRIGATION PLAN

Temporary, above-ground irrigation lines will be installed in the wetland waters re-establishment and riparian rehabilitation areas, and both areas will be temporarily irrigated well water, if accessible, otherwise, other irrigation connections will need to be established. The project landscape architect, together with the installation contractor, will inspect the irrigation system as well as coverage prior to plant/seed installation.

Irrigation plans included with the restoration construction documents will show the Point of Connection (POC), available pressure, controller location, valves, piping, and head locations. If the POC is beyond the limits of the wetland waters re-establishment and riparian rehabilitation areas, the off-site irrigation service line to the POC will be identified. Irrigation plans will provide the required backflow protection at the POC, and identify the power source for the irrigation controller, if applicable.

6.0 MAINTENANCE PLAN

6.1 MAINTENANCE ACTIVITIES

A five-year maintenance program is proposed to ensure the successful establishment and persistence of riparian habitat within the wetland establishment and enhancement areas. The maintenance program will involve the removal of non-native species and trash, irrigation maintenance, and any remedial measures deemed necessary for the success of the wetland mitigation program (e.g., re-seeding and re-planting). Maintenance activities will be directed by the Restoration Specialist and implemented by the maintenance contractor.

The maintenance guidelines specified herein are tailored for native plant establishment. Maintenance personnel will be informed of the goals of the mitigation effort and the maintenance requirements. A professional with experience and knowledge in native habitat restoration maintenance will supervise maintenance. It is the installation/maintenance contractor's responsibility to keep seeded and planted areas free of debris, and to monitor irrigation function and scheduling, plant material condition and health, and removal of non-native species. The installation/maintenance contractor will also be responsible for replacing any dead or terminally stressed plants, at the direction of the Restoration Specialist. Damage to plants, irrigation systems, and other facilities occurring as a result of unusual weather or vandalism will be repaired as directed by the Restoration Specialist. The cost of such repairs will be paid for as extra work. The contractor will be responsible for damage caused by the contractor's inadequate maintenance or operation of irrigation systems, as determined by the Restoration Specialist.

6.1.1 Irrigation

The goal is to obtain germination and growth with the least amount of irrigation. Too much irrigation results in abnormal habitat and encourages invasion by non-native plants, leaches nutrients from the soil, and can increase erosion; therefore, water will be applied infrequently and only as needed to prevent plant mortality.

The irrigation system will be maintained until the Restoration Specialist determines that supplemental water is no longer required. At that time, irrigation will be permanently disconnected (e.g., the mainline will be cut), but not removed. Above-ground portions of irrigation will be removed when directed by the Restoration Specialist or following wetland mitigation sign-off by the County and Resource Agencies.

6.1.2 Non-native Plant Control

Particular emphasis will be placed on the proactive removal of non-native vegetation. As non-native plants become evident, they should be removed by hand or controlled with the proper herbicides (if approved by the Restoration Specialist). The Restoration Specialist will oversee non-native plant control by the maintenance contractor; however, maintenance personnel must be knowledgeable in distinguishing non-native species from desirable native vegetation. If maintenance personnel mistakenly remove native species, the maintenance contractor will be responsible for rectifying the damage, at the direction of the Restoration Specialist.

Non-native plant species considered to be moderately or highly invasive by the California Invasive Plant Council (Cal-IPC 2020) shall be totally eradicated within the wetland waters re-establishment and

riparian rehabilitation areas for all five years of maintenance. Examples of invasive plants observed on site include, but are not limited to, tamarisk, giant reed, and Mexican fan palm (*Washingtonia robusta*). Additional species may be added to this list, at the discretion of the Restoration Specialist. Non-native grasses listed as moderately or highly invasive will be controlled on-site, but due to their abundance in the local area, total eradication is not considered feasible.

6.1.3 Pruning

No post-installation pruning is necessary unless otherwise directed by the Restoration Specialist. For example, if it is necessary to remove an obstruction from or for the repair of the irrigation system.

6.1.4 Trash

Any trash observed within the wetland waters re-establishment or enhancement areas should be removed for the duration of maintenance work in the respective area. All collected trash will be properly disposed of at a licensed landfill.

6.1.5 Pests

Insects, vertebrate pests, and diseases will be monitored. Generally, pests will be tolerated unless they pose a significant threat to restoration success. If deemed necessary, a licensed pest control adviser will make specific pest control recommendations. All applicable federal and state laws and regulations will be closely followed. The Restoration Specialist will be consulted on any pest control matters and will specifically monitor the mitigation site for evidence of invasive shot-hole borers (*Euwallacea* sp.; SHBs). The Restoration Specialist will evaluate any regional methods for control of SHBs to determine, if necessary, for the wetland mitigation site.

6.1.6 Fertilization

Fertilizer will not be applied in the maintenance phase, except in extraordinary circumstances and only at the written direction of the Restoration Specialist.

6.1.7 Special Status Species Issues

Maintenance activities will not include the use of heavy equipment or vehicles and as such are not anticipated to have adverse effects on special status species. Nonetheless, all maintenance activities will be carried out under the direction of the Restoration Specialist, as necessary, to avoid impacts to special status species.

6.1.8 Remedial Installation

Areas with low seed germination and establishment of native cuttings/plantings will be re-seeded and/or re-planted, at the direction of the Restoration Specialist.

6.2 SCHEDULE

6.2.1 Maintenance Schedule

Maintenance will be performed as necessary to prevent re-seeding by non-native plants and will likely change with varying site conditions and seasons. The schedule outlined herein (Table 12 *Maintenance Schedule*) serves only as a guideline, and more frequent maintenance may be required to prevent re-seeding by non-native vegetation and/or to meet interim cover limits for non-native vegetation. The installation/maintenance contractor will complete maintenance requests from the Restoration Specialist within 14 days of any written request.

At a minimum, the installation contractor will conduct monthly maintenance until the Restoration Specialist recommends sign-off of the 120-day plant establishment period in writing. Following the completion of the plant establishment period, the maintenance contractor will be responsible for all maintenance activities during the five-year maintenance period. For the first three years, maintenance is expected to be required every month between January through June (to cover the peak establishment period of spring germinating species) and two additional times during the remainder of the year. Maintenance visits may be reduced to four per year in Years 4 and 5 if approved by the Restoration Specialist and County, and shall be timed to best control invasive species, based on weather patterns and monitoring results. The installation/maintenance contractor(s) will complete maintenance requests from the Restoration Specialist within 14 days of any written request or monitoring report.

Table 12
MAINTENANCE SCHEDULE[1]

Phase	Schedule
Installation Contractor	
120-day Plant Establishment Period	Monthly
Maintenance Contractor	
Year 1 through Year 3 January to June July to December	Total 8 Visits/Year Every Month (6 Visits) Two Visits Total
Years 4 and 5	Total 4 Visits/Year (3 in Spring and 1 in Summer)

[1] This schedule is only a guideline; maintenance will be performed as necessary and as directed by the Restoration Specialist.

6.2.2 Irrigation Schedule

Following the start of the maintenance period, irrigation shall be applied daily (unless directed otherwise by the Restoration Specialist) to stimulate seed germination and ensure the survival of installed plantings. Once container plantings, cuttings, and seed are established, irrigation should become less frequent and deeper (usually accomplished with several consecutive irrigation events in a 24-hour period followed by several days with no irrigation). Native plants that are infrequently irrigated may grow slower initially but will ultimately be better able to withstand natural variations in rainfall and, therefore, be more successful long-term. Irrigation will be minimized to limit runoff and will be turned off during and following natural rainfall events. In the absence of rain events, irrigation will occur at a minimum of three times per week for the first two years to ensure plant establishment. By Year 3, irrigation shall be reduced and occur mainly during the natural rainy season (October through April), as

needed, to mimic an average rainy season. If the Restoration Specialist determines that there is sufficient native cover and plants are well-established, irrigation may be deactivated prior to the end of Year 3. To demonstrate that vegetation is self-sustaining, the irrigation system must be turned off for at least two years prior to the end of the five-year maintenance/monitoring period.

7.0 MONITORING PLAN

7.1 PERFORMANCE STANDARDS

Success criteria provide specific standards to evaluate the progress of the mitigation effort. Attainment of these standards indicates that the mitigation is progressing toward the habitat functions and services specified by this plan.

7.1.1 120-Day Plant Establishment Period

For both the wetland waters re-establishment and riparian rehabilitation areas, success at the end of the 120-day establishment period will be met if non-native cover is less than 10 percent at the time of the inspection, there is 90 percent survivorship of container stock (planting is proposed to occur at a higher than typical initial density to allow for some plant mortality; therefore, survivorship is not set at 100 percent), the irrigation system provides adequate cover, and there are no erosion-related issues. If any re-planting is conducted, container stock shall be in the ground for at least 30 days prior to the end of the establishment period. If these criteria are not met at the end of 120-days, the establishment period will be extended in one-month increments until success criteria have been met. The Restoration Specialist must sign off on the establishment period in writing. The minimum five-year maintenance and monitoring period will begin immediately following this 120-day establishment period.

7.1.2 Vegetation Criteria for Wetland Waters Re-Establishment and Riparian Rehabilitation Areas

Success of the mitigation effort will be determined by evaluating planting survivorship, vegetative cover, and native plant recruitment within the wetland waters re-establishment and riparian rehabilitation areas relative to specified targets, based on visual observations. The following parameters will determine the final success of the wetland waters re-establishment area: (1) native cover of at least 70 percent; (2) non-native cover (excluding target invasive plants) of no more than 10 percent; (3) no cover by target invasive plants (Cal-IPC Moderate and High species; not including annual grasses [i.e., *Bromus* ssp.]); and (4) native species richness (number of plant species in a given area) of least 10 species (Table 13, *Success Criteria Milestones for the Wetland Mitigation Area*). These criteria are based on observations of intact native habitat located on-site. Interim success criteria, demonstrating that the mitigation effort is on track to meet the final criteria, are also provided for Years 1 through 4. Native cover success criteria are not specified for Years 1 and 2; however, the visual estimates should indicate that the wetland waters re-establishment area is progressing towards final goals.

Table 13
SUCCESS CRITERIA MILESTONES FOR THE WETLAND MITIGATION AREAS

Criteria	Target				
	Year 1	Year 2	Year 3	Year 4	Year 5
Wetland Waters Re-Establishment Area					
Minimum Planting Survivorship (percent)	90	80	--	--	--
Minimum Native Cover (percent)	--	--	50	60	70
Minimum Native Species Richness (number of species)	6	6	8	9	10
Maximum Non-native Cover (percent)	20	20	15	10	10
Maximum Target Invasive Cover[1] (percent)	0	0	0	0	0
Irrigation	YES	YES	YES	NO	NO
Riparian Rehabilitation Area					
Minimum Planting Survivorship (percent)	90	80	--	--	--
Minimum Native Cover (percent)	--	--	50	60	70
Maximum Non-native Cover (percent)	20	20	15	10	10
Maximum Target Invasive Cover[1] (percent)	0	0	0	0	0
Irrigation	YES	YES	YES	NO	NO

[1] Seedlings of invasive species are expected to volunteer each year; however, no target invasive species should be allowed to persist, or drop seed within the mitigation area; excludes invasive annual grasses, which are counted as non-native cover.

Success of the riparian rehabilitation area will be based on the reduction of non-native vegetation to allow the natural expansion of native vegetation. To this end, the same container stock survivorship, native cover, non-native cover, and target invasive cover limits that apply to the wetland waters re-establishment area (Table 13) will apply to the riparian rehabilitation area. There are no requirements for minimum native species richness as the riparian rehabilitation is located within an existing patch of healthy native habitat and natural recruitment of native species is expected to occur following removal of non-native vegetation and installation of native plant and seed material.

7.1.2.1 Survivorship

Container plant survival within the wetland waters re-establishment and riparian rehabilitation areas should be 90 percent of the initial plantings in Year 1 and 80 percent in Year 2. If this target is not met, dead plants should be replaced unless their function has been replaced by natural recruitment.

7.1.2.2 Native Cover

Cover by native vegetation within the wetland waters re-establishment and riparian rehabilitation areas should increase over time and ultimately approach that of the adjacent native habitat. By the end of the five years, native cover in wetland waters re-establishment and riparian habitat and riparian rehabilitation areas should be at least 70 percent, with at least 50 percent cover by native trees and shrubs.

7.1.2.3 Native Species Richness

Species richness is the number of native species present in a given area. During the annual monitoring, species richness within the wetland waters re-establishment area will be determined by visual assessment in Years 1 and 2, and within the belt and point intercept transects in Years 3 through 5.

Annual success criteria for species richness for native species vary by year with at least 10 native species present at the end of Year 5 (Table 13). If the species richness goal for a given year is not met, corrective measures (e.g., reseeding, planting, etc.) will be taken to ensure the eventual achievement of the five-year goal.

7.1.2.4 Non-Native Cover

Non-native cover is typically a problem with habitat restoration, particularly at the outset of a mitigation effort. However, as the restoration takes hold and with diligent maintenance efforts, non-native cover should decrease to an acceptable level. Given the maintenance schedule for the site, non-native cover (including invasive annual grasses) within the wetland waters re-establishment and riparian rehabilitation areas should not exceed 20 percent in Years 1 and 2, 15 percent in Year 3, and 10 percent in Years 4 and Year 5.

7.1.2.5 Target Invasive Cover

Target invasive non-native plants should be completely eradicated from the wetland waters re-establishment and riparian rehabilitation areas each year. New seedlings of invasive plants are expected since these species occur in surrounding open space; however, no target invasive species shall be allowed to persist, or drop seed, within the wetland waters re-establishment and riparian rehabilitation areas. Annual grasses listed as highly or moderately invasive do not need to be eradicated, rather they are included as part of the overall non-native cover limit.

7.1.3 Irrigation

To provide evidence that vegetation is self-sufficient, irrigation of the wetland waters re-establishment and riparian rehabilitation areas must be shut off at least two years prior to the end of the maintenance/ monitoring period.

7.2 TARGET FUNCTIONS AND VALUES

The proposed wetland mitigation is anticipated to provide at least 1.00 acre of re-established wetland waters and 6.13 acres of rehabilitated riparian habitat and have a net functional lift in habitat values over the existing condition by providing higher quality foraging, breeding, and live-in habitat for many wildlife species as well as greater vegetative cover and microhabitat features. The expanded Sweetwater River floodplain and associated riparian corridor would conceal and facilitate wildlife movement within and through the project site. Removal of non-native vegetation and the re-establishment of wetland waters is expected to provide and improve functions and services typical of naturally occurring intermittent stream channels such as stream-energy dissipation to reduce erosion and improve water quality, groundwater recharge, sediment transport, and water purification.

7.3 TARGET HYDROLOGICAL REGIME

The wetland waters re-establishment and riparian rehabilitation areas will receive flows from the Sweetwater River, though these flows are hydrologically controlled by the Sweetwater Authority, which manages water releases and transfers between Loveland Reservoir (upstream of the site) and Sweetwater Reservoir (downstream of the site). The main hydrological input for the wetland waters re-establishment and riparian rehabilitation areas will be from the upstream portion of the Sweetwater

River. Due to their location along the Sweetwater River, and based on the presence of existing riparian habitat both upstream and downstream of the project site, existing natural rainfall combined with occasional dam releases are expected to provide sufficient hydrology to support riparian scrub vegetation within the wetland waters re-establishment and riparian rehabilitation areas. The proposed project will lower the elevations of existing upland areas to a height of approximately four feet above the current low-flow channel. Intermittent flows that overtop the low-flow channel will be able to distribute to the surrounding expanded floodplain area without obstruction.

7.4 TARGET ACREAGES

A total of 1.00 acre of wetland waters will be re-established as part of the on-site wetland mitigation effort (Table 4). The wetland waters re-establishment area will include a minimum of 1.00 acre of wetland waters of the U.S./State re-establishment, resulting in a minimum 1:1 establishment/re-establishment ratio (0.99 acres) for impacts to waters of the U.S./State. Proposed waters of the U.S./State re-establishment areas shall meet USACE wetland criteria.

In addition to wetland waters re-establishment, 6.13 acres of existing riparian habitat will be rehabilitated through non-native species removal, weed control, and installation of native seed and container plants.

7.5 MONITORING METHODS

Monitoring will be carried out by the Restoration Specialist, beginning with site preparation and habitat installation, and continuing through sign-off, approximately five years after the start of the mitigation effort. Monitoring of the mitigation will include (1) documenting pre-restoration site conditions; (2) installation monitoring; (3) maintenance monitoring; and (4) annual technical monitoring. The methods for the annual technical monitoring are provided further below. During each visit, the Restoration Specialist will inspect the site to ensure that the mitigation effort is progressing as planned and identify any problems that may affect the effort.

7.6 MONITORING SCHEDULE

7.6.1 Pre-Restoration Site Assessment

The Restoration Specialist will visit the site prior to the start of mining activities, and again prior to the start of mitigation efforts, to document existing site conditions by taking photographs, listing plants and animals present, and noting any special conditions within the proposed wetland waters re-establishment and riparian rehabilitation areas.

To document the progress of the mitigation effort, the Restoration Specialist will identify at least four photographic documentation locations for the wetland waters re-establishment and riparian habitat area and four locations within the riparian rehabilitation area. Photo stations will be mapped with a sub-meter accuracy global positing system (GPS) and plotted on a map. Photos will be used for future comparison with post-installation and annual assessment photos.

7.6.2 Installation Monitoring

The Restoration Specialist will be on-site daily, or as needed, during installation to ensure that activities are being conducted per this plan. The Restoration Specialist will monitor all phases of the installation process, including site preparation; installation of irrigation, plantings, and seed; and the 120-day Plant Establishment Period. The Restoration Specialist must inspect and authorize each phase of work before the next phase may begin. The monitoring schedule is outlined in Table 14, *Maintenance Monitoring Schedule*; additional monitoring may be needed if there are problems with the installation contractor's performance or unexpected difficulties with site preparation. Following installation completion, the Restoration Specialist will take photos from the established photo locations to document site conditions at the start of the mitigation effort.

Table 14
MAINTENANCE MONITORING SCHEDULE[1]

Phase	Schedule
Installation Monitoring	
Site preparation and installation	Daily, or as needed
120-day Plant Establishment Period	Monthly
Maintenance Monitoring	
Year 1 through Year 3 January to June July to December	8 visits per year Monthly 2 visits
Years 4 and 5	4 visits per year
Annual Technical Monitoring	
Once per year	August/September

[1] This schedule is the minimum monitoring frequency; additional monitoring may be required if there are problems with installation or maintenance contractor performance, unexpected difficulties with site preparation, or issues with habitat establishment.

7.6.3 Maintenance Monitoring

Maintenance monitoring will consist of general site inspections focusing on visual observations of native plant establishment and growth and other site conditions (e.g., presence of non-native plants, erosion, etc.), and will document all wildlife observed during each site visit for inclusion in the annual report. Following installation within the wetland waters re-establishment and riparian rehabilitation areas, the Restoration Specialist will direct maintenance activities conducted by the maintenance contractor for the five-year maintenance and monitoring period (Table 14), beginning immediately following the 120-day Plant Establishment Period. In Years 1 through 3, maintenance visits will be conducted monthly from January through June (to cover the peak establishment and growth period) and twice during the remainder of the year, for a total of eight visits per year. During Years 4 and 5, monitoring will be conducted approximately quarterly. This monitoring schedule is the minimum; more frequent inspections may be necessary if there are problems with contractor performance or habitat development. Monitoring memos noting any issues with plant establishment, irrigation, sediment control, etc., will be provided as necessary to the installation/maintenance contractor(s) and the project proponent.

7.6.4 Annual Technical Monitoring

The Restoration Specialist will conduct annual technical monitoring in August/September of each year during the five-year maintenance and monitoring period. The assessments are scheduled to coincide with the peak of the growing season for riparian vegetation. The exact timing of the visits will depend on site and weather conditions.

Technical monitoring of the wetland waters re-establishment and riparian rehabilitation areas will include both qualitative (visual) and quantitative (based on data collection) sampling, depending on the year. In Years 1, 2, and 4, only qualitative monitoring will be conducted, consisting of the following: (1) photo documentation; (2) visual estimates of container planting survivorship, cover by native and non-native plants, target invasive species cover, and the average height of tree and shrub species; (3) a complete list of plant and animal species observed; (4) general observations of plant health; and (5) observations of site hydrology. Starting in Year 3, quantitative sampling consisting of transect sampling will be conducted within both the wetland waters re-establishment area and riparian rehabilitation area. The success of the wetland mitigation effort will be evaluated by comparing the habitat development with success criteria.

The proposed project includes impacts to waters of the U.S. and State; therefore, implementation of the functional-based assessment using the California Rapid Assessment Method (CRAM) may be required by the USACE and/or RWQCB. If CRAM is not required by the USACE or RWQCB, then CRAM analyses will not be conducted.

Each assessment will include a discussion on whether the establishment/rehabilitation areas are on the trajectory towards meeting final success criteria. Monitoring methods are described in detail below.

7.6.4.1 Photo Documentation

Photos will be taken as part of all five annual monitoring events and will be included in the respective year's annual report. Photos will be taken at the same photo locations that are established prior to the start of the mitigation effort. To visually demonstrate the progress of the mitigation effort, photos taken immediately after restoration installation will be included in each report for comparison with the respective year's annual assessment photos. The photo locations will be permanently marked in the field and then mapped on an aerial photograph in the baseline monitoring report (as-built report following the 120-day establishment period) in all subsequent annual reports.

7.6.4.2 General Wildlife

During each of the five annual assessments, all wildlife incidentally observed or detected will be documented. No focused wildlife surveys will be conducted.

7.6.4.3 Transect Sampling

Starting in Year 3, one 50-meter (m) transects will be used to collect quantitative data within the wetland waters re-establishment area, and two 50-m transects will be used to collect quantitative data within the riparian rehabilitation areas. These transects will be randomly located during the first quantitative sampling event, marked in the field with PVC pipes, and mapped onto Figure 13 using a GPS. Plant cover data will be collected along each transect using the point intercept line transect

sampling methods described in the California Native Plant Society's Field Sampling Protocol (Sawyer and Keeler-Wolf 1995). Native, non-native, and invasive plant cover data will be collected by recording all of the plant species intercepted at each 0.5-m interval along the length of each transect. Vegetation will be recorded separately for herb (0 to 0.6 m), shrub (0.6 to 2 m), and tree (greater than 2 m) layers. Species richness (the number of native species present in a given area) data will be collected by noting all species occurring along a 5-m belt transect centered on each line transect.

7.6.4.4 CRAM

The proposed project includes impacts to waters of the U.S.; therefore, implementation of the CRAM assessment for the waters of the U.S. mitigation areas may be required by the USACE or RWQCB. If CRAM is not required by the USACE or RWQCB, then CRAM analyses will not be conducted.

The purpose of CRAM is to provide a rapid, standardized, and scientifically defensible assessment of the status of a wetland and to help evaluate impacts to aquatic resources. If CRAM is required by the USACE and/or RWQCB, the specific requirements will be determined in consultation with these agencies during the CWA Section 404 and 401 permitting processes. The requirements typically specify that a CRAM analysis be conducted prior to project impacts in at least one Assessment Area (AA) where waters of the U.S./State impacts will occur. If CRAM is required, then a baseline CRAM analysis will be conducted in the existing habitat in the southwestern portion of the site along Sweetwater River, adjacent to the proposed wetland waters re-establishment area (baseline). The target CRAM score for the wetland waters re-establishment area will be determined based on the results of the impact and baseline CRAM scores. A final CRAM will be conducted in Year 5 of the mitigation effort to determine if the final target score has been met.

If CRAM is required by the USACE or RWQCB, two CRAM practitioners will conduct a CRAM assessment according to the User's Manual: *California Rapid Assessment Method for Wetlands v. 6.1* (California Wetlands Monitoring Workgroup [CWMW] 2013a), *Riverine Wetlands Field Book v. 6.1* (CWMW 2013b), and other training materials located on the CRAM web site (www.cramwetlands.org). As part of this assessment, attributes and metrics will be assessed in the following categories: landscape and buffer context, hydrology, physical structure, and biotic structure. Based on scores for each attribute category, CRAM will yield an overall score for an AA. Monitoring Reports.

7.6.5 As-Built Report

The Restoration specialist shall submit a brief as-built letter report to the resource agencies within 30 days of completion of restoration activities and the 120-day establishment period. The report will describe mitigation site preparation, installation methods, activities conducted during the 120-day establishment period, and the as built status of the site. To document the implementation of the wetland mitigation plan and baseline site conditions, the letter will include an as-built graphic on an aerial photo base as well as photos taken from the designated photo stations before and after restoration installation. The as-built letter will serve as the "time zero" report, noting when the five-year maintenance and monitoring period began.

7.6.6 Annual Reports

An annual report including qualitative and quantitative analysis will be prepared each year during the five-year monitoring period and submitted to the County and Resource Agencies. Monitoring and maintenance field data shall be included as an addendum to each report.

Any significant issue or contingency that arises on the job site (e.g., plant survival issues, fire, or flooding) shall be reported in writing to the County and Resource Agencies within two weeks from the date of the incident. Accompanying the report shall be a plan for remediation, with an implementation schedule and a monitoring schedule.

If CRAM is required by the USACE or RWQCB, CRAM scores will be included as attachments to the annual monitoring reports. Analysis of the CRAM data will be based on comparing the score calculated for each AA with the baseline CRAM scores.

8.0 COMPLETION OF COMPENSATORY MITIGATION

The County and Resource Agencies will be notified of the completion of the mitigation program through the submittal of a final (Year 5) monitoring report. After receipt of the final monitoring report, the County and Resource Agencies may inspect the wetland waters and riparian rehabilitation areas to determine the success of the mitigation effort. If the mitigation meets all success standards at the end of the five-year monitoring period or sooner, then the mitigation will be considered a success; if not, the maintenance and monitoring program will be extended until the standards are met. Specific remedial measures (approved by the County and/or Resource Agencies) will be used during any extension. Monitoring extensions will be only for areas that fail to meet final success criteria and that are needed to meet minimum mitigation acreage requirements. This process will continue until all Year 5 standards are attained or until the County and Resource Agencies determine that other mitigation measures are appropriate. Should the mitigation effort meet all goals prior to the end of the five-year monitoring period, the County and Resource Agencies, at their discretion, may terminate the monitoring effort. If requested, a site visit may be conducted with the County and/or Resource Agencies following Year 3 and/or Year 5 to verify site conditions.

9.0 CONTINGENCY MEASURES

9.1 INITIATING CONTINGENCY MEASURES

If the County or Resource Agencies determine upon receipt of any of the annual monitoring reports that the mitigation effort is not meeting success standards, they shall notify the project proponent in writing that the mitigation effort may require additional measures for successful implementation. The project proponent shall then have 30 days to respond to the notification. During this period, the project proponent may discuss alternatives with the County and/or Resource Agencies.

9.2 ALTERNATIVE LOCATIONS FOR CONTINGENCY COMPENSATORY MITIGATION

A sufficient area for contingency mitigation is present at the project site. If the success criteria are not being met, the County and/or Resource Agencies will work together with the project proponent to reach an alternative mutually acceptable solution.

9.3 FUNDING

The project proponent, New West Investment, Inc., shall be responsible for all costs associated with any remedial measures.

9.4 NATURAL DISASTER

Should the mitigation area fail during the five-year maintenance and monitoring period due to a natural disaster such as a fire, earthquake, or flood, the project proponent will confer with the regulatory agencies to determine a mutually agreeable course of action.

Any significant issue or contingency that arises on the job site (e.g., plant survival issues, fire, or flooding) shall be reported in writing to the County of San Diego within two weeks from the date of the incident. Accompanying the report shall be a plan for remediation, with an implementation schedule and a monitoring schedule.

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Appendix N

Conceptual Resource Management Plan

Cottonwood Sand Mine

Conceptual Resource Management Plan – Biological Resources

November 2021 | 02975.00002.002

PDS2018-MUP-18-023
PDS2018-RP-18-001
PDS2018-ER-18-19-007

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Cottonwood Sand Mine

Conceptual Resource Management Plan

PDS2018-MUP-18-023
PDS2018-RP-18-00
PDS2018-ER-18-19-007

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ACRONYMS AND ABBREVIATIONS

amsl	above mean sea level
Cal-IPC	California Invasive Plant Council
CalFire	California Department of Forestry and Fire Protection
CDFW	California Department of Fish and Wildlife
CNPS	California Native Plant Society
County	County of San Diego
CRPR	California Rare Plant Rank
HELIX	HELIX Environmental Planning, Inc.
HSA	Hydrologic Subarea
MOU	Memorandum of Understanding
MSCP	Multiple Species Conservation Program
NRCS	Natural Resources Conservation Service
PAMA	Pre-Approved Mitigation Area
PDS	Planning and Development Services
Preserve	Cottonwood Sand Mine Biological Open Space
Project	Cottonwood Sand Mine Project
RMP	Resource Management Plan
ROW	Right-of-Way
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control
SANDAG	San Diego Association of Governments
SDG&E	San Diego Gas & Electric
SDMMP	San Diego Management and Monitoring Program
SDNWR	San Diego National Wildlife Refuge
SMARA	Surface Mining and Reclamation Act
SR	State Route
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 INTRODUCTION

This Conceptual Resource Management Plan (RMP) has been prepared for the proposed 142.8-acre Cottonwood Sand Mine Biological Open Space Preserve (preserve) in accordance with mitigation and revegetation requirements identified in the project's Biological Resources Technical Report (HELIX Environmental Planning, Inc. [HELIX] 2021a). This RMP provides direction for the permanent preservation and management of the preserve in accordance with County of San Diego (County) regulations.

1.1 PURPOSE OF BIOLOGICAL RESOURCE MANAGEMENT PLAN

The purpose of this RMP is to provide guidance in which to ensure the preservation of native habitats and long-term management of the preserve. This RMP:

1. Guides management of vegetation communities and habitats, plant and animal species, and programs described herein to protect and, where appropriate, enhance biological resources;

2. Serves as a descriptive inventory of vegetation communities and plant and animal species that occur within the preserve;

3. Establishes the baseline conditions from which adaptive management will be determined and success will be measured; and

4. Provides an overview of the operation, maintenance, administrative, and personnel requirements to implement management goals, and serves as a budget planning aid.

The details of this conceptual plan may be modified when the Final RMP is prepared and submitted to the County for final approval. The County will review the Final RMP to ensure that it meets the specified Purpose and Objectives.

1.1.1 Project Summary

The approximately 280-acre Cottonwood Sand Mine Project (project) site is located in the unincorporated community of Rancho San Diego in eastern San Diego County, California (Figure 1, *Regional Location*). The project site is currently occupied by the Cottonwood Golf Club, which consists of two 18-hole golf courses, one east of Steele Canyon Road and the other located to the west. The project proposes to convert the two golf courses to a sand mining operation that would mine the site incrementally in three phases over 10 years, with a final fourth phase for cleanup, equipment removal, and final reclamation (Figure 5, *Site Plan and Mine Phasing*). The project's mining operations would extract, process, and transport sand using conventional earth moving and processing equipment. Approximately 214 acres of the 250-acre Major Use Permit (MUP) boundary are proposed for extractive use under a phased extraction program. Surface areas not disturbed by mining would either be left in their current condition or be subject to enhancement through the removal of invasive species. The existing Sweetwater River channel, and the majority of native habitat that currently exists on the site, would be retained.

Upon completion of the extraction activities, the site would be progressively reclaimed in accordance with the mining and reclamation plan. Reclamation of the site would include: (1) removal of all artificial

structures; (2) backfilling and grading to achieve final landforms; (3) incorporation of accumulated wash fines and salvaged topsoil (as applicable); (4) establishment of graded pads that would be hydroseeded with an erosion control mix; (5) revegetation of the expanded Sweetwater River floodplain and constructed cut slopes using appropriate native vegetation; and (6) weed control and monitoring of the revegetation areas. Reclamation would be an ongoing process that immediately commences where mining operations have ceased within a given sub-phase area and continues until all mining-related disturbance is reclaimed.

The final landform is proposed to be a relatively flat plain that gently slopes downward from east to west, with an expanded floodplain area bisecting the length of the site. The expanded floodplain is expected to average approximately 250 to 300 feet in width and would be slightly higher in elevation than the existing low-flow river channel. The existing low-flow channel shall be retained in place to accommodate annual water transfers from Loveland Reservoir to Sweetwater Reservoir that are controlled by the Sweetwater Authority. Slopes bordering the expanded floodplain would slope up at a 3:1 ratio or shallower with an elevation difference of up to 25 feet between the top of the slope and bottom of the expanded floodplain. Reclaimed and revegetated areas would be restored to an end-use of native vegetation within a widened floodplain, recreational trails, and land suitable for uses allowed by the Open Space land use designation and existing zoning classifications. Maintenance and monitoring would continue until final performance standards are met in all revegetation areas.

The project's total on-site disturbance area is approximately 209.63 acres, in addition to 4.80 acres of off-site impacts. Areas that would not be disturbed as part of the proposed project, but are not preserved within biological open space, are identified as impact neutral (31.44 acres); these areas primarily consist of land previously disturbed by golf course development and prior resource extraction activities.

The project would impact a total of 1.63 acres of riparian habitat or other sensitive natural communities, including 0.50 acre of disturbed wetland, 0.32 acre of southern cottonwood-willow riparian forest, 0.01 acre of arundo-dominated riparian, and 0.8 acre of Diegan coastal sage scrub (including disturbed).

The project would result in impacts to a single special status plant species: San Diego County viguiera (*Bahiopsis laciniata*). Four individuals of San Diego County viguiera, a California Rare Plant Rank (CRPR) 4.3 species and County List D plant species, observed within the project site along the project's northeastern boundary would be impacted by the project. This impact is considered significant, and habitat-based mitigation will be incorporated to reduce the impact to less than significant. Additionally, although not found on-site, U.S. Fish and Wildlife Service (USFWS) critical habitat for the federally endangered San Diego ambrosia (*Ambrosia pumila*) is present in the southwestern portion of the site. The project would result in impacts to 0.70 acre of San Diego ambrosia critical habitat consisting of 0.001 acre of disturbed wetland, 0.20 acre of southern cottonwood-willow riparian forest, 0.46 acre of disturbed habitat, and 0.04 acre of developed lands associated with golf course development. These impacts would be less than significant since the species was not found to occur within the project site; therefore, no direct impacts to San Diego ambrosia would occur.

Project implementation would result in direct impacts to suitable breeding or foraging habitat for 17 special status animal species observed or detected on or adjacent to the site, including barn owl (*Tyto alba*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), coastal California gnatcatcher (*Polioptila californica californica*), Cooper's hawk (*Accipiter cooperii*), great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), Lawrence's goldfinch (*Spinus lawrencei*), least Bell's

vireo (*Vireo bellii pusillus*), monarch butterfly (*Danaus plexippus*), oak titmouse (*Baeolophus inornatus*), peregrine falcon (*Falco peregrinus*), red-shouldered hawk (*Buteo lineatus*), turkey vulture (*Cathartes aura*), vermilion flycatcher (*Pyrocephalus rubinus*), western bluebird (*Sialia mexicana*), yellow-breasted chat (*Icteria virens*), and yellow warbler (*Setophaga petechia*). Additionally, USFWS critical habitat for the coastal California gnatcatcher and least Bell's vireo occur in the southwestern portion of the site. The project would directly impact a small portion of critical habitat for coastal California gnatcatcher consisting of 0.08 acre of disturbed habitat associated with the golf course development. These impacts would be less than significant since the area does not support suitable coastal sage scrub habitat required by the species. The project would result in impacts to 0.8 acre of disturbed Diegan coastal sage scrub which provides potential foraging habitat for the species. Impacts to potential gnatcatcher foraging habitat would be significant but would be reduced to a less than significant level through the on-site preservation of 12.00 acres of Diegan coastal sage scrub within the biological open space easement. The project would result in impacts to 1.14 acres of least Bell's vireo critical habitat consisting of 0.16 acre of southern cottonwood-willow riparian forest, 0.78 acre of disturbed habitat, and 0.20 acre of developed land associated with golf course development. Impacts to disturbed habitat and developed land would be less than significant since these areas do not contain suitable riparian habitat required by the species. Impacts to southern cottonwood-willow riparian forest would be significant but reduced to a less than significant level through the on-site restoration, revegetation, and preservation of wetland and riparian habitat as part of site reclamation and the project's proposed mitigation and revegetation efforts.

Nearly 52 percent of the property (142.8 acres) will be preserved in a biological open space (BOS) easement, which will protect these lands in perpetuity and will restrict future uses to preserve their biological value. The 142.8-acre BOS preserve will include approximately 0.72 acre of existing native upland habitat and 15.01 acres of existing riparian habitat placed into preservation, 1.00 acres of wetland waters (riparian forest) re-establishment, 6.13 acres of riparian rehabilitation, 106.93 acres of wetland/riparian habitat revegetation, and 11.28 acres of upland revegetation (i.e., Diegan coastal sage scrub). Lastly, the preserve will contain approximately 1.74 acres of grouted rip-rap that will be installed along the graded slopes and downstream of Steele Canyon Road. A small portion of the area to be revegetated following extraction activities, approximately 3.20 acres, occurs within an existing San Diego Gas & Electric (SDG&E) easement which will remain over the project site following reclamation. As such, this area will not be placed within the BOS.

Riparian habitat re-establishment, riparian rehabilitation, and riparian preservation are being accomplished to fulfill mitigation requirements resulting from impacts to jurisdictional waters and wetlands. The final mitigation requirements and mitigation areas will be determined in consultation with the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW during the wetland permitting process. Native upland and riparian habitat revegetation will be completed in accordance with the Surface Mining and Reclamation Act (SMARA), Sections 1810 and 6550-6556 of the County Zoning Ordinance, and Section 86.605(d) of the County's Resource Protection Ordinance (RPO) requirements (County 2011). The final native habitat revegetation area will be determined in consultation with the County Planning Development Services (PDS) staff.

Preservation of 142.8 acres in on-site biological open space described in this RMP will permanently protect high-quality habitat suitable for numerous special species, including coastal California gnatcatcher and least Bell's vireo, as well as providing for the preservation of land determined to be of importance to regional habitat planning efforts under the County's Multiple Species Conservation Program (MSCP) Subarea Plan (County 1997).

1.1.2 Conditions and/or Mitigation Measures that Require an RMP

This RMP satisfies County requirements for public review of the project pursuant to the California Environmental Quality Act and conditions that will be part of the Resolution of Approval. Project conditions requiring an RMP include mitigation for impacts to sensitive vegetation communities, including disturbed wetland, southern cottonwood-willow riparian forest (including disturbed), southern willow scrub (including disturbed), and Diegan coastal sage scrub (including disturbed); impacts to jurisdictional waters and wetlands; and impacts to breeding, roosting, and/or foraging habitat for several special status animal species. Additionally, portions of the project site disturbed by mining areas will be reclaimed and revegetated with native upland and riparian habitat pursuant to SMARA and County requirements.

All compensatory wetland mitigation will occur on-site in the southwestern portion of the site within and adjacent to the Sweetwater River. Mitigation for impacts to upland sensitive habitats (DCSS [including disturbed]) will be met through on-site preservation of 0.72 acre of existing Diegan coastal sage scrub and 11.28 acres of on-site revegetation of Diegan coastal sage scrub completed as part of site reclamation that will be placed within the preserve.

Areas temporarily disturbed by mining activities are required to be reclaimed in accordance with the Reclamation Standards as identified in the Public Resources Code, Article 9, Section 3705, and Sections 1810 and 6550-6556 of the County Zoning Ordinance. Extraction activities will temporarily disturb a total of 214.03 acres which are required to be revegetated.

Additionally, Section 86.605(d) of the County RPO (County 2011) requires that sand, gravel, or mineral extraction projects implement the following mitigation measures as conditions of the project's Major Use Permit:

- Any wetland buffer area shall be restored to protect environmental values of adjacent wetlands;
- In a floodplain, any net gain in functional wetlands and riparian habitat shall result in or adjacent to the area of extraction;
- Native vegetation shall be used on steep slope lands to revegetate and landscape cut and fill areas in order to substantially restore the original habitat value, and slopes shall be graded to produce contours and soils which reflect a natural landform, which is consistent with the surrounding area; and
- Mature riparian woodland may not be destroyed or reduced in size due to sand, gravel, or mineral extraction.

Compensatory mitigation and native habitat revegetation efforts meet the requirements of the RPO as current wetland buffer areas (consisting of active and abandoned golf course development bordering the Sweetwater River and existing riparian habitat) disturbed by mining activities will be restored through mining reclamation, native habitat revegetation, re-establishment of riparian habitat, and rehabilitation of existing riparian habitat. The native revegetation area and wetland mitigation area are being preserved within the biological open space easement and will be managed in perpetuity in accordance with this plan.

1.2 IMPLEMENTATION

1.2.1 Resource Manager Qualifications and Responsible Parties

1.2.1.1 Resource Manager Qualifications

Proposed Resource Manager: The project applicant will contract with a qualified entity to serve as Resource Manager.

The County PDS and project applicant will jointly approve the selection of a Resource Manager, who must be an established conservancy group (such as the San Diego Habitat Conservancy) or land manager, County Department of Parks and Recreation, County Department of Public Works, a federal or state wildlife agency, or a federal land manager.

Additionally, the Resource Manager must possess the following qualifications:

- Ability to carry out habitat monitoring or mitigation activities;
- Fiscal stability, including preparation of an operational budget (using an appropriate analysis technique) for the management of this RMP;
- Have at least one staff member with a biology, ecology, or wildlife management degree, or have a Memorandum of Understanding (MOU) with a qualified person with such a degree; and
- Experience with habitat management in southern California.

1.2.1.2 Other Responsible Parties

Proposed Land Owner: Resource Manager/Conservancy (to be determined)

Proposed Easement Holder: County of San Diego

Restoration Entity: HELIX Environmental Planning, Inc. (or other restoration entity as may be proposed by Applicant and approved by County)

Management responsibilities for riparian habitat re-establishment, riparian rehabilitation, and upland and riparian revegetation areas implemented as part of the proposed project shall remain with the restoration entity until the mitigation and revegetation has been completed. The required habitat mitigation component for the project would be accomplished entirely through on-site riparian habitat re-establishment, riparian rehabilitation, and habitat preservation. Completion of the compensatory mitigation will be defined in the project's wetland mitigation plan. Completion of the various upland and riparian revegetation areas will be defined by the project's revegetation plan; it is noted that the areas addressed in the upland/riparian revegetation plan are not part of the required habitat mitigation for the project. Therefore, these areas are subject only to success criteria and potential bonding as it relates to the fulfillment of SMARA requirements. For mitigation and revegetation areas that require County/Agency approval (i.e., wetland revegetation areas), upon County/Agency acceptance of the mitigation and/or revegetated areas, management responsibility for the mitigation and revegetation areas will be transferred to the Resource Manager.

1.2.2 Financial Responsibility/Mechanism

The project applicant is responsible for funding mitigation and revegetation requirements, including direct funds to support the RMP start-up tasks.

The proposed long-term funding mechanism for the management of the preserve is anticipated to be through the establishment of an endowment.

1.2.3 Cost Estimate/Budget

A cost estimate will be prepared for the 142.8-acre preserve once a Resource Manager has been identified.

1.2.4 Reporting Requirements

An RMP annual report will be submitted to the County, USFWS, and CDFW, along with the submittal fee to cover County staff review time. The report will summarize the previous year's management and monitoring, as well as a work plan for the upcoming year. The report will provide a summary of methods employed, identify new management issues, and address the success or failure of previous management approaches based on the monitoring. It shall include a summary of the overall condition of vegetation communities and sensitive species in the preserve, assess any changes from the baseline or from the previous year's conditions, and address any monitoring and management limitations. The report shall list the expenses from the year, the proposed budget for the upcoming year, and the status of the endowment. Adaptive management (changes) resulting from previous monitoring results, and methods for measuring the success of such adaptive management, will be discussed.

The results of updated vegetation mapping and special status plant and animal surveys will be included in the annual reports. For new special status species observations or significant changes to previously reported species, the annual report shall include copies of completed California Natural Diversity Database forms with evidence that they have been submitted to the State. The report shall also include copies of invasive plant species forms submitted to the State or County.

A fee for staff's review time will be collected by PDS upon submittal of the annual report. The RMP may also be subject to an ongoing deposit account for staff to address management challenges as they arise. Deposit accounts, if applicable, must be replenished to a defined level as necessary.

1.2.5 Open Space Maintenance Agreement

The County requires an Agreement with the project applicant and Resource Manager when an RMP is required. The Agreement will be executed following County acceptance of this RMP. The Agreement will obligate the applicant to implement the RMP and provide a source of funding to pay the cost to implement the RMP in perpetuity. The Agreement shall also provide a mechanism for the funds to be transferred to the County in the event of failure of the Resource Manager to meet the goals outlined in this RMP. The Agreement shall also provide that all RMP funding has been provided or that the funding mechanism has been established prior to the issuance of a grading permit, and prior to use of the premises in reliance of the permit.

1.2.6 Limitations and Constraints

The factors that could potentially limit the successful implementation of the RMP were considered in the selection of tasks, their frequency, and estimated cost. Limitations commonly include weed cover, unauthorized access, and edge effects from adjacent development. The preserve is located within the existing developed golf course that is dominated by non-native vegetation, such as turf grass, and has been in operation since the 1960s. As such, baseline weed cover within the project site is high. As part of mining activities and site reclamation, non-native ground cover would be removed throughout the site in areas proposed for extraction and reclamation. The post-reclamation condition of the site includes a widened river floodplain revegetated with native wetland/riparian and the bordering slopes revegetated coastal sage scrub habitat which will be placed within BOS. Level pads will be graded to the north and south of the widened floodplain and would be hydroseeded with an erosion control mix to aid in soil stabilization and erosion control. Non-native and invasive species within the native habitat revegetation areas, re-established wetland waters, and rehabilitated riparian habitat would be removed in accordance with the methods detailed with the project's revegetation and wetland mitigation plans. These areas would be maintained and monitored for a minimum five-year period and would be required to meet performance standards, including low weed cover and the absence of invasive species, prior to agency sign-off and transfer of long-term maintenance responsibilities to the preserve manager. As such, weed cover is ultimately anticipated to be low within the preserve. Furthermore, implementation of a 100-foot limited building zone easement around the preserve will help to reduce potential edge effects by buffering the preserve from adjacent existing and potential future development and associated human uses (Figure 7, *Biological Open Space and Conceptual Fencing and Signage Locations and Easements to Others*).

The preserve would have limited access issues due to its topography, location adjacent to major roadways, and perimeter trail, which would provide multiple points of access. Unauthorized access to the preserve would be controlled through the installation of permanent fencing around BOS and the placement of signs precluding access except on established hiking trails.

Fire is a natural part of southern California ecosystems, including within preserve and adjacent open spaces, including the San Diego National Wildlife Refuge (SDNWR). Non-natural fire return intervals (increased fire frequency over historic levels) could affect the long-term viability of habitats through type conversion (e.g., Diegan coastal sage scrub to non-native grassland).

2.0 PROPERTY DESCRIPTION

This section includes data from the project's BTR, dated November 2021 (HELIX 2021a).

2.1 PROPERTY LOCATION

The approximately 280-acre project site is located in the unincorporated community of Rancho San Diego in eastern San Diego County, California (Figure 1, *Regional Location*). It is depicted within unsectioned lands of Township 16 South, Ranges 1 West and 1 East of the Jamul Mountains and El Cajon, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps (Figure 2, *USGS Topograph*y). The site lies north of State Route (SR) 94 and east of SR 54 within the Cottonwood Golf Club. More specifically, the site occurs southeast of Willow Glen Drive, north of Jamul Drive, east of Jamacha Road, and west of Hillsdale Road at 3121 Willow Glen Drive, El Cajon, California (Figure 3, *Aerial*

Vicinity). Steele Canyon Road bisects the project site from north to south, near the center of the site. The project site occurs within the following 24 Assessor Parcel Numbers: 506-021-19-00, 506 020-52, 518-012-13, 518-012-14, 518-030-05 through 518-030-08, 518-030-10, 518-030-12, 518 030-13, 518-030-15, 518-030-21, 518-030-22-00, 519-010-15, 519-010-17, 519-010-20, 519-010-21, 519-010-33, 519-010-34, 519-010-37, 519-011-03, 506-021-31, and 506-021-30.

The site is located on unincorporated lands within the South County and Metro-Lakeside-Jamul segments of the County's Multiple Species Conservation Program (MSCP) Subarea Plan (Figure 4, *MSCP Designations*). Within the MSCP, portions of the site along the northeastern, southern, and southeastern boundaries occur within areas identified as Pre-Approved Mitigation Area (PAMA), and Minor Amendment lands occur in the southwestern portion of the site along the Sweetwater River (Figure 4).

2.2 GEOGRAPHICAL SETTING

The project site is generally located within the Sweetwater River Valley ecoregion of southeast San Diego County. It occurs within the boundaries of the Rancho San Diego Specific Plan Area of the Valle de Oro Community Planning Area. Generalized climate in the region is regarded as dry, sub humid mesothermal, with warm dry summers and cold moist winters. Mean annual precipitation is between 14 and 18 inches, and the mean annual temperature is between 60- and 62-degrees Fahrenheit. The frost-free season is 260 to 300 days.

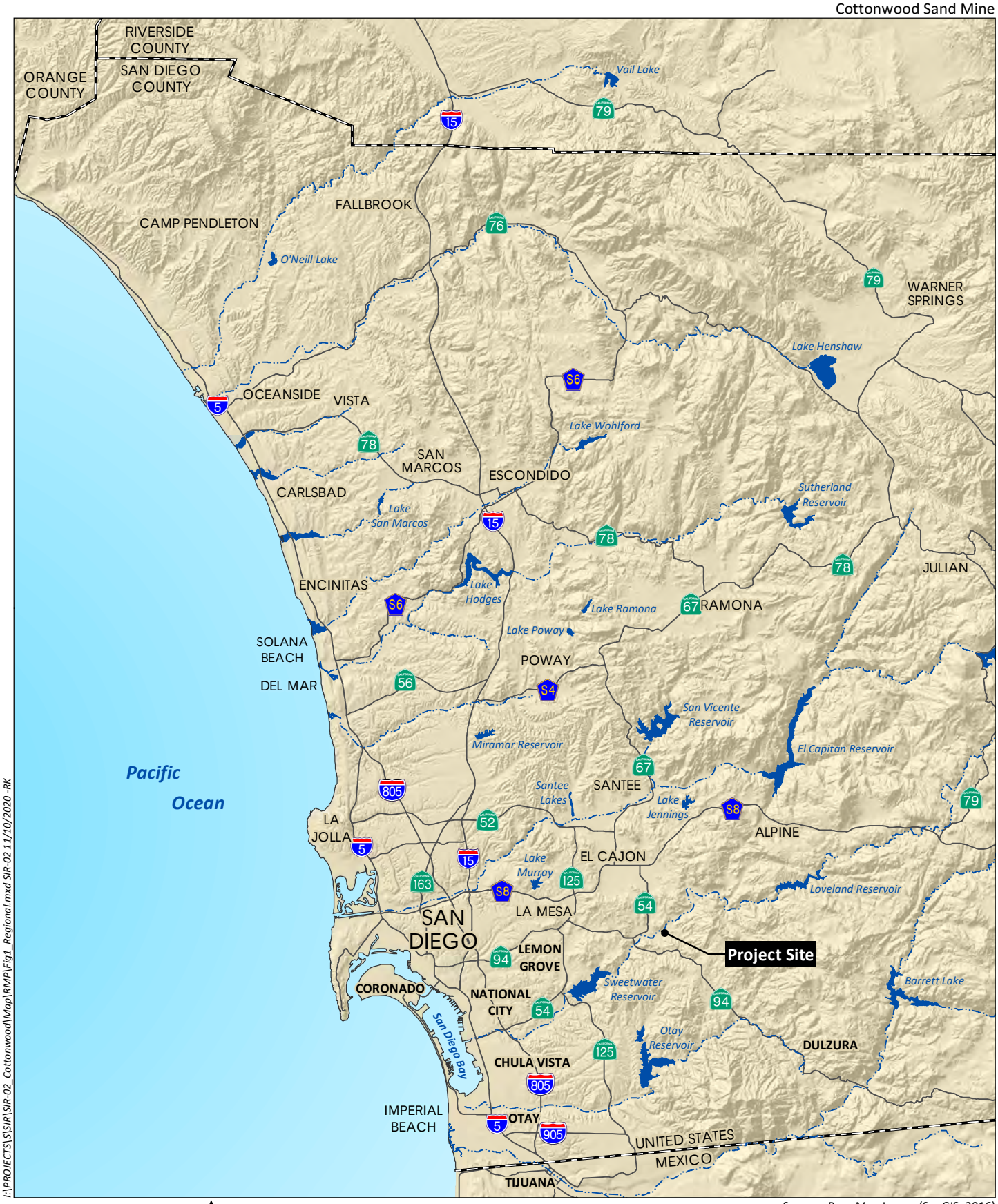
The project site occurs within both the northeastern portion of the South County Segment and the southwestern portion of the Metro-Lakeside-Jamul Segment of the adopted County MSCP Subarea Plan. Three small areas of PAMA, totaling 16.40 acres (six percent), occur along the northeastern, southeastern, and southern project boundaries. Additionally, approximately 37.79 acres (14 percent) of the site at the southwestern boundary represent a Minor Amendment Area.

The dominant habitat/land use type present on-site is developed land, which covers approximately 139.0 acres (50 percent) of the site. Approximately 243.6 acres (88 percent) of the site is currently operated as a public golf course, or is otherwise disturbed by past land uses, including 0.8 acre of non-native woodland, 3.0 acres of eucalyptus woodland, 4.2 acres of non-native vegetation, 3.5 acres of man-made pond, and 232.1 acres of disturbed habitat and developed lands containing a combination of active and inactive golf course areas, in addition to a clubhouse, parking lot, maintenance facilities and other buildings, golf cart paths, and other areas of hardscape or maintained landscaping.

2.3 LAND USE

Prior to the 1940s, the site was used for commercial ranching and agriculture. In the 1950s, mining for construction aggregates was conducted to the south of Sweetwater River, west of Steele Canyon Road, and adjacent to Willow Glen Drive at the western end of the site. Since the 1960s, the project site has operated as a public golf course. Mineral extraction activities expanded to the east side of Steele Canyon Road in the 1960s and continued into the 1970s, as both golf courses were developed and expanded. Construction of the golf course initially began in 1962 and was completed in 1964. Sand extraction activities have continued within the site throughout the years, allowing for the creation of water hazards and expanded fairways as golf course improvements.

Land uses in the surrounding area include residential and rural residential developments to the north and south, extractive operations to the east, and an adjacent golf course to the southeast. Open space is



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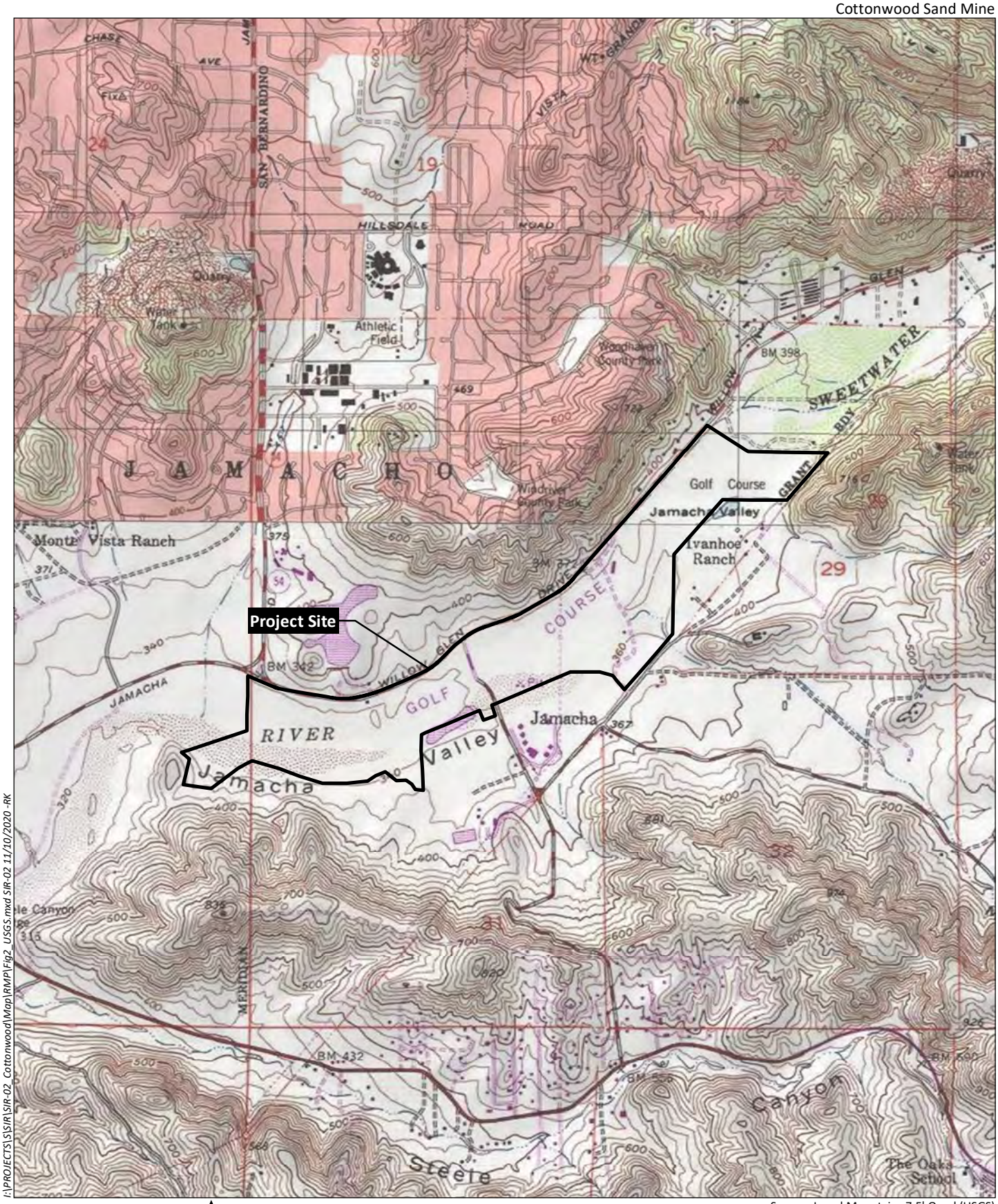
0 8 Miles

Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

Regional Location

Figure 1



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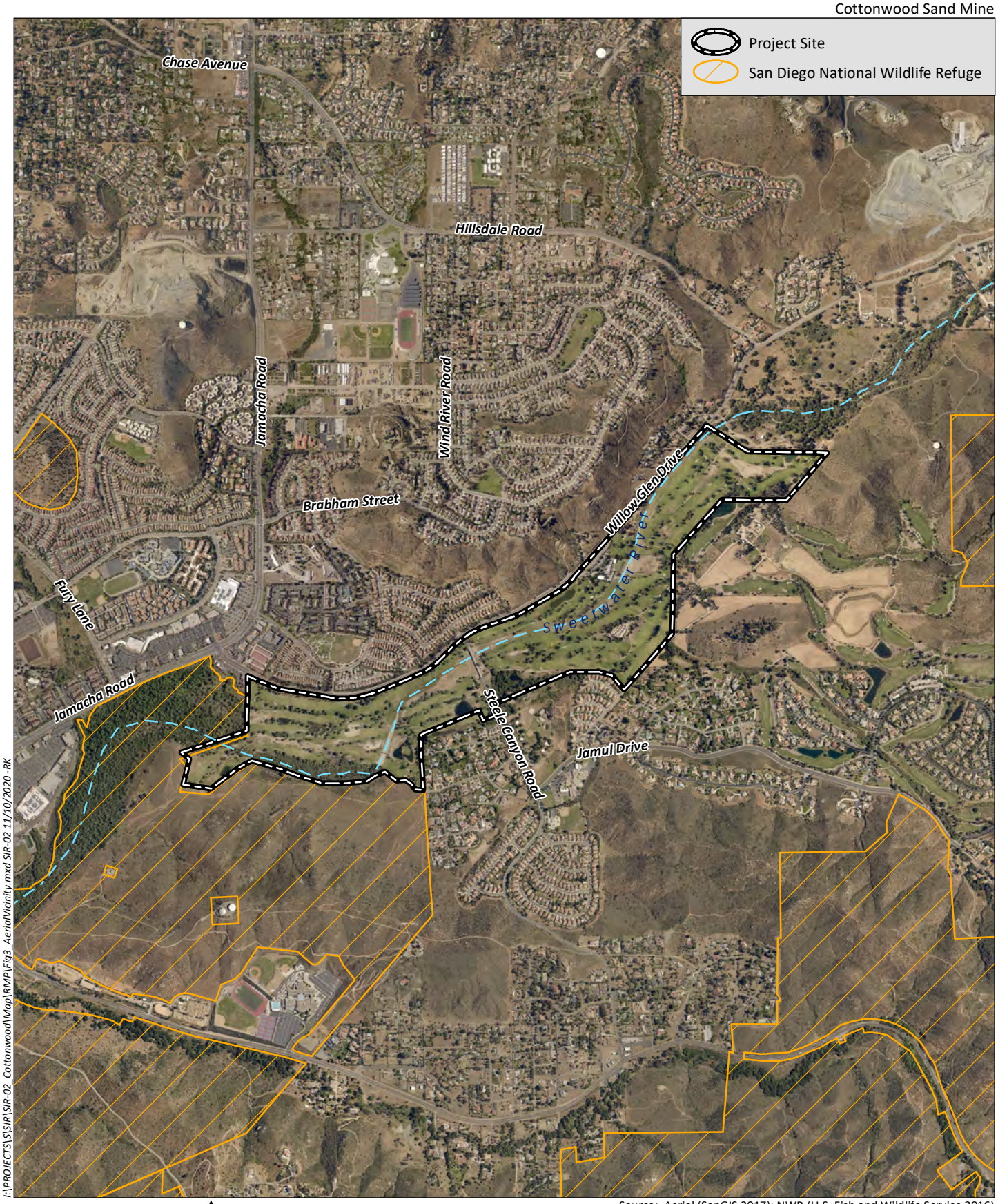
Source: Jamul Mountains 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2

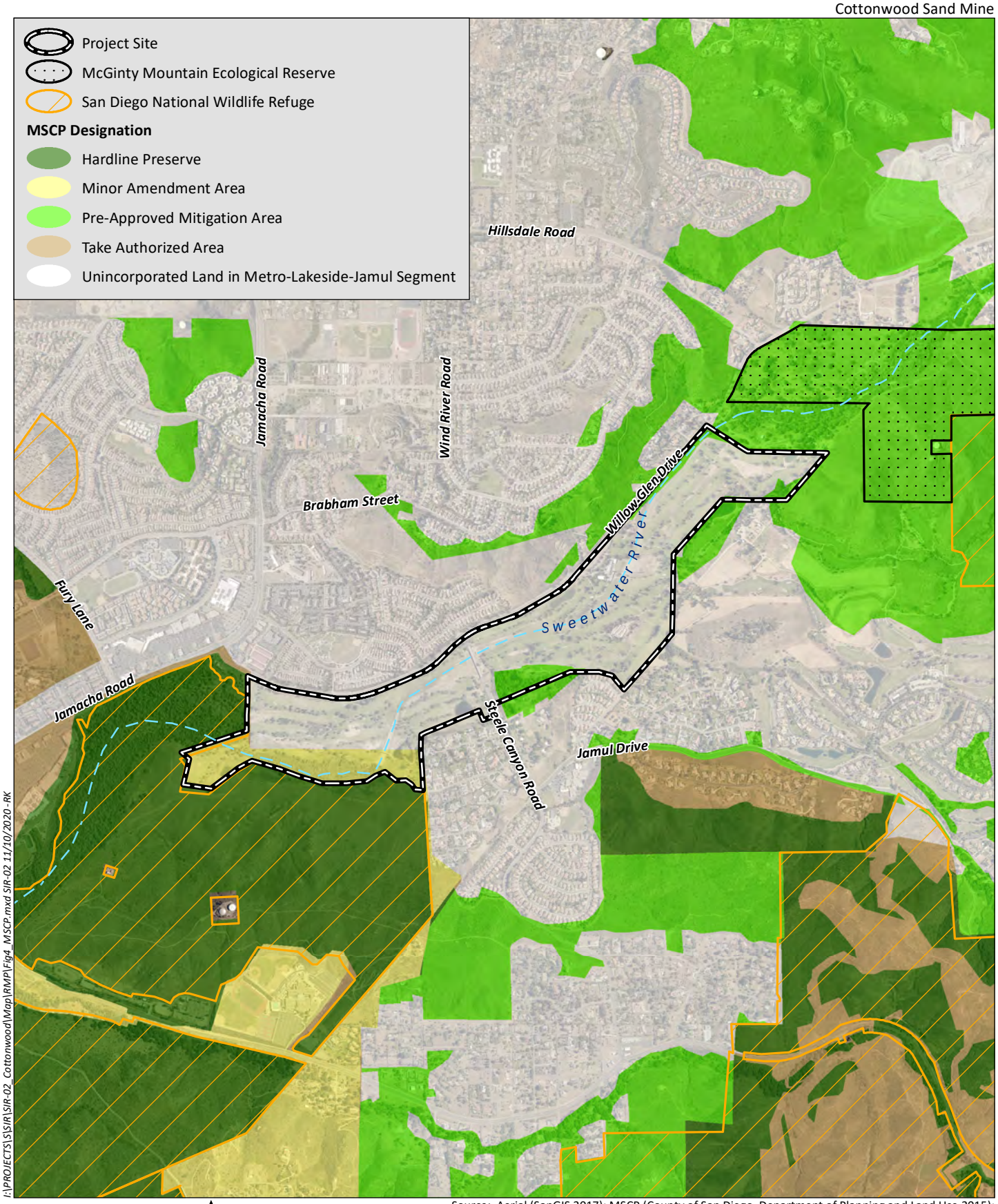


Source: Aerial (SanGIS 2017); NWR (U.S. Fish and Wildlife Service 2016)

HELIX Environmental Planning

Aerial Vicinity

Figure 3



Source: Aerial (SanGIS 2017); MSCP (County of San Diego, Department of Planning and Land Use 2015); NWR (U.S. Fish and Wildlife Service 2016); Ecological Reserves (CDFW 2013)

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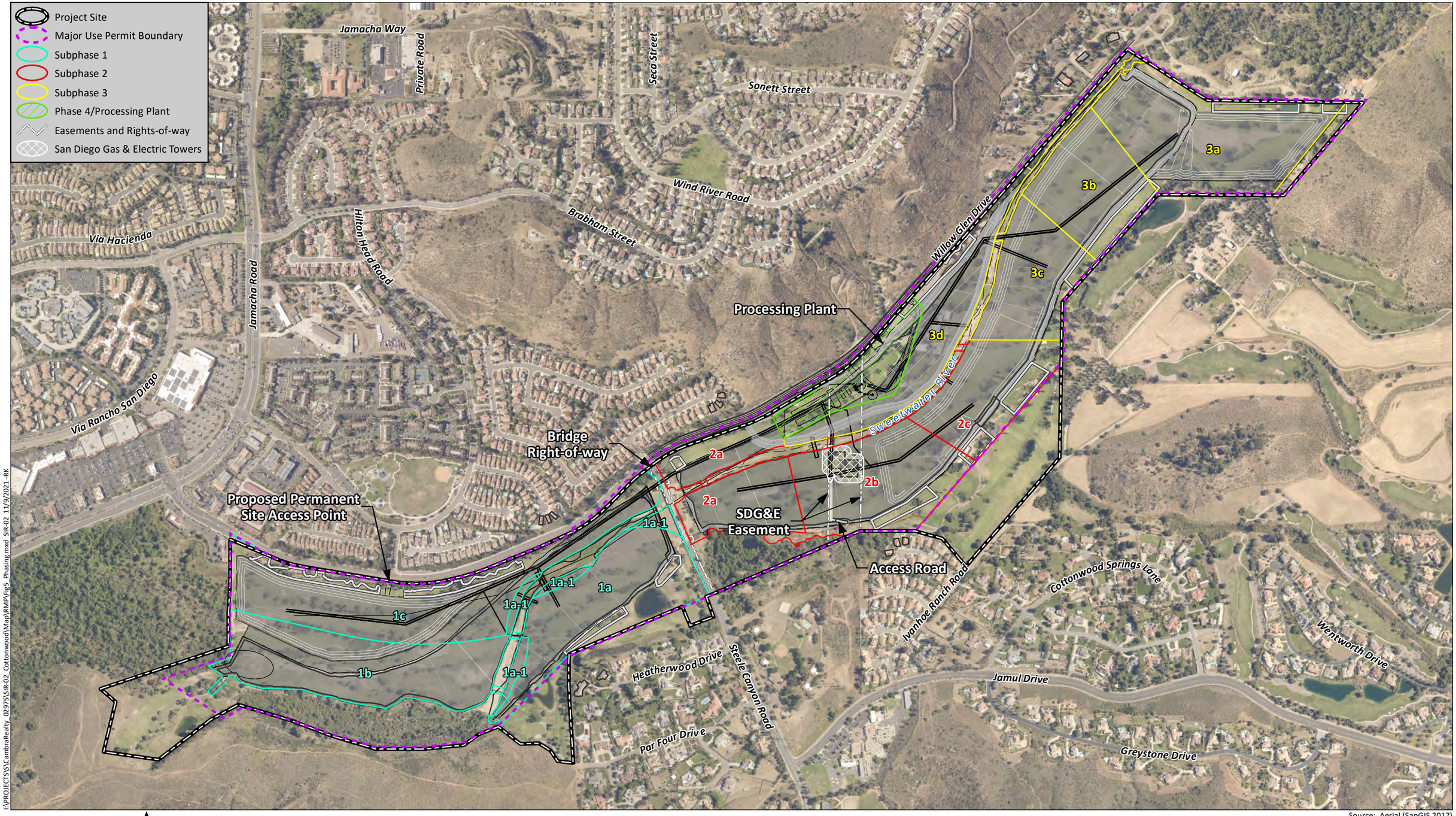
MSCP Designations

Figure 4



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0 700 Feet

Source: Aerial (SanGIS 2017)

HELIX Environmental Planning

Site Plan and Mine Phasing

Figure 5

present in the hills south, east, and west of the site. The SDNWR abuts the western end of the site along the Sweetwater River.

2.4 GEOLOGY, SOILS, CLIMATE, AND HYDROLOGY

The site gently slopes from east to west with elevations ranging from approximately 320 feet above mean sea level (amsl) to 380 ft amsl. Elevation generally decreases from east to west across the site, with the lowest elevations occurring along the southwestern boundary, and the highest elevations along the northeastern boundary. The Sweetwater River runs through the length of the site entering at the northeastern project boundary and continuing in a mostly east-west direction to the southern boundary, where it exits the site and continues southwest towards Sweetwater Reservoir. The Sweetwater River extends from its headwaters in the Cuyamaca Mountains (east of the site) to the Pacific Ocean, approximately 15 miles downstream of the site.

Six soil series, which comprise nine soil types, have been mapped on-site (Natural Resources Conservation Service [NRCS] 2020; Figure 6, *Soils*), with the majority classified as sandy loams. Those soil types covering the most area on-site include Riverwash and those in the Tujunga series.

Generalized climate in the region is regarded as dry, sub-humid mesothermal, with warm dry summers and cold moist winters. The frost-free season is 260 to 300 days. Temperatures in El Cajon are generally highest in August (average high temperature of 86 ˚F) and lowest in December (average low temperature of 46 ˚F). Average annual precipitation in El Cajon is approximately 10.31 inches, with the highest average rainfall totals occurring in January, February, and March (2.40 inches, 2.51 inches, and 2.41 inches, respectively). The driest months are June, July, and August, with approximately 0.08 inch of rainfall in June, 0.04 inch in of rainfall in July, and 0.03 inch of rainfall in August (Weather.com 2020)

The site is in the Jamacha Hydrologic Subarea (HSA; HSA No. 4909.21), which lies in the Middle Sweetwater Hydrologic Area and Sweetwater Hydrologic Unit, one of 11 major drainage areas identified in the San Diego RWQCB Water Quality Control Plan for the San Diego Basin for Region 9 (RWQCB 2016). The site is located within the Sweetwater River Valley and in the floodplain of the Sweetwater River, which flows in a northeast-to-southwest direction through the central portion of the site. The project site's direct receiving water body is the Sweetwater River, and its downstream receiving water body is the Sweetwater Reservoir. The Sweetwater Reservoir is located approximately 2.8 miles downstream and southwest of the project site. The Sweetwater River extends from its headwaters in the Cuyamaca Mountains (east of the site) to the Pacific Ocean, approximately 15 miles downstream of the site.

2.5 TRAILS

A publicly accessible multi-use trail is proposed to be constructed within the project site. A five-foot-wide trail easement would be established around the perimeter of the biological open space area following site reclamation (Figure 7). As currently proposed, the trail easement would cross the biological open space in one location at the extreme northeastern portion of the site, and would be fenced on either side, consisting of three-strand wire, wooden split rail fencing, or similar fencing allowing for wildlife passage. Signs prohibiting access would be posted along the fencing. Additionally, off-leash pets would not be allowed on trails or public areas, and signs would be posted along trails notifying pet owners of this regulation. Maintenance of the trail is not proposed to be conducted as part of the RMP. No other trails are proposed in the preserve.

2.6 EASEMENTS OR RIGHTS

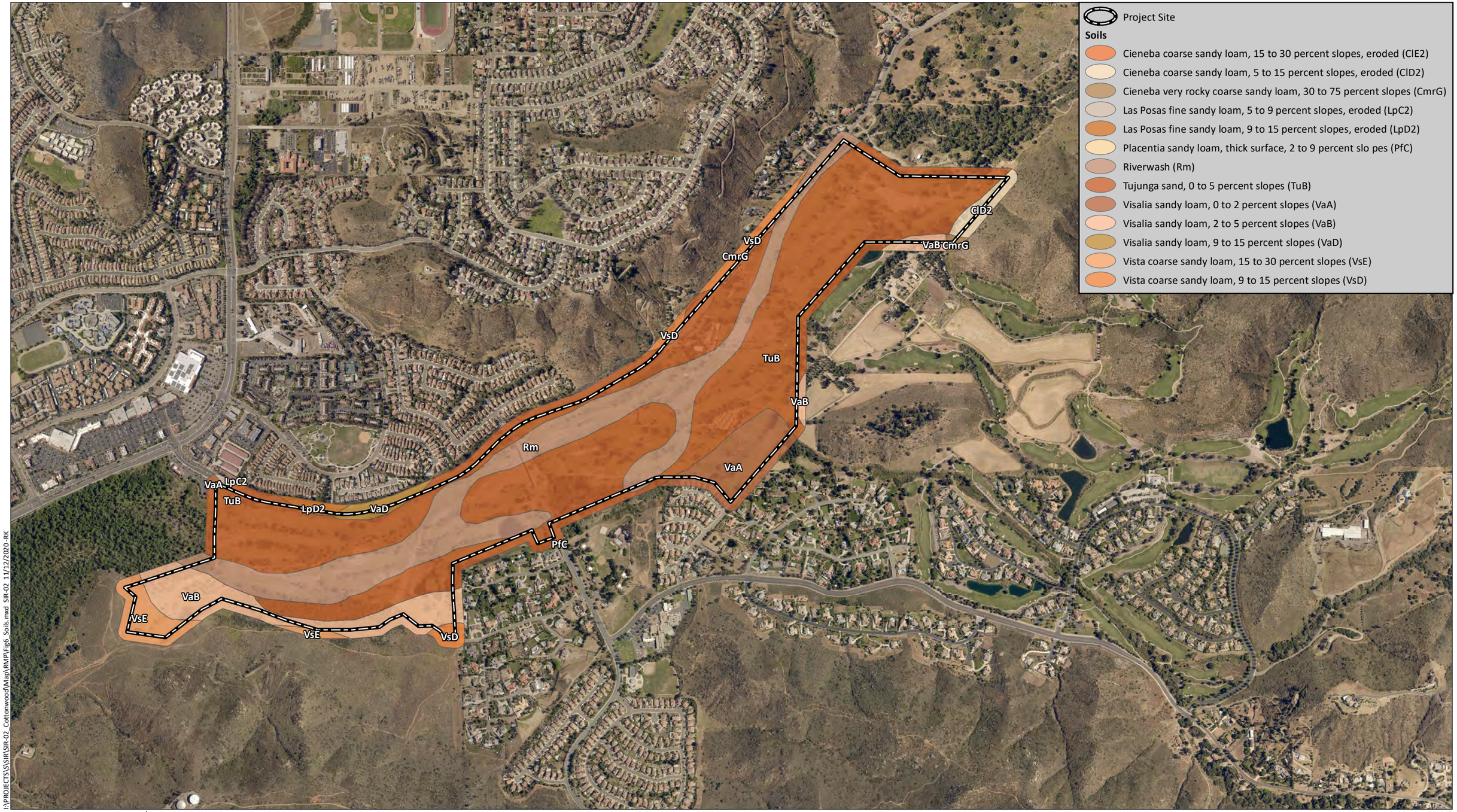
There are two easements that bisect the biological open space that will remain following mining activities and site reclamation. One of the easements consists of the Steele Canyon Road bridge right-of-way (ROW) that occurs within the central portion of the site (Figure 7). The Steele Canyon Road bridge ROW comprises the Steele Canyon Road bridge and associated footings that bisect the project's biological open space in a generally north to south direction across Sweetwater River. The Steele Canyon Road bridge ROW has been excluded from the biological open space; therefore, the presence of the bridge ROW is not expected to affect the long-term viability and management of the biological open space. This ROW will be identified in the biological open space easement recorded over the biological open space.

The second easement consists of an SDG&E easement that occurs within the eastern portion of the site, east of Steele Canyon Road, and crosses over the northeastern portion of the project site where reclamation and revegetation activities are proposed to occur (Figure 7). The SDG&E easement bisects the project's biological open space area. The easement consists of overhead utility lines that run in a north to south direction across the Sweetwater River. Three transmission towers poles and other associated infrastructure have been excluded from the biological open space; therefore, the presence of the SDG&E easement is not expected to affect the long-term viability and management of the biological open space. Reclamation and native habitat revegetation is proposed to occur within the SDG&E easement, where temporary impacts would occur as a result of mining activities. Existing elevations would be lowered by 15 to 20 feet, but the three transmission towers would remain at their current elevation, leaving a raised "island" within the expanded Sweetwater River floodplain. An access ramp would be constructed on the western side of the island to connect to a 28-foot-wide access road within the existing SDG&E right-of-way easement that runs from the towers to the top of the constructed southern slope at the southern boundary of the expanded floodplain. The ramp, access road, and slopes surrounding the towers would be compacted and lined, as needed, for access and to prevent erosion. Maintenance of this access road/ramp would ensure that SDG&E maintenance crews are able to access the towers during project operations. Fencing and signage would be installed along the ramp and access road to prevent unauthorized access and impacts to the native habitat revegetation area and biological open space located adjacent to the access road. This easement will be identified in the biological open space easement recorded over the biological open space.

Any other easements crossing the preserve will be vacated or quitclaimed. The Steele Canyon Road bridge ROW and SDG&E easement to remain are not counted in the overall acreage of biological open space which totals 142.8 acres on-site.

2.7 FIRE HISTORY

The rate of fires in San Diego County coastal shrublands generally increased over the last half of the 20th century. Over 600 fires have occurred in the foothills and mountains of San Diego County between 1910 and 1999, and several major fires in excess of 50,000 acres have occurred in recent years. According to a review of the County's fire burn data and California Department of Forestry and Fire Protection (CalFire) burn data, the preserve has not been documented as being affected by fire (SanGIS 2020, CalFire 2020).



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0 1,000 Feet

Source: Aerial (SanGIS 2017)

HELIX Environmental Planning

Soils

Figure 6

- Project Site
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- Open Space Conceptual Signage Location
- Existing Fencing
- Proposed Fencing
- Easements and Rights-of-way
- Limited Building Zone Easement
- Biological Open Space
- Non-Biological Open Space
- Additional Reclaimed Areas*
- Retained in Existing Condition

**Additional reclaimed areas are composed of graded upland pads located outside of the expanded Sweetwater River floodplain that will be seeded with an erosion control seed mix.*

Jamacha Way
Sonett St
Aspen Ln
Wind River Rd
Sweetwater River
Sea Pines Rd
Via Rancho San Diego
Bridge Right-of-way
Augusta Ct
SDG&E Towers
Ivanhoe Ranch Rd
Jamacha Rd
Hilton Head Rd
Access Road
Willow Glen Dr
SDG&E Easement
Steele Canyon Rd
Cottonwood Springs Ln
Ashley Park Dr
Indian Mills Ln
Wentworth Way
Heatherwood Dr
Jamul Dr
Par Four Dr
Greystone Dr

0 700 Feet

Source: Aerial (SanGIS, 2017)

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HELIX Environmental Planning

Biological Open Space and Conceptual Fencing and Signage Locations and Easements to Others

Figure 7

3.0 BIOLOGICAL RESOURCES DESCRIPTION

3.1 VEGETATION COMMUNITIES

A total of 14 vegetation communities/land use types occur within the preserve (Figure 8, *Vegetation and Sensitive Biological Resources in the Biological Open Space*; Table 1, *Existing Vegetation Communities/Land Use Types in The Preserve*).

The numeric codes in parentheses following each community/land use type name are from the Holland classification system (Holland 1986) and as added to by Oberbauer (2008) as presented in the County's Biology Guidelines (County 2010a).

Table 1
EXISTING VEGETATION COMMUNITIES/LAND USE TYPES IN THE PRESERVE

Vegetation Community[1]	Acreage[2]	
	Before Restoration	After Restoration/ Revegetation[3]
Wetlands		
Disturbed Wetland (11200)	10.04	0
Streambed (Emergent Wetland) (52440)	0	9.56
Freshwater Marsh (52400)	0.31	0.31
Southern Cottonwood-Willow Riparian Forest[4] (61330)	13.69	27.71
Southern Willow Scrub[4] (63320)	4.67	90.68
Tamarisk Scrub (63810)	0.62	0
Open Water (64140)	0.82	0.82
Arundo-Dominated Riparian (65100)	0.46	0
Wetlands Subtotal	*30.61*	*129.08*
Sensitive Uplands		
Diegan Coastal Sage Scrub[4] (32500)	0.72	12.0
Sensitive Uplands Subtotal	*0.72*	*12.0*
Non-Sensitive Uplands		
Non-Native Vegetation (11000)	0.16	0
Disturbed Habitat (11300)	40.82	0
Developed Land (12000)	70.39	1.74[5]
Man-made Pond (64140)	0.14	0
Non-Sensitive Uplands Subtotal	*111.49*	*1.74*
TOTAL	**142.82**	**142.82**

1 Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008). Data is from the project's biological technical report (HELIX 2021a).

2 Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01; thus, total reflects rounding.

3 Acreage after restoration refers to the conceptual acreage that is anticipated following completion of the project's Conceptual Wetland Mitigation Plan (HELIX 2021b) and Conceptual Revegetation Plans (HELIX 2021c), which are currently being prepared, thus, acreages provided in Table 3 are estimates and may change.

4 Including disturbed.

5 Consists of grouted rip rap.

Disturbed Wetland

Disturbed wetland is dominated by exotic wetland species that invade areas that have been previously disturbed or undergone periodic disturbances. These non-natives become established more readily following natural or human-induced habitat disturbance than the native wetland flora. Characteristic species of disturbed wetlands include giant reed (*Arundo donax*), tamarisk (*Tamarix* ssp.), cocklebur (*Xanthium strumarium*), umbrella sedge (*Cyperus involucratus*), and wild celery (*Apium graveolens*).

Disturbed wetland on-site is located along the Sweetwater River and is dominated by Bermuda grass or bare ground. The river channel has been altered from current and past disturbances associated with previous mining activities and golf course development. It has been planted with turf grass and is regularly mowed as part of golf course maintenance activities. Approximately 10.04 acres of disturbed wetland are mapped within the preserve. Disturbed wetland would be eliminated from the preserve following completion of the project's reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans, as areas currently mapped as disturbed wetland will be restored and/or revegetated with native vegetation.

Streambed/Emergent Wetland

Emergent wetland is dominated by low-growing, perennial wetland species such as spikerush (Eleocharis spp.), rushes (Juncus spp.), and sedges (Carex spp.). This community occurs in channels, seeps and springs, floodplains, margins of lakes and rivers, and various basins such as pools and ponds, palustrine lakes, montane meadows, and dune swales. It is often associated with previously disturbed areas where wetlands are emerging but have not yet established.

Emergent wetland is not currently present within the project site. Following completion of reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans, a total of 9.56 acres of emergent wetland would be seeded along the Sweetwater River. Existing habitat along the Sweetwater River is comprised of disturbed wetland but would be removed and restored and/revegetated with native vegetation. Sweetwater River is subjected to periodic heavy flows as a result of water releases and transfers between Loveland Reservoir and Sweetwater Reservoir, as controlled by the Sweetwater Authority. As such, vegetation along the Sweetwater River is anticipated to be dynamic and transition between sections of the unvegetated streambed and vegetated streambed.

Freshwater Marsh

Freshwater marsh is dominated by perennial, emergent monocots, 5 to 13 feet tall, forming incomplete to completely closed canopies. This vegetation type occurs along the coast and in coastal valleys near river mouths and around the margins of lakes and springs, freshwater, or brackish marshes. These areas are semi- or permanently flooded yet lack a significant current (Holland 1986). Dominant species include cattails (*Typha* sp.) and bulrushes (*Schoenoplectus* sp.), along with umbrella sedges (*Cyperus* sp.), rushes (*Juncus* sp.), and spike-sedge (*Eleocharis* sp.).

Freshwater marsh within the project site is dominated by cattails and California bulrush (*Schoenoplectus californicus*). A small patch occurs in the southwestern portion of the site at the downstream end of Sweetwater River, just east (upstream) of a bridge crossing. Freshwater marsh also occurs in the south-central portion of the site, just east of Steele Canyon Road, in an area that was previously disturbed by

- Project Site
- Major Use Permit Boundary
- Easements and Rights-of-way
- Limited Building Zone Easement
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)

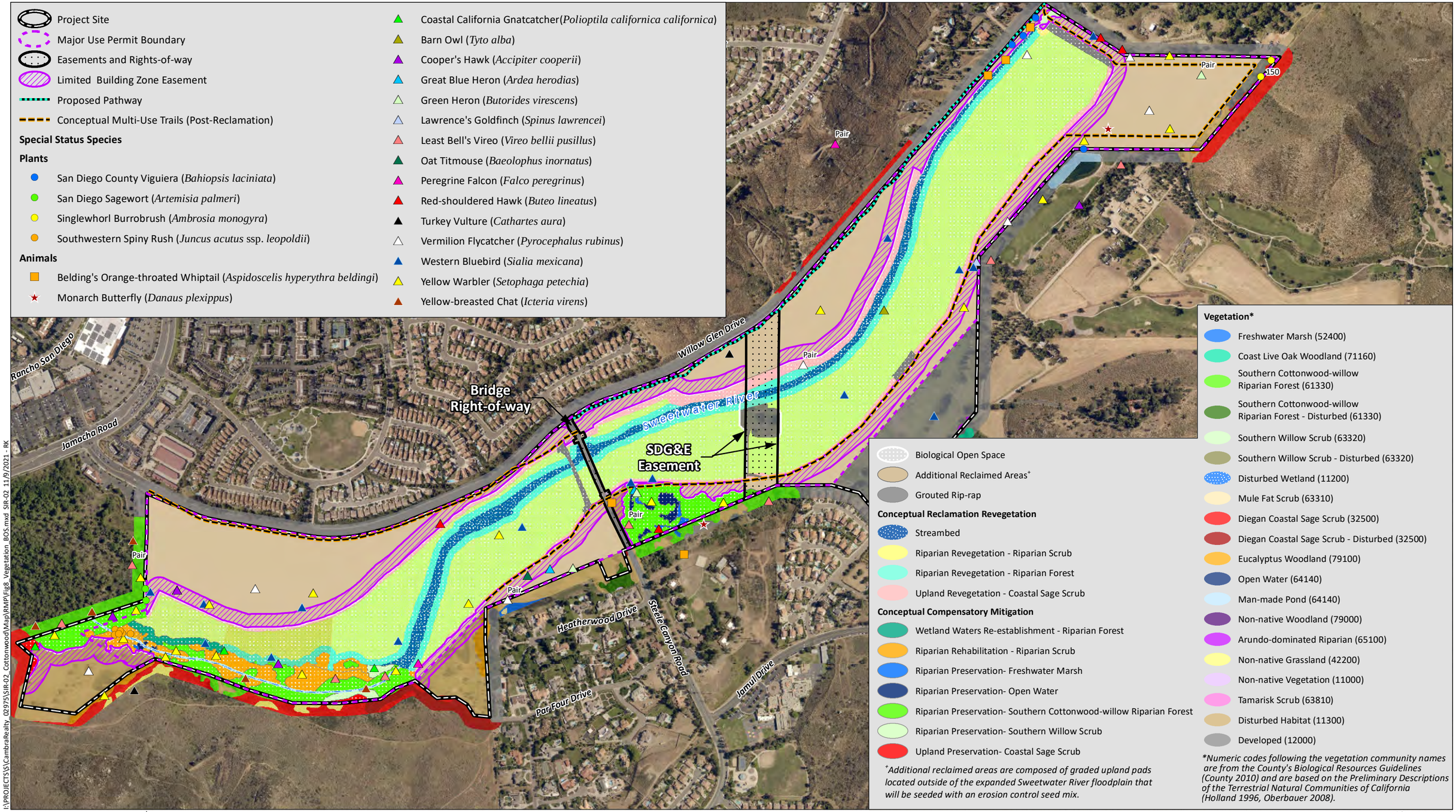
Special Status Species

Plants

- San Diego County Viguiera (*Bahiopsis laciniata*)
- San Diego Sagewort (*Artemisia palmeri*)
- Singlewhorl Burrobrush (*Ambrosia monogyra*)
- Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*)

Animals

- Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)
- Monarch Butterfly (*Danaus plexippus*)
- Coastal California Gnatcatcher(*Polioptila californica californica*)
- Barn Owl (*Tyto alba*)
- Cooper's Hawk (*Accipiter cooperii*)
- Great Blue Heron (*Ardea herodias*)
- Green Heron (*Butorides virescens*)
- Lawrence's Goldfinch (*Spinus lawrencei*)
- Least Bell's Vireo (*Vireo bellii pusillus*)
- Oat Titmouse (*Baeolophus inornatus*)
- Peregrine Falcon (*Falco peregrinus*)
- Red-shouldered Hawk (*Buteo lineatus*)
- Turkey Vulture (*Cathartes aura*)
- Vermilion Flycatcher (*Pyrocephalus rubinus*)
- Western Bluebird (*Sialia mexicana*)
- Yellow Warbler (*Setophaga petechia*)
- Yellow-breasted Chat (*Icteria virens*)



Vegetation*

- Freshwater Marsh (52400)
- Coast Live Oak Woodland (71160)
- Southern Cottonwood-willow Riparian Forest (61330)
- Southern Cottonwood-willow Riparian Forest - Disturbed (61330)
- Southern Willow Scrub (63320)
- Southern Willow Scrub - Disturbed (63320)
- Disturbed Wetland (11200)
- Mule Fat Scrub (63310)
- Diegan Coastal Sage Scrub (32500)
- Diegan Coastal Sage Scrub - Disturbed (32500)
- Eucalyptus Woodland (79100)
- Open Water (64140)
- Man-made Pond (64140)
- Non-native Woodland (79000)
- Arundo-dominated Riparian (65100)
- Non-native Grassland (42200)
- Non-native Vegetation (11000)
- Tamarisk Scrub (63810)
- Disturbed Habitat (11300)
- Developed (12000)

**Numeric codes following the vegetation community names are from the County's Biological Resources Guidelines (County 2010) and are based on the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1996, Oberbauer 2008).*

- Biological Open Space
- Additional Reclaimed Areas+
- Grouted Rip-rap

Conceptual Reclamation Revegetation

- Streambed
- Riparian Revegetation - Riparian Scrub
- Riparian Revegetation - Riparian Forest
- Upland Revegetation - Coastal Sage Scrub

Conceptual Compensatory Mitigation

- Wetland Waters Re-establishment - Riparian Forest
- Riparian Rehabilitation - Riparian Scrub
- Riparian Preservation- Freshwater Marsh
- Riparian Preservation- Open Water
- Riparian Preservation- Southern Cottonwood-willow Riparian Forest
- Riparian Preservation- Southern Willow Scrub
- Upland Preservation- Coastal Sage Scrub

+Additional reclaimed areas are composed of graded upland pads located outside of the expanded Sweetwater River floodplain that will be seeded with an erosion control seed mix.

0 700 Feet

Source: Aerial (SanGIS, 2017)

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HELIX Environmental Planning

Vegetation and Sensitive Biological Resources in the Biological Open Space

Figure 8

sand mining activities. A total of 0.31 acre of freshwater marsh occurs within the preserve and will be preserved in place.

Southern Cottonwood-Willow Riparian Forest (including disturbed)

Southern cottonwood-willow riparian forest consists of tall, open, broad-leaved, winter deciduous riparian species and is dominated by cottonwood species (e.g., *Populus* spp.), with willow species (*Salix* spp.) composing the main understory. This vegetation community is dense, structurally diverse, and similar to southern arroyo willow riparian forest, although it contains a greater number of cottonwoods and western sycamores (*Platanus racemosa*). Disturbed southern cottonwood-willow riparian forest contains a higher percentage of exotic species such as tamarisk, shamel ash (*Fraxinus uhdei*), eucalyptus (*Eucalyptus* spp.), peppertree (*Schinus* spp.), and Mexican fan palm (*Washingtonia robusta*).

Typical species occurring within southern cottonwood willow riparian forest on-site include western cottonwood (*Populus fremontii*), western sycamore, arroyo willow (*Salix lasiolepis*), and black willow (*Salix gooddingii*). Non-native species within disturbed portions of southern cottonwood-willow riparian forest include eucalyptus, tamarisk, and Mexican fan palm. Approximately 13.69 acres of southern cottonwood-willow riparian forest, which includes 0.86 acre disturbed, occur at the northeastern and southwestern portions of the preserve along Sweetwater River, and to the east of Steele Canyon Road, along the site's southern boundary in an area previously disturbed by sand mining activities. The acreage of this habitat is expected to increase to 27.71 acres following the completion of reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans.

Southern Willow Scrub (including disturbed)

Southern willow scrub consists of dense, broad-leaved, winter-deciduous stands of trees dominated by shrubby willows in association with mule fat (*Baccharis salicifolia*), and with scattered emergent cottonwood and western sycamores. This vegetation community occurs on loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. Frequent flooding maintains this early seral community, preventing the succession to a riparian woodland or forest (Holland 1986). In the absence of periodic flooding, this early seral type would be succeeded by southern cottonwood or western sycamore riparian forest. Disturbed southern willow scrub contains a higher percentage of exotics and non-native species.

This habitat occurs along the downstream portion of Sweetwater River in the southwestern portion of the site. Dominant species include arroyo willow, black willow, and sandbar willow (*Salix exigua*). Disturbed southern willow scrub includes the same species along with intermixed giant reed and tamarisk trees. A total of 4.67 acres of southern willow scrub, which includes 3.87 acres disturbed, occur within the preserve; this is expected to increase to 90.68 acres following completion of the project's reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans.

Tamarisk Scrub

Tamarisk scrub typically comprises shrubs and/or small trees of exotic tamarisk species but may also contain willows, salt bushes (*Atriplex* spp.), and salt grass (*Distichlis spicata*). This habitat occurs along

intermittent streams in areas where high evaporation rates increase the salinity level of the soil. Tamarisk is a phreatophyte, a plant that can obtain water from an underground water table. Because of its deep root system and high transpiration rates, tamarisk can substantially lower the water table to below the root zone of native species, thereby competitively excluding them. As a prolific seeder, it may rapidly displace native species within a stream channel.

Tamarisk scrub on-site is dominated by tamarisk with occasional cattails and willows. It is found along the downstream portion of Sweetwater River in the southwestern portion of the site. A total of 0.62 acre of tamarisk scrub is mapped within the preserve. Tamarisk scrub would be eliminated from the preserve following completion of the project's compensatory mitigation in accordance wetland mitigation plan, as areas currently mapped as tamarisk scrub would be rehabilitated through the removal of non-native vegetation and the installation of native plant and seed material.

Open Water

Open water consists of year-round bodies of fresh water in the form of lakes, streams, ponds, or rivers. It also includes portions of water bodies that are usually covered by water and less than 10 percent vegetative cover. Open water on-site is located to the east of Steele Canyon Road along the project's southern boundary in an area that was previously disturbed by mining activities. The area was excavated during sand extraction creating lower-lying areas that intersect the water table. These open water features are surrounded by native riparian habitat. A total of 0.82 acre of open water/freshwater pond occurs within the preserve; this will remain the same as open water areas will be preserved in place.

Arundo-Dominated Riparian

Arundo-dominated riparian consists of densely vegetated riparian thickets dominated almost exclusively by giant reed, typically occurring along disturbed water courses. On-site, this habitat occurs as a near monoculture of giant reed within a portion of Sweetwater River, an associated tributary off Ivanhoe Ranch Road, and at the fringe of a constructed pond west of Steele Canyon Road. A total of 0.46 acre of arundo-dominated riparian is mapped within the preserve. Arundo-dominated riparian would be eliminated from the preserve following completion of the project's reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans, as areas currently mapped as arundo-dominated riparian would be rehabilitated through the removal of non-native vegetation and installation of native plant and seed material.

Diegan Coastal Sage Scrub (including Disturbed)

Coastal sage scrub is one of the two major shrub types that occur in southern California, occupying xeric sites characterized by shallow soils (the other is chaparral). Diegan coastal sage scrub may be dominated by a variety of species depending upon soil type, slope, and aspect. Typical species found within Diegan coastal sage scrub include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasiculatum*), laurel sumac (*Malosma laurina*), lemonadeberry (*Rhus integrifolia*), white sage (*Salvia apiana*), and black sage (*Salvia mellifera*). Disturbed Diegan coastal sage scrub contains many of the same shrub species as undisturbed Diegan coastal sage scrub but is sparser and has a higher proportion of non-native, annual species.

Small patches of this habitat occur at the southeastern and southwestern project boundaries. These patches are connected to larger swaths of coastal sage scrub that occur off-site within existing

preserved lands and open space. Dominant species include California sage brush, California buckwheat, singlewhorl burrobrush (*Ambrosia monogyra*), and broom baccharis (*Baccharis sarothroides*). Disturbed coastal sage scrub on-site occurs as narrow bands of habitat to the south of Willow Glen Drive at the northeastern boundary, and to the west of Steele Canyon Road along the southern boundary. These areas consist of scattered shrubs of California sagebrush and California buckwheat growing among planted non-native trees and woody debris deposited on the slopes. A total of 0.72 acre of Diegan coastal sage scrub, including 0.02 acre disturbed, is mapped within the preserve; this is expected to increase to 12.09 acres following completion of the project's reclamation revegetation and in accordance with the project's revegetation plan.

Non-Native Vegetation

Non-native vegetation is a category describing stands of naturalized trees and shrubs (e.g., acacia [*Acacia* spp.], peppertree [*Schinus* spp.), many of which are also used in landscaping. On-site, this habitat consists of Peruvian pepper trees and oleander (*Nerium oleander*) lining Willow Glen Drive along the preserve's northern boundary, totaling approximately 0.16 acre. Non-native vegetation would be eliminated from the preserve following completion of the project's reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans.

Disturbed Habitat

Disturbed habitat includes areas in which the vegetative cover comprises less than 10 percent of the surface area (disregarding natural rock outcrops) and where there is evidence of soil surface disturbance. Disturbed habitat supports a predominance of non-native and/or weedy species that are indicators of such surface disturbance (County 2010a).

Disturbed habitat on-site predominantly occurs to the west of Steele Canyon Road within the closed portion of the golf course. This area is no longer being irrigated or manicured, though it is subject to periodic mowing. Disturbed habitat consists of dirt roads and non-native, weedy vegetation such as Bermuda grass, foxtail chess (*Bromus madritensis*), filaree (*Erodium* spp.), shortpod mustard (*Hirschfeldia incana*), and Russian thistle (*Salsola tragus*). Additionally, native and non-native planted trees, including cottonwoods, eucalyptus, shamel ash, and northern catalpa (*Catalpa speciosa*), are present along the borders of the abandoned fairways. A total of 40.82 acres of disturbed habitat occur within the preserve. Disturbed habitat will be eliminated from the preserve following completion of the project's reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans, as areas previously disturbed by golf course development will be reclaimed, graded, and revegetated with native vegetation.

Man-made Pond

Man-made ponds on-site consist of open water habitat excavated in uplands. A total of six constructed ponds totaling 3.5 acres are present on-site, which serve as water hazards and aesthetic features for the golf course. Four ponds are present in the eastern portion of the site and two occur to the west of Steele Canyon. The water level in these constructed ponds is maintained artificially by pumping groundwater into them. Man-made pond will be eliminated from the preserve following completion of the project's reclamation revegetation in accordance with the project's revegetation plan, as man-made ponds currently present within preserve would be filled and graded as part of mining and reclamation activities and then revegetated with native vegetation.

Developed Land

Developed land includes areas that have been constructed upon or otherwise covered with a permanent, unnatural surface and may include, for example, structures, pavement, irrigated landscaping, or hardscape to the extent that no natural land is evident. These areas no longer support native or naturalized vegetation (County 2010a).

Developed land within the project site consists of the active portion of Cottonwood Golf Club, to the east of Steele Canyon Road. These areas include a clubhouse, parking lot, maintenance facilities and other buildings, golf cart paths, and other areas of hardscape or maintained landscaping. Approximately 70.39 acres of developed land are mapped within the preserve; the majority of these areas will be eliminated following completion of the project's reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans, as areas of current golf course development will be reclaimed, graded, and revegetated with native vegetation. A total of 1.74 acres of developed land would remain within the preserve, comprised of grouted rip-rap that will be installed along the graded slopes and downstream of Steele Canyon Road.

3.2 PLANT SPECIES

3.2.1 Plant Species Present and Correlation with Habitat On-site

HELIX identified a total of 151 plant species on the project site, of which 69 (46 percent) are native species and 82 (54 percent) are non-native species (Appendix A, *Plant Species Observed*). Habitats within which these species were observed are listed in Appendix A.

3.2.2 Rare, Threatened, or Endangered Plant Species Present or Likely to Occur

Four special status plant species were observed within the overall project boundary, and of these, two species occur within the preserve, as listed below in alphabetical order by common name. Each is also described below and shown on Figure 8. The California Rare Plant Rank (CRPR) for each species is pursuant to the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2020). Status codes are defined in Appendix E, *Explanation of Status Codes for Plant and Animal Species*.

San Diego Sagewort (*Artemisia palmeri*)
Sensitivity Status: --/--; CRPR 4.2; County List D
Distribution: Coastal regions of Orange and San Diego Counties at elevations below 1,970 feet.
Habitat(s): Moist drainages and stream courses on sandy and mesic soils.
Presence on Site: One individual was observed at the western preserve boundary at the edge of southern riparian forest along Sweetwater River.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*)
Sensitivity Status: --/--; CRPR 4.2; County List D
Distribution: Coastal regions of southern California at elevations below 1,000 feet. San Luis Obispo County south to San Diego County, and further east into Riverside and Imperial Counties.
Habitat(s): Moist saline environments such as alkaline seeps and meadows, and coastal salt marshes and swamps.
Presence on Site: Six individuals observed at southwestern portion of the preserve in wetland habitat at the downstream portion of Sweetwater River.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

3.2.3 Rare, Threatened, or Endangered Plant Species Not Observed but with Potential to Occur

A list of special status plant species with potential to occur within the preserve is provided in Appendix B, *Special Status Plant Species Observed or with Potential to Occur*. Two special status plant species not observed on-site have a high potential to occur. These include San Diego ambrosia (*Ambrosia pumila*) and Robinson's pepper grass (*Lepidium virginicum* var. *robinsonii*).

3.2.4 Non-native and/or Invasive Plant Species

Native habitats within the preserve are dominated by native plant species; however, numerous non-native plants have been observed on-site. In particular, non-native grasses are prevalent in the disturbed and developed portions of the site, as these areas primarily consist of active and abandoned golf course greens and fairways vegetated with Bermuda grass (*Cynodon dactylon*). Numerous non-native plant species have been observed on-site that are rated as moderately or highly invasive by the California Invasive Plant Council's (Cal-IPC's) inventory (2020). A total of 25 species with ratings of high or moderate have been observed in the preserve (Table 2, *Invasive Plants Observed within The Cottonwood Sand Mine Preserve*). Additionally, while no San Diego Management and Monitoring Program (SDMMP) management level 1 or 2 species have been observed in the preserve (San Diego Association of Governments [SANDAG] 2012), two plant species with an SDMMP management level that are not ranked by Cal-IPC are included in Table 2 below.

Table 2
INVASIVE PLANTS OBSERVED WITHIN THE COTTONWOOD SAND MINE PRESERVE

Scientific Name	Common Name	Vegetation Community[2]	Cal-IPC Rating	SDMMP Rating
Arundo donax	giant reed	ADR, NNV	high	3
Asparagus asparagoides	African asparagus fern	DH	moderate	-
Asphodelus fistulosus	onionweed	DH, DEC	moderate	-
Atriplex semibaccata	Australian saltbush	DH, DEV	moderate	-
Avena barbata	slender oat	DH, DCSS, NNG	moderate	-
Brassica nigra	black mustard	DCSS, DH	moderate	-
Bromus diandrus	ripgut brome	NNG	moderate	-
Bromus madritensis	red brome	NNG	high	-
Carduus pycnocephalus	Italian thistle	DH, DEV	moderate	-
Carpobrotus edulis	iceplant	DH, NNV	high	-
Centaurea melitensis	tocalote	DH, DEV	moderate	-
Conium maculatum	poison-hemlock	DW	moderate	-
Cynara cardunculus	cardoon	DH	moderate	3
Cynodon dactylon	Bermuda grass	NNG	moderate	-
Dittrichia graveolens	stinkwort	DH, DEC	moderate	-
Ficus carica	common fig	DEV	moderate	-
Foeniculum vulgare	fennel	DH, NNW	high	4
Glebionis coronaria	crown daisy	DCSS, DEV, DH	-	5
Hordeum murinum	Mediterranean barley	DEV	moderate	-
Hirschfeldia incana	short-pod mustard	DH	moderate	-
Mesembryanthemum crystallinum	crystalline iceplant	DH, DEV	moderate	-
Nicotiana glauca	tree tobacco	DH, SCWRF	moderate	-
Oxalis pes-caprae	Bermuda buttercup	DH	moderate	-
Schinus terebinthifolius	Brazilian pepper tree	DH, DEV	moderate	-
Silybum marianum	milk thistle	DH	-	4
Tamarix ramosissima	tamarisk	DCSS, DH, SCWRF, TS	high	-
Washingtonia robusta	Mexican fan palm	DH, DEV	moderate	-

[1] In this context, invasive refers to species given a rating of Moderate or High by Cal-IPC.
[2] SCWRF = Southern Cottonwood-Willow Riparian Forest (including disturbed); SWS = Southern Willow Scrub (including disturbed); DW = Disturbed Wetland; DCSS = Diegan coastal sage scrub (including disturbed); ADR = Arundo-Dominated Riparian; NNV = Non-Native Vegetation; TS = Tamarisk Scrub; DH = Disturbed Habitat; DEV = Developed.

3.3 WILDLIFE SPECIES

3.3.1 Wildlife Species Present and Correlation with Habitat On-site

A total of 97 animal species were observed or otherwise detected on the project site during the biological surveys, including 11 invertebrate, 4 amphibian, 4 reptile, 74 bird, and 4 mammal species (Appendix C, *Animal Species Observed or Detected*).

3.3.2 Rare, Threatened, or Endangered Wildlife Species Present

Seventeen special status animal species have been observed or detected on or directly adjacent to the project site or flying over the project site, during biological surveys conducted for the project. Six of these species are covered under the County's MSCP Subarea Plan (County 1997).

Each species is listed below in alphabetical order by common name, described, and shown on Figure 8. Status codes are defined in Appendix E.

Barn Owl (*Tyto alba*)
Status: --/--; County Group 2
Distribution: Common, year-round resident of California.
Habitat: Open habitats such as grassland, chaparral, riparian, and wetlands avoiding dense forests and open desert habitats. Also found in urban and suburban areas. Nest in sheltered areas of cliffs or man-made structures, on ledges, in crevices, culverts, nest boxes, and in cavities in trees. Roosts in dense vegetation, cliffs, and buildings and other man-made structures.
Presence on Site: A single individual was observed foraging in the eastern portion of the site during an evening toad survey.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)
Status: --/WL; MSCP Covered; County Group 2
Distribution: Southern Orange County and southern San Bernardino County, south through Baja California below 3,500 feet.
Habitat: Coastal sage scrub, chaparral, edges of riparian woodlands, and washes. Also found in weedy, disturbed areas adjacent to these habitats. Important habitat requirements include open, sunny areas, shaded areas, and abundant insect prey base, particularly termites (*Reticulitermes* sp.).
Presence on Site: At least three individuals were observed on several occasions in the northeastern portion of the site between Willow Glen Drive and Sweetwater River, and at least two individuals were observed adjacent to the stand of riparian habitat east of Steele Canyon Road.
MSCP Management Requirements: *Area-specific management directives must address edge effects.* [1]
This RMP addresses edge effects to Belding's orange-throated whiptail through the implementation of management tasks as detailed in Section 4.2, below.

Coastal California Gnatcatcher (*Polioptila californica californica*)
Status: FT/SSC; MSCP Covered, County Group 1
Distribution: Year-round resident of California occurring from Ventura County south to San Diego County, and east within the western portions of San Bernardino and Riverside Counties.
Habitat: A female gnatcatcher was observed foraging with and feeding one fledgling within coastal sage scrub at the project's southwestern boundary on June 11, 2019. Additional observations of the species include a single juvenile calling within the stand of riparian habitat along Sweetwater River in the southwestern portion of the site on July 1, 2019, and another female/juvenile type foraging in the same general area on July 17, 2019. Though the species was observed within the project site, suitable habitat present is limited to small patches of coastal sage scrub in the extreme southwestern and southeastern portions of the site that connect to larger blocks of coastal sage scrub that continue off-site. The species may utilize these areas for foraging but would most likely breed off-site in more extensive, higher-quality habitat.
MSCP Management Requirements: *Area-specific management directives must include measures to reduce edge effects and minimize disturbance during the nesting period, fire protection measures to reduce the potential for habitat degradation due to unplanned fire, and management measures to maintain or improve habitat quality including vegetation structure. No clearing of occupied habitat may*

[1] Text in italics is taken from the MSCP Conditions of Coverage.

occur between March 1 and August 15. This RMP addresses edge effects to coastal California gnatcatcher through implementation of management tasks as detailed in Section 4.2, below. Fire protection is addressed through the implementation of habitat and fire management task, as detailed in Section 4.2, below.

Cooper's Hawk (*Accipiter cooperii*)
Status: --/WL; MSCP Covered; County Group 1
Distribution: In California, the species breeds from Siskiyou County south to San Diego County and east towards Owens Valley at elevations below 9,000 feet.
Habitat: Oak groves, mature riparian woodlands, and eucalyptus stands or other mature forests. Increasingly found in suburban and urban areas. Nests within dense woodlands and forests and isolated trees in open areas.
Presence on Site: A single individual was documented within three different locations within the southwestern portion of the site. Observations included individuals perched in trees within the developed golf course and riparian habitat, and flying over the site.
MSCP Management Requirements: *Area specific management directives must include 300-foot impact avoidance areas around active nests, and minimization of disturbance in oak woodlands and oak riparian forests.* Nest locations were not observed during 2019 surveys; however, any nest locations observed during pre-construction surveys and grading monitoring will be shared with the Resource Manager, and future detection and avoidance will be addressed through general wildlife surveys and sensitive species monitoring, as described in management tasks as detailed in Section 4.2.

Great Blue Heron (*Ardea herodias*)
Status: --/--; County Group 2
Distribution: Year-round resident of California occurring throughout most of the State.
Habitat: Found in a wide variety of habitats foraging in various wetland habitats, water bodies, and occasionally uplands. Nests as single pairs and in small colonies with nests located on the ground, in trees and bushes, and on artificial structures that are usually adjacent to water and secluded from human disturbance.
Presence on Site: Individuals observed foraging in two separate locations within the project site. One individual was detected within the stand of riparian habitat just east of Steele Canyon Road and another was detected at the edge of a man-made pond to the west of Steele Canyon Road.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Green Heron (*Butorides virescens*)
Status: --/--; County Group 2
Distribution: In California, the species is a year-round resident found generally west of the Sierra Nevada and within the southern deserts.
Habitat: Found in a wide variety of wetland habitats such as swamps, marshes, riparian habitat along creeks and streams, lake edges, and man-made ditches, canals, and ponds preferring thick vegetation and avoiding open areas.
Presence on Site: Detected in three separate locations within the project site. A pair was observed at a man-made pond at the eastern boundary, an individual was observed perched within riparian habitat just east of Steele Canyon Road, and another individual was detected at the edge of a man-made pond to the west of Steele Canyon Road.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Lawrence's Goldfinch (*Spinus lawrencei*)
Status: BCC/--
Distribution: Resident of California breeding from Tehama, Shasta, and Trinity Counties to the foothills surrounding Central Valley, south through the southern Coast Range to Santa Barbara County continuing into San Diego County and east to the western edge of the southern Mojave and Colorado Deserts.
Habitat: Inhabits arid and open woodlands adjacent to scrub or chaparral habitats, grasslands or meadows, and water resources such as a stream, pond, or lake from sea level up to 10,000 feet.
Presence on Site: A small flock, consisting of approximately eight birds, was observed foraging within the eastern portion of the project along the southern boundary. The species is highly nomadic, flocking to areas where food sources are abundant, and most likely utilizes the site for foraging opportunities.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Least Bell's Vireo (*Vireo bellii pusillus*)
Status: FE/SE; MSCP Covered and NE; County Group 1
Distribution: In California, breeds along the coast and western edge of the Mojave Desert from Santa Barbara County south to San Diego County, and east to Inyo, San Bernardino, and Riverside Counties.
Habitat: Breeding habitat consists of early to mid-successional riparian habitat, often where flowing water is present, but also found in dry watercourses within the desert. A structurally diverse canopy and dense shrub cover is required for nesting and foraging. The species can be tolerant of the presence of non-native species such as tamarisk.
Presence on Site: A total of two vireo pairs, and six additional male vireos were detected during the 2019 protocol surveys. One LBVI pair and three male vireos were detected within the project site. The LBVI pair was observed foraging with and feeding three fledglings on May 30, 2019, in the stand of riparian habitat directly east of Steele Canyon Road. Additionally, one LBVI pair and three male vireos were detected outside of the project site. The pair was observed to the west within the SDNWR, two of the males were detected within the Steele Canyon Golf Course, and one male was observed to the west within the SDNWR. Critical habitat for the species occurs both on-site and off-site along Sweetwater River.
MSCP Management Requirements: *New developments adjacent to preserve areas that create conditions attractive to brown-headed cowbirds shall monitor and control cowbirds. Area-specific management directives must include measures to provide appropriate successional habitat, upland buffers for all known populations, cowbird control, and specific measures to protect against detrimental edge effects to this species. Any clearing of occupied habitat must occur between September 15 and March 15 (i.e., outside of the nesting period).* This RMP addresses edge effects to least Bell's vireo through the implementation of management tasks as detailed in Section 4.2, below. The preserve includes upland buffers of coastal sage scrub surrounding the riparian areas. Brown-headed cowbirds were observed on-site during 2019 surveys; therefore, specific cowbird control measures are included in this RMP. If brown-headed cowbirds become an issue in the future, they will be addressed through adaptive management as detailed in Section 4.3.

Monarch Butterfly (*Danaus plexippus*)
Status: FC/--; County Group 2
Distribution: Winter roost sites extend along the coast from northern Mendocino south to Baja California, Mexico.
Habitat: Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Larval host plants consist of milkweeds (*Asclepias* sp.).
Presence on Site: A single individual was observed flying within non-native woodland in the

southeastern portion of the project site in August 2018. An additional individual was observed just outside of the project boundary, to the south of the patch of riparian habitat east of Steele Canyon Road, in July 2019.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Oak Titmouse (*Baeolophus inornatus*)
Status: BCC/--
Distribution: Year-round resident found from southern Oregon south through California to northwestern Baja California, Mexico.
Habitat: Prefers dry oak and oak-pine woodlands but may use scrub oaks and other scrub habitat near woodlands. Also found in juniper woodlands and open pine forests.
Presence on Site: One individual foraging within trees in the developed golf course to the west of Steele Canyon Road.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Peregrine Falcon (*Falco peregrinus*)
Status: BCC/FP; MSCP Covered and NE, County Group 1
Distribution: In California, the species is a very uncommon breeding resident and migrant throughout the State.
Habitat: Inhabits a large variety of open habitats including marshes, grasslands, coastlines, and woodlands but is generally absent from desert areas. Typically nest on cliff faces in remote rugged sites where adequate food is available nearby, but the species can also be found in urbanized areas nesting on man-made structures.
Presence on Site: A pair was observed flying overhead on May 5, 2019. The pair flew north and perched on a transmission tower located on the hillside north of the project site. An individual was later observed perched on a tree in the western portion of the site before flying further west and off-site. The pair is presumed to have been foraging individuals moving through the area. No suitable nesting habitat for the species is present within or immediately adjacent to the project site, and no nesting individuals were observed during project surveys.
MSCP Management Requirements: *This species has very low population numbers in the county, being primarily a rare fall and winter visitor. All three nest sites occur outside of the MHPA: one on Coronado Bridge, one on a crane in Port Authority jurisdiction, and one on Pt. Loma federal lands. Participating jurisdictions guidance and ordinances and state and federal wetland regulations will provide additional habitat protection resulting in no net loss of wetlands.* Nest locations were not determined during 2019 surveys; however, any nest locations observed during pre-construction surveys and grading monitoring will be shared with the Resource Manager, and future detection and avoidance will be addressed through general wildlife surveys and sensitive species monitoring, as described in management tasks as detailed in Section 4.2, below.

Red-shouldered Hawk (*Buteo lineatus*)
Status: --/--; County Group 1
Distribution: In California, occurs throughout the State in areas west of Sierra Nevada.
Habitat: Mature oak and riparian woodlands, eucalyptus groves, and suburban areas near forested areas. Nests in trees, both native and non-native, often located near a water source.

Presence on Site: Multiple individuals observed at four locations across the project site. Observations included single individuals and at least one pair perched in trees or flying overhead within both the eastern and western portions of the site.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Turkey Vulture (*Cathartes aura*)
Status: --/--; County Group 1
Distribution: Observed throughout San Diego County with the exception of extreme coastal San Diego where development is heaviest.
Habitat: Foraging habitat includes most open habitats with breeding occurring in crevices among boulders. Roosts communally, preferring stands of large trees or hilly areas, usually away from human disturbance.
Presence on Site: Single individual observed soaring overhead in the southwestern portion of the site. No potentially suitable breeding habitat is present on-site.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Vermilion Flycatcher (*Pyrocephalus rubinus*)
Status: --/ SSC; County Group 1
Distribution: Scarce breeding records occur in southern California with a few individuals wintering regularly along the California coast from Ventura County south to San Diego County.
Habitat: Arid scrub, farmlands, parks, golf courses, desert, savanna, cultivated lands, and riparian woodland, usually near water. Wintering individuals can be found in open and semi-open areas with hedges, scattered trees and bushes, and often near water.
Presence on Site: Multiple individuals and pairs were observed within and throughout the project site during project surveys. At least two breeding pairs were confirmed to occupy the site during 2019. A pair with at least one fledging was observed in the eastern portion of the site, just southwest of the clubhouse. Another pair with two fledglings was observed in the western portion of the site, to the east of Sweetwater River.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Western Bluebird (*Sialia mexicana*)
Status: --/--; MSCP Covered; County Group 2
Distribution: Common year-round resident throughout California but absent from the higher mountains and eastern deserts.
Habitat: Breeds in open woodlands, riparian habitats, grasslands, and farmlands. Nests and roosts in cavities of trees and snags, often in holes previously created by woodpeckers, and nest boxes. Winters in a wider variety of habitats.
Presence on Site: Multiple individuals were detected in thirteen different locations throughout the project site within riparian habitat and the developed golf course. Observations included single individuals and small flocks of up to five individuals perched on trees, flying over the site, or foraging within the project site. Suitable breeding habitat is present on-site.
MSCP Management Requirements: *Persistence of this species in San Diego County depends largely on conservation of existing large populations on public lands east of the MSCP Plan area.* Nest locations were not determined during 2019 surveys; however, any nest locations observed during pre-construction surveys and grading monitoring will be shared with the Resource Manager, and future

detection and avoidance will be addressed through general wildlife surveys and sensitive species monitoring, as described in management tasks as detailed in Section 4.2, below.

Yellow-breasted Chat (*Icteria virens*)
Status: --/SSC; County Group 1
Distribution: In California, occurs as a migrant and summer resident breeding from the coastal regions in northern California, east of the Cascades, and throughout the central and southern portions of the State.
Habitat: Breeds in early successional riparian habitats with well-developed shrub layer and an open canopy nesting on the borders of streams, creeks, rivers, and marshes.
Presence on Site: A single individual was heard singing in the southwestern portion of the site within the stand of riparian habitat along Sweetwater River. Additional individuals were detected further west of the site within the SDNWR.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Yellow Warbler (*Setophaga petechia*)
Status: BCC/SSC; County Group 2
Distribution: Common to locally abundant species breeding throughout California at elevations below 8,500 feet, excluding most of the Mojave Desert, and all of the Colorado Desert.
Habitat: Breeds in riparian areas dominated by willows and cottonwoods, near rivers, streams, lakes, and wet meadows. Also breeds in montane shrub and conifer forests at higher elevation areas.
Presence on Site: Multiple individuals were observed within 18 locations throughout the project site. Observations included individuals perched in trees and along fences in the northeastern portion of the site, as well as foraging in these areas.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

3.3.3 Rare, Threatened, or Endangered Wildlife Species with Potential to Occur

Special status animal species with potential to occur on-site (and those present on-site) are included in Appendix D, *Special Status Animal Species Observed or with Potential to Occur*. The species are grouped into invertebrates and vertebrates (fish, amphibians, reptiles, birds, and mammals) and alphabetized by scientific name. Refer to Appendix E for an explanation of status codes. Eight special status animal species that were not observed but are considered to have a high potential to occur on-site: western spadefoot (*Spea hammondii*), two-striped garter snake (*Thamnophis hammondii*), sharp-shinned hawk (*Accipiter striatus*), Canada goose (*Branta canadensis*), white-tailed kite (*Elanus leucurus*), California horned lark (*Eremophila alpestris actia*), merlin (*Falco columbarius*), loggerhead shrike (*Lanius ludovicianus*), and Mexican long-tongued bat (*Choeronycteris mexicana*).

The preserve currently supports least Bell's vireo and additional suitable habitat will be created within the preserve through the mitigation and revegetation efforts. A total of two vireo pairs, and six additional male vireos, were detected during protocol surveys conducted for the project in 2019 (HELIX 2020a). One LBVI pair and three male vireos were detected within the project site, and one LBVI pair and three male vireos were detected outside of the project site; the LBVI detected within the project were confirmed to have successfully bred based on the observation of fledglings being cared for by the adults. There is potential for this species to establish new territories within the preserve following

reclamation activities and implementation of the mitigation and revegetation effort, which will include the establishment and increase of riparian habitat within the preserve.

3.3.4 Non-native Wildlife and Nuisance Species

Non-native wildlife and/or nuisance wildlife species detected on the project site were the American bullfrog (*Rana catesbiana*), red-eared slider (*Trachemys scripta elegans*), brown-headed cowbird (*Molothrus ater*), European starling (*Sturnus vulgaris*), and scaly-breasted munia (*Lonchura punctulata*).

Many of these species are associated with the existing golf course operations and do not pose a significant management risk for the preserve. However, the following two species do have potential to adversely affect native wildlife in the preserve: American bullfrog and brown-headed cowbird. These species are further discussed below.

Although native to the eastern U.S., American bullfrogs are now widespread throughout much of California, where they occupy both natural and artificial aquatic habitats. They were introduced into the western U.S. as a food source and for biological control of insects, and accidental introductions may have occurred from fish stocking, frog farming, and release by pet owners (CDFW 2018a). The American bullfrog is the largest frog in California, and it may prey on or compete with food and habitat with native amphibians (Zeiner et al. 1988). This species could prey on native insects and amphibians occurring within aquatic areas in the preserve. Its occurrence is expected to be restricted to areas with permeant water sources within the preserve, such as existing native habitat to the east of Steele Canyon Road, where pond areas are currently present. Though the project would result in an expanded floodplain and riparian corridor, Sweetwater River is an intermittent stream with flow levels largely dictated by the Sweetwater Authority through controlled releases and water transfers from Loveland Reservoir (upstream of the site) to Sweetwater Reservoir (downstream of the site). The on-site expanded floodplain would not be expected to contain large areas of sufficient hydrology to support American bullfrogs; and therefore, no management tasks related to focused monitoring, control, or eradication of American bullfrogs are proposed at this time.

The brown-headed cowbird is a brood parasite, laying its eggs in the nests of other birds. This species is native to the Great Plains, but expanded its range westward, arriving in San Diego in noticeable numbers around 1915 (Unitt 2004). Brood parasitism by this species lowers the reproductive success of many passerine birds, particularly warblers, vireos, flycatchers, phoebes, sparrows, and finches (Zeiner et al. 1990). In California, the listing as endangered of the riparian songbirds least Bell's vireo and southwestern willow flycatcher is in part due to nest parasitism by brown-headed cowbirds (CDFW 2018b). Trapping efforts to control brown-headed cowbirds and nest monitoring of affected species are two ways in which cowbird parasitism have been evaluated and addressed. This species was detected in riparian habitat on and adjacent to the site. It is also known to occur in riparian habitat associated with the Sweetwater River, directly northeast and southeast of the site. The project does not propose any recreational uses within or adjacent to the preserve that are anticipated to attract or subsidize brown-headed cowbird populations. Therefore, no management tasks related to focused monitoring, control, or eradication of brown-headed cowbird are proposed at this time.

3.4 OVERALL BIOLOGICAL AND CONSERVATION VALUE

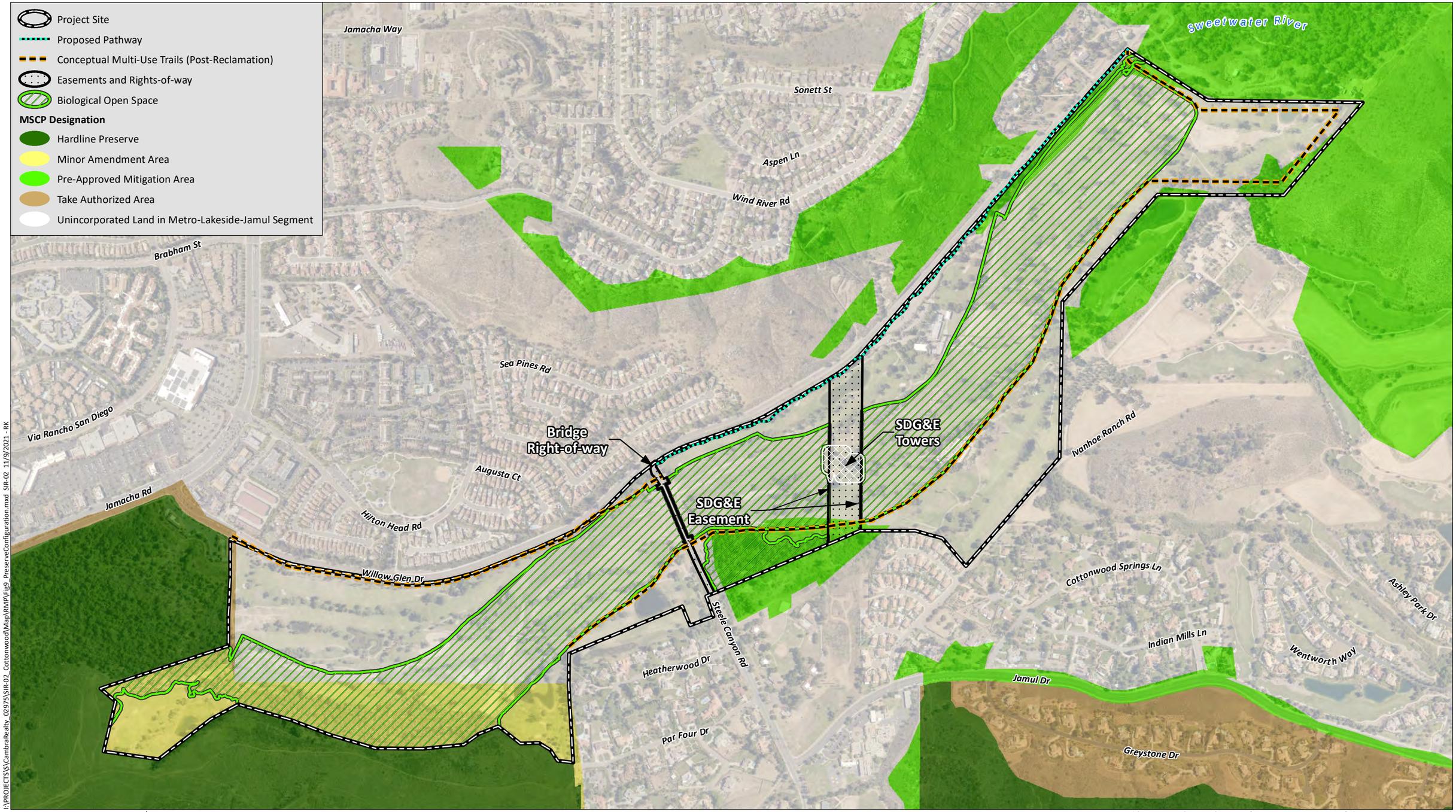
The majority of the preserve is mapped as developed on Attachment J (Habitat Evaluation Map) of the Biological Mitigation Ordinance (County 2010b), though small portions along the preserve's southern

boundary are also mapped as low, moderate, high, and very high habitat value. The preserve supports lands identified as PAMA under the County's MSCP Subarea Plan (County 1997) in three small portions of the site at the northeastern, southeastern, and southern boundaries. The preserve consists of 142.8 acres of land stretching approximately two miles along the Sweetwater River, forming a valuable piece of biological open space ranging in width from over 150 feet in the western corner to approximately 900 feet in the center of the site. Average width of the preserve is approximately 600 feet. The preserve connects to conserved lands along the Sweetwater River both upstream and downstream of the project site. The SDNWR also directly abuts the western (downstream) end of the preserve along the Sweetwater River. This nearly continuous two-mile east-west length is interrupted only by one bridged roadway crossing over the river (Steele Canyon Road) and the SDG&E easement; both the bridged road crossing and the SDG&E easement are outside of the biological open space and do not create significant impediments to wildlife movement. In addition to restoring, revegetating, and conserving large areas of native and naturalized habitat on-site and maintaining connectivity across the site, the preserve also provides connectivity to off-site conserved lands along the Sweetwater River, as well as to other lands to the northeast and southeast that are identified as PAMA in the County's MSCP Subarea Plan (Figure 9, *Cottonwood Sand Mine Preserve Configuration*), thereby providing a linkage between larger blocks of MSCP conserved lands and PAMA lands.

The preserve also protects live-in and foraging habitat for numerous special status species that have been documented on or near the site, such as Belding's orange-throated whiptail, coastal California gnatcatcher, Cooper's hawk, least Bell's vireo, yellow-breasted chat, and yellow warbler. Proposed preservation of Diegan coastal sage scrub and riparian habitat within the biological open space would conserve gnatcatcher habitat and dispersal routes from across the site from the northeastern hills, situated north of Willow Glen Drive, to the SDNWR situated south and southwest of the site. Thus, the preserve provides not only for live-in habitat for gnatcatcher, but also facilitates dispersal of this species. Additionally, the preservation and revegetation of riparian habitat within the biological open space area would conserve and increase vireo foraging and breeding habitat.

3.5 COMPENSATORY MITIGATION AND RECLAMATION REVEGETATION

A Conceptual Wetland Mitigation Plan (HELIX 2021b) and Conceptual Revegetation Plan (HELIX 2021c) are being prepared for the proposed riparian habitat re-establishment and riparian rehabilitation, and native habitat revegetation areas, respectively. The preserve would include approximately 0.72 acre of proposed upland preservation, 15.01 acres of proposed riparian preservation, 1.00 acre of proposed wetland waters re-establishment, 6.13 acres of proposed riparian habitat rehabilitation, 106.94 acres wetland/riparian revegetation, and 11.28 acres of upland revegetation (consisting of Diegan coastal sage scrub) conducted as part of the project. Final compensatory mitigation acreages will be determined during project processing and approvals. Conceptual wetland waters re-establishment and riparian rehabilitation areas depicted herein will be determined in consultation with County PDS staff and wetland permitting agencies (Figure 10, *Biological Open Space and Conceptual Compensatory Mitigation and Reclamation Revegetation Areas*).



Source: Aerial (SanGIS 2017); MSCP (County of San Diego, Department of Planning and Land Use 2015)

HELIX Environmental Planning

Cottonwood Sand Mine Preserve Configuration

Figure 9

Cottonwood Sand Mine

- Project Site
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- Biological Open Space
- Easements and Rights-of-way
- Limited Building Zone Easement
- Grouted Rip-rap

Conceptual Reclamation Revegetation

- Streambed
- Riparian Revegetation - Riparian Scrub
- Riparian Revegetation - Riparian Forest
- Upland Revegetation - Coastal Sage Scrub

Conceptual Compensatory Mitigation

- Wetland Waters Re-establishment - Riparian Forest
- Riparian Rehabilitation - Riparian Scrub

Seca St
Sonett St
Greencrest Dr
Greencrest Ct
Marlyn Pl
Aspen Ln
Wind River Rd
Woodpine Dr
Via Rancho San Diego
Hilton Head Rd
Jamacha Rd
Willow Glen Dr
Bridge Right-of-way
Sweetwater River
SDG&E Towers
Ivanhoe Ranch Rd
Cottonwood Springs Ln
Ashley Park Dr
Indian Mills Ln
Wentworth Way
Wentworth Dr
Steele Canyon Rd
Heatherwood Dr
Par Four Dr
Jamul Dr
Greystone Dr
Wildwind Dr

I:\PROJECTS\S\CambraRealty_02975\SIR-02_Cottonwood\Map\RMP\Fig10_Mitigation.mxd SIR-02 11/9/2021 - RK

0 700 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Conceptual Biological Open Space and Conceptual Compensatory Mitigation and Reclamation Revegetation Areas

Figure 10

4.0 BIOLOGICAL RESOURCES MANAGEMENT

4.1 MANAGEMENT GOALS

The purpose of this RMP is to detail the methods to preserve and maintain the long-term viability and the functions and values of native habitats within the preserve, along with the listed and sensitive species they support. This RMP establishes the following goals with regard to biological resources:

- To preserve and manage habitat within the preserve in perpetuity for the benefit of sensitive species, MSCP covered species, and existing natural communities;
- To ensure the continued existence of sensitive plant and animal species in the preserve and/or to facilitate their expansion within the preserve;
- To reduce, control, and where feasible, eradicate non-native, invasive flora known to be detrimental to native species and/or the local ecosystem.

4.2 BIOLOGICAL MANAGEMENT TASKS

Biological monitoring will be conducted in the preserve to gather information necessary to assist the Resource Manager in making land management decisions and meeting the goals of this RMP. Biological management tasks include a baseline biological inventory, biological mapping updates, botanical inventories, sensitive species monitoring, least Bell's vireo surveys, exotic plant control, nuisance animal control, fire/flood management, and restoration. These tasks are further described below.

The preserve will be visually inspected for changes during annual maintenance and monitoring visits, and observations will be documented. Any substantial changes will be monitored more closely to determine the necessity of additional measures. Ongoing maintenance and administration, as further discussed below, is the responsibility of the Resource Manager, and will be conducted to ensure no loss of resource quality within the preserve.

4.2.1 Baseline Biological Inventory

The quantity and quality of vegetation communities within the preserve will be documented during the first year of active management. This inventory will incorporate data from the project's biological technical report (HELIX 2021a) with the findings of an initial baseline inventory field survey. To optimize the probability of detecting sensitive species reported or expected to occur within the preserve, this survey should be conducted between March and May, when the majority of sensitive plant and animal species are most detectable. These data will allow the Resource Manager to measure habitat changes caused by natural and human effects and to evaluate management efforts during subsequent years.

Upon implementation of this RMP, the Resource Manager will be provided digital files containing the existing vegetation and sensitive resources data, which will be updated following the baseline inventory field survey in the first year of active management. The intent of this update is to document current conditions in the open space areas (including graphic and tabular depictions of habitat acreages), document species observed (either directly or indirectly by sign such as scat, tracks, etc.) within each identified habitat type, and document the locations of sensitive plant and animal species.

4.2.2 Update Vegetation Mapping

Vegetation mapping will be updated every five years following the implementation of this RMP. A site visit will be conducted using updated aerial imagery to determine the vegetation communities present at the time of the survey. The biological resources maps of the preserve will be updated accordingly.

4.2.3 Botanical Inventory

An inventory of plant species observed in the preserve will be compiled every five years during the vegetation mapping update. The inventory will include a visual assessment of each population of sensitive plant species observed in the preserve in order to help track overall population trends, and specific attention will be given to any factors that may be negatively affecting those species (i.e., vandalism, mortality, etc.). Any new plant species observed incidentally during maintenance events or other site visits would be listed in that year's annual report, with particular focus on new occurrences of rare plants and of invasive species. Any SDMMP management level 1 or 2 species (SANDAG 2012) will be reported to SDMMP. Locations of sensitive plant species will be added to the biological resources maps of the preserve.

4.2.4 Special Status Species Monitoring

It is the responsibility of the Resource Manager to monitor and evaluate the status of special status species within the preserve and to implement protective measures if any individual species becomes threatened. Both preservation and monitoring of sensitive plant and animal populations within the preserve are necessary in order to achieve the overall long-term conservation of these species. Sensitive species monitoring will help the Resource Manager identify long- and short-term threats and recommend any necessary protective measures.

Special status plant and animal monitoring will occur during annual management activities. In each assessment, the Resource Manager will observe and document sensitive species locations and conditions, and the locations of any observed/detected sensitive species will be documented and added to the biological resources maps. Monitoring/reporting efforts will include sensitive species previously documented within the preserve. In addition, any new plant or animal species observed incidentally during maintenance events or other site visits would be listed in that year's annual report.

Focused surveys are planned every five years for least Bell's vireo, as detailed below. Surveys and monitoring for other special status wildlife species with regional monitoring objectives, such as the coastal California gnatcatcher, will occur concurrently with annual assessments and focused surveys for vireo.

4.2.5 Least Bell's Vireo Surveys

Focused surveys for least Bell's vireo, consisting of three site visits spaced at least 10 days apart, will be conducted within appropriate habitat in the preserve every five years during the survey period (April 10 to July 31). Any vireos and other sensitive species observed incidentally during maintenance events or other site visits would also be documented.

4.2.6 Exotic Plant Control

The Resource Manager will coordinate with landowners adjacent to the preserve to provide information regarding exotic plant species and to increase the efficiency of exotic plant control programs. The information would provide recommendations for restricting the use of exotic plant species with a Cal-IPC rating of moderate to high in landscaping efforts.

Invasive non-native plants shall be monitored for and treated twice a year in January/February and April/May, when non-native plant species are most prevalent. Treatment of non-native species shall occur concurrently with the site visits performed by the Resource Manager if feasible. The Resource Manager is responsible for the removal of perennial species rated as high by the Cal-IPC within the same year that they are discovered. Invasive plant removal efforts will be spatially targeted to prioritize the areas of the property with the highest biological value or potential value, and species-targeted to prioritize the exotic species posing the greatest threat across the property, based on monitoring results. The budget for invasive plant control will be sufficient to perform ongoing work on an annual basis in order to continually improve the property.

If the use of herbicide is deemed necessary, the application should be minimal, and may only occur in compliance with all federal and state laws. All herbicide use will be monitored by a biologist, be applied by backpack sprayers or stump painting directly on target weeds, and will involve short-duration, biodegradable chemicals.

Non-native plant species treatment and removal activities such as the use of gas-powered chainsaws and weed whippers that may disturb raptors and migratory birds should avoid the general bird breeding season (February 1 through September 15). If these activities must occur during the breeding season, they should be limited to areas where the Resource Manager has confirmed the absence of active bird nests. Appropriate buffer distances shall be provided for active nests, including a 300-foot avoidance area for Cooper's hawk nests.

4.2.7 Nuisance Animal Species Control

A moderate tolerance for pest species will be permitted, but if the Resource Manager determines that pest eradication measures (e.g., pesticide application) are required, the County will be contacted to determine the need and appropriate methods, including potentially hiring a licensed pest control advisor. Exotic species control/eradication programs should be implemented at the appropriate time of year depending on the pest species and field conditions and should be coordinated with efforts on adjacent properties.

Two species known to occur in the project vicinity have potential to adversely affect native wildlife in the preserve: American bullfrog and brown-headed cowbird. The Resource Manager will monitor the preserve for the presence of these species during monitoring visits and focused least Bell's vireo surveys, and will implement control/eradication programs if determined necessary.

4.2.8 Fire and Flood Management

Fire is an important element in the ecology of southern California but can also present potential hazards to habitat within the preserve. If a fire should occur in the preserve, vegetation within the preserve will be allowed to recover naturally; however, the seeding and/or planting of container stock may be

required at the discretion of the Resource Manager. Special attention to weed establishment following fire will be assessed by the Resource Manager. The Resource Manager will also coordinate with the applicable fire agencies as necessary.

The preserve is situated between Loveland Reservoir (upstream) and Sweetwater Reservoir (downstream). The Sweetwater Authority conducts controlled dam releases and water transfers between Loveland Reservoir and Sweetwater Reservoir, with water transfers occurring through the preserve. Additionally, the reach of Sweetwater River within the preserve may flood during heavy rains. Such flooding from controlled dam releases or heavy rain could damage habitat within the preserve through scour, erosion, sedimentation, and spread of weeds. The Resource Manager will monitor habitat areas disturbed by flooding and implement remedial efforts as needed. Flood-damaged areas should be allowed to recover naturally; however, remedial measures, including erosion control, seeding, and/or planting of container stock, may be required if natural recovery is inadequate, or if unstable conditions (e.g., slope undercutting) are created. The Resource Manager will remove any exotic species introduced during flooding events. All of the aforementioned activities will be in compliance with applicable flood regulations and all other applicable County, state, and federal requirements.

4.3 ADAPTIVE MANAGEMENT

Adaptive management is intended to ensure that, through the monitoring and reporting process, the results of management are evaluated, and management is adjusted appropriately to meet the RMP goals and the County and Wildlife Agencies' commitment to the conservation goals of the County's MSCP Subarea Plan (County 1997). The Resource Manager is responsible for interpreting the results of site monitoring to determine the ongoing success of the RMP. If it is necessary to modify the plan between regularly scheduled updates, plan changes shall be submitted to the County for approval as required.

The term adaptive management was adopted for resource management by Holling (1978), who described adaptive management as an interactive process that not only reduces but also benefits from uncertainty. Adaptive management includes steps that may be involved in a long-term adaptive implementation program, including opportunistic learning, management, monitoring, and directing the results of analysis and assessment back into the program through decision makers. It is important that the RMP incorporate the flexibility to change implementation strategies after the initial start-up. The RMP is intended to be flexible enough to develop adaptive management strategies that will facilitate and improve the decision-making process for operating the conservation program of the RMP, as well as provide for informative decision-making. The RMP is also intended to be flexible enough to incorporate management and monitoring methods that may change over time that would be appropriate for the biological open space.

Monitoring and adaptive management of the preserve will be a cooperative effort between the Resource Manager, County, Wildlife Agencies, and regional entities such as the SDMMP. Adaptive management is built into preserve management through the use of phased monitoring and evaluation to modify management actions based on monitoring results.

According to the SDMMP Management Strategic Plan, important regional threats/stressors on species and vegetation communities include: (1) fire (altered fire regime); (2) invasive species (exotic and native) and predation and herbivory by native species; (3) urban edge effects on preserves; (4) habitat fragmentation (roads, urban development); and (5) human use of preserves (both authorized and

unauthorized). Other threats/stressors region-wide include nitrogen deposition, altered hydrology, potential exposure of species to rodenticides and insecticides, disease, and climate change.

This RMP addresses the threat of fire in further detail below. The Resource Manager will assess the need for post-fire recovery efforts, which may include invasive plant and animal control, habitat enhancement and restoration, and species monitoring. Fire recovery will be allowed to occur naturally unless monitoring shows that weeding, seeding, and/or planting are required.

The threat of invasive plants is addressed in the above sections. Based on surveys to date, there are no SDMMP Management Level 1 or 2 plants within the preserve and only two Level 3, two Level 4, and one level 5, respectively: giant reed, cardoon (*Cynara cardunculus*), fennel (*Foeniculum vulgare*), garland daisy (*Glebionis coronaria*), and milk thistle (*Silybum marianum*). Except for garland daisy and milk thistle, giant reed and fennel are also given a Cal-IPC rating of high, and cardoon is given a Cal-IPC rating of moderate. None of these species were noted as being particularly prevalent during surveys to date. However, a baseline plant inventory (which will include both native and non-native species) will be conducted in the first year of management, and invasive plants will be noted during regular monitoring visits. Weed control will be conducted as described in the previous sections. Weed control efforts will be specifically targeted to the areas of greatest threat as identified by monitoring. Using adaptive management, species that are targeted will be based on Cal-IPC and SDMMP lists, as well as species that emerge as threats in the future based on monitoring within the preserve and regionally.

The threat of invasive/nuisance animal species is addressed in previous sections. Based on surveys to date, two species known to occur in the project vicinity have potential to adversely affect native wildlife in the preserve: American bullfrog and brown-headed cowbird. The Resource Manager will monitor the preserve for the presence of these species during monitoring visits and focused surveys, and if determined necessary, will implement control/eradication programs.

Although much of the preserve consists of contiguous lands unbroken by roads or other development, a single roadway (Steele Canyon Road) crosses through the preserve and fragments the habitat. As discussed below, the Resource Manager will monitor the fencing and signage along these roadways as part of RMP implementation, in addition to monitoring for edge effects.

Because the preserve is located adjacent to existing residential development and roads, as well as the proposed trail easement, it could be subject to urban edge effects such as noise, lighting, dumping of trash, intrusion by dogs and cats, invasion by exotic plant species, altered hydrology/ contaminated runoff, and human trespass. As discussed in further detail below, the preserve will be fenced, and permanent signage posted to discourage trespass; the Resource Manager would maintain the fencing and signage, in addition to surveying the site for illegal occupancy and trespass and removing trash. The project's landscape plan will not include any invasive plant species, and any permanent lighting sources that would be installed within the project site would shield project lighting and direct it away from the preserve. Despite these efforts, edge effects could still adversely affect the preserve. As such, the Resource Manager will monitor the preserve for edge effects and will incorporate other management strategies as needed.

This RMP does not include specific tasks for potential threats such as nitrogen deposition and climate change; however, the monitoring proposed by the RMP will provide the information needed to recognize changes occurring within the preserve, make hypotheses regarding their causes, and propose adjustments in management approach, along with additional targeted monitoring as needed.

Adaptive management relies on monitoring efforts such as those outlined above to detect changes in species, habitats, and/or threats. Linking the monitoring program with adaptive management actions will inform the Resource Manager of the status of target species, natural communities, and essential ecological processes, as well as the effectiveness of management actions in a manner that provides data to allow informed management actions and decisions. When change is detected, the Resource Manager assesses the information and responds by initiating, modifying, or even ending a particular management strategy, if necessary. An important component of implementing the management measures described above will include evaluating data from monitoring activities to determine whether trends in threats are part of a natural cycle of fluctuation or are anthropogenic. If there is a substantial decline in native species compared to the baseline (e.g., a greater presence of invasive, non-native plants species) or other apparent threats to habitat conditions are observed, remedial measures will be evaluated with the County and Wildlife Agencies and implemented on an as-needed basis. Remedial measures will be presented to the USFWS, CDFW, and County in the work plan portion of the annual report and/or in the five-year updates to the RMP. Adaptive management measures shall be limited to funds available for adaptive management through the proposed management and monitoring tasks.

4.4 OPERATIONS, MAINTENANCE, AND ADMINISTRATION TASKS

Ongoing maintenance and administration, which is the responsibility of the Resource Manager, will be conducted to ensure no loss of resource quality within the preserve. The general operations, maintenance, and administrative tasks to be conducted by the Resource Manager will include those discussed below.

4.4.1 Annual Monitoring Reports

An annual report will be submitted to the County, USFWS, and CDFW that will summarize the overall condition of vegetation communities and sensitive species in the preserve, propose management tasks for the following year, and discuss results of management activities proposed in the previous report. Submitted annually by the end of January, this report will compare the most recent data with those collected in previous years, evaluate sensitive species status, and outline appropriate remedial measures. Funds for County review will also be included with the submittal of the annual report.

The results of the updated vegetation mapping, botanical inventory, and least Bell's vireo surveys (all every fifth year) should be included in the appropriate annual letter reports. These results will also be incorporated into a resource database, which will be established during Year 1 of management and updated annually.

The report shall include a summary of expenses during the past year and projected expenses for the next year, as well as the status of funding for the maintenance assessment district.

The report (or attached digital files) will also include photos taken each year from representative photo points within the open space, for qualitative comparison of habitat health.

4.4.2 Management Plan Review

This RMP will be reviewed by the Resource Manager every five years to determine the need for revisions or updates. If conditions change within the preserve, it may be necessary to revise the tasks outlined in this plan to ensure the continued success of the stated goals.

4.4.3 Access Control, Fencing, and Signage

To help prevent human-induced degradation of the preserve due to illegal occupancy, trespassing, removal of resources, or dumping of trash or debris, the Resource Manager will restrict access to the preserve. The project applicant will install fencing along access roads and trails abutting the preserve (Figure 7). Fencing will be installed where it abuts existing or proposed development, in addition to either side of the proposed trail easement along the northern and southern borders of the preserve, as well as in locations where human intrusion would not be precluded by physical factors such as steep topography or dense vegetation (see Figure 7). Fencing will be maintained by the Resource Manager as needed during quarterly visits. Permanent signage will be posted every 200 feet along the perimeter of the preserve (Figure 7). Signs will be maintained by the Resource Manager as needed during quarterly visits. Signs should be corrosion-resistant (e.g., steel), measure at minimum six-by-nine-inches in size, be posted on a metal post at least three feet above ground level, and provide notice in both English and Spanish that the area is an ecological preserve with trespassing prohibited.

The signs will state the following:

> Sensitive Environmental Resources
> Disturbance Beyond this Point is Restricted by Easement
> Contact Information:
> County of San Diego Department of Planning & Development Services
> Ref. PDS2018-MUP-18-023, PDS2018-RP-18-001, PDS2018-ER-18-19-007
>
> Recursos Ambientalmente Sensibles
> Prohibida Su Entrada

Pedestrians and leashed dogs will be allowed on the proposed trail easement occurring along the perimeter of the preserve. SDG&E will continue to have access to their easement via the access road that connects the transmission tower "island" to the top of the southern slope of the biological open space to the east of the Steele Canyon Road.

4.4.4 Illegal Occupancy

Illegal occupancy has not been an issue on the site. However, the Resource Manager will survey the preserve for evidence of illegal occupancy/trespass concurrently with other site management activities and file a report with the Sheriff and the County PDS, if necessary.

4.4.5 Removal of Resources

Removal of any plants, animals, rocks, minerals, or other natural resources from the preserve is prohibited. The Resource Manager will maintain a log of illegal collecting and will report individuals caught removing natural resources from the preserve to the USFWS, CDFW, County, and/or Sheriff's Office as needed. The Resource Manager may allow and supervise seed collection and plant cuttings as part of revegetation efforts within the preserve and/or in nearby areas. Any such collected plant materials should be limited to that necessary to ensure successful revegetation while not adversely affecting local plant populations.

4.4.6 Trash Removal and Vandalism Repair

The Resource Manager will conduct general trash removal within the preserve during regular quarterly management site visits. Additionally, damage caused by vandalism will be repaired. Trash removal and vandalism repair will occur as needed during regular quarterly site visits.

4.4.7 Hazardous Materials Monitoring

The release of hazardous materials such as fuels, oil, vegetation clippings, trash, and landscaping related chemicals (e.g., pesticides and herbicides) has potential to affect the preserve negatively. Although no specific survey will be conducted, if such hazardous materials are observed within the preserve during regular quarterly site visits, remedial measures to remove the material will occur.

4.4.8 Coordinate with Utility Providers and Easement Holders

The Resource Manager will coordinate with utility providers and easement holders regarding any maintenance work that the utility/easement holder may need to complete on or in the immediate vicinity of the biological open space in order to avoid significant impacts to sensitive biological resources. This will ensure that potential future maintenance activities are done in compliance with regulatory requirements and in conformance with this RMP. The Resource Manager will contact SDG&E at least annually to ensure they have the appropriate contact information for the Resource Manager, are aware of the BOS boundaries and associated biological resource constraints, and to request notification of any upcoming work adjacent to the BOS.

4.5 PUBLIC USE ELEMENT

The preserve will have a fenced trail along the perimeter of the biological open space, but will not have other recreational facilities. The SDG&E easement discussed above will remain in place (Figure 7).

The preserve is intended to serve as a habitat preserve and, as such, is not compatible with many activities. Activities that will be specifically prohibited include:

- Use of herbicides or pesticides (except to remove non-native species as necessary and as determined by the Resource Manager), fertilizers (except as approved by the restoration specialist within the restoration areas), or other agricultural chemicals;
- Weed abatement activities for fuel management or other incompatible fire protection activities;
- Use of Off Highway Vehicles and any other motorized vehicles except in the execution of management duties;
- Recreational activities including, but not limited to, hiking in locations outside of the trail easement, horseback riding, biking, hunting, or fishing;
- Commercial or industrial uses;
- Construction, reconstruction, or placement of any building or other improvement, billboard, or sign, except for open space signs along the edge of the preserve;

- Depositing or accumulation of soil, trash, ashes, refuse, waste, bio-solids, or any other material;
- Planting, introduction, or dispersal of non-native or exotic plant or animal species;
- Altering the general topography of the preserve, including but not limited to the building of roads and flood control work;
- Removing, destroying, or cutting of trees, shrubs or other vegetation, except as deemed necessary by the Resource Manager for sensitive species management; or as required by federal, state or local law or by governmental order for (1) emergency fire breaks; (2) maintenance of existing roads; (3) prevention or treatment of disease; or (4) required mitigation programs; and
- Manipulating, impounding, or altering any natural watercourse, body of water or water circulation on the open space, and activities or uses detrimental to water quality, including but not limited to, degradation or pollution of any surface or sub-surface waters; except as directed by the County-approved mitigation and/or revegetation plans.

4.6 FIRE MANAGEMENT ELEMENT

No fire management activities (clearing, thinning, mowing, discing, blading, etc.) are allowed within the preserve. All such measures to reduce wildfire risk are to occur entirely outside of the preserve.

If a wildfire occurs in the preserve, vegetation will be allowed to recover naturally; however, the seeding and/or planting of container stock may be required at the discretion of the Resource Manager. The Resource Manager will pay special attention to weed establishment and the potential for type conversion of native riparian habitat to non-native grassland or disturbed wetlands following fire, particularly in relation to their potential effect on special status species such as least Bell's vireo. Post-fire recovery efforts could include, but are not limited to, invasive plant and animal control, habitat enhancement and restoration, and species monitoring. The Resource Manager will coordinate with the applicable fire agencies as necessary.

4.7 MANAGEMENT CONSTRAINTS

This RMP follows County requirements. Although it anticipates measures for most foreseeable contingencies, several external constraints remain. For example, illegal trespassing could negatively impact sensitive plant and animal species, and environmental factors, such as prolonged drought, increased incidence of fire, and erosion, could have detrimental effects on habitat composition and populations of sensitive plant and animal species within the preserve. The project consists of extraction activities/mining and reclamation and does not include any proposed development. A100-foot-wide limited building zone easement will be established around the preserve and will act as a buffer to protect the preserve from clearing for fire management, as well as providing additional buffering from potential edge effects such as noise and dumping of trash and debris. The limited building zone will be less than 100-feet wide where it abuts Willow Glen Drive along the northern boundary, Steele Canyon Road where it bisects the site, and existing residential development or the project boundary along the southern boundary. Regardless of whether future development is proposed in areas outside the preserve, portions of the preserve extend to the property boundary, and these areas have greater susceptibility to edge effects from adjacent land uses.

5.0 RESOURCE MANAGEMENT PLAN SUMMARY AND BUDGET

5.1 OPERATIONS AND BUDGET SUMMARY

Table 3, *Management Tasks*, provides a summary of all management tasks described above and the frequency of each task. The budget for these tasks will be provided in a Property Analysis Record as an appendix to the final RMP after a Resource Manager is identified.

5.2 EXISTING STAFF AND ADDITIONAL PERSONNEL NEEDS SUMMARY

Staff and personnel requirements will be provided in the final RMP after a Resource Manager is identified.

Table 3
MANAGEMENT TASKS

RMP Report Section	Task	Frequency
Biological Resources Tasks		
4.2.1	Baseline Inventory	One time
4.2.2	Update Biological Mapping	Every 5 years
4.2.3	Botanical Inventory	Every 5 years
4.2.4	General Special Status Species Monitoring	Annually
4.2.5	Least Bell's Vireo Surveys	Every 5 years
4.2.6	Exotic Plant Control	As needed; at least twice annually
4.2.7	Nuisance Animal Control	As needed
4.2.8	Fire and Flood Management	As needed
Adaptive Management Tasks		
4.3	To be developed and implemented as needed by the Resource Manager	As needed
Operations, Maintenance, and Administrative Tasks		
4.4.1	Monitoring Reports	Annually
4.4.2	Management Plan Review	Every 5 years
4.4.3	Access Control, Fencing, and Signage	Quarterly
4.4.4	Illegal Occupancy	Quarterly
4.4.5	Removal of Resources Monitoring	Quarterly
4.4.6	Trash Removal and Vandalism Repair	Quarterly
4.4.7	Hazardous Materials Monitoring	Quarterly
4.4.8	Coordinate with Utility Providers and Easement Holders	Annually and as needed

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Appendix A

Plant Species Observed

Appendix A
Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Adoxaceae	*Sambucus nigra*	blue elderberry	DCSS, DH
Agavaceae	*Agave attenuata*	foxtail agave	DH
Aizoaceae	*Aptenia cordifolia**	dew plant	DEV, DH
	*Carpobrotus edulis**	iceplant	DH, NNV
	*Mesembryanthemum crystallinum**	crystalline ice plant	DH, DEV
	*Mesembryanthemum nodiflorum**	small flowered iceplant	DH, DEC
Amaranthaceae	*Amaranthus* sp.*	amaranth	DH, DW
Anacardiaceae	*Rhus integrifolia*	lemonade berry	DCSS
	*Schinus molle**	Peruvian pepper tree	DH, NNV, NNW
	*Schinus terebinthifolius**	Brazilian pepper tree	DH, DEV
	Toxicodendron diversilobum	poison oak	SCWRF
Apiaceae	*Apium graveolens**	celery	DW
	*Conium maculatum**	poison hemlock	DW
	Daucus pusillus	wild carrot	DW
	*Foeniculum vulgare**	fennel	DH, NNW
Apocynaceae	*Asclepias* sp.	milk weed	DCSS
	*Vinca major**	vinca	DW
Araceae	*Lemna minuta*	least duckweed	DW, SCWRF
Arecaceae	*Phoenix canariensis**	canary island date palm	DH, DEV, SCWRF
	*Washingtonia robusta**	Mexican fan palm	DH, DEV
Asparagaceae	*Asparagus asparagoides**	African asparagus fern	DH
Asphodelaceae	*Asphodelus fistulosus**	onionweed	DH, DEC
Asteraceae	*Achillea millefolium*	yarrow	DH, DEC
	Amblyopappus pusillus	pineapple weed	DH
	Ambrosia monogyra+	singlewhorl burrobrush	DCSS
	Ambrosia psilostachya	ragweed	SCWRF, SWS, DW, DH, DEV
	Artemisia californica	coastal sage brush	DCSS, NNW
	Artemisia palmeri+	San Diego sagewort	SCWRF
	Baccharis pilularis	coyote brush	DH, DEC
	Baccharis salicifolia	mule fat	DH, DEV, SCWRF, SWS, DW
	Baccharis sarothroides	broom baccharis	DH
	Bahiopsis laciniata+	san diego county viguiera	DH
	Bebbia juncea var. *aspera*	rough sweetbush	DCSS
	*Carduus pycnocephalus**	italian thistle	DH, DEV
	*Centaurea melitensis**	tocalote	DH, DEV
	Chaenactis glabriuscula var. *glabriuscula*	common yellow chaenactis	DCSS
	Cirsium vulgare	bullthistle	DH, DW
	Coreopsis sp.*	coreopsis	DH
	*Cotula coronopifolia**	brass buttons	DH, DEV
	*Cynara cardunculus**	cardoon	DH
	Deinandra fasciculata	clustered tarweed	DCSS

Appendix G
Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Asteraceae	*Ditrichia graveolens**	stinkwort	DH, DEC
	Encelia californica	bush sunflower	DCSS
	Erigeron canadensis	canada horseweed	DH, DEV, SCWRF
	Eriophyllum confertiflorum	yellow yarrow	DCSS
	*Glebionis coronaria**	crown daisy	DCSS, DEV, DH
	Helianthus annuus	hairy leaved sunflower	DH
	Heterotheca grandiflora	telegraph weed	DH
	*Hypochaeris glabra**	smooth cats ear	DH
	Isocoma menziesii	white flowered goldenbush	DCSS, DH, NNV
	*Lactuca serriola**	prickly lettuce	DH
	*Logfia gallica**	narrowleaf cottonrose	DCSS
	Matricaria discoidea	pineapple weed	DH, DEV
	Pluchea odorata	salt marsh fleabane	SCWRF, FWM
	Pluchea sericea	arrow weed	SCWRF, FWM, MFS
	Pseudognaphalium biolettii	two-color rabbit-tobacco	DCSS
	*Senecio vulgaris**	common groundsel	DH
	*Silybum marianum**	milk thistle	DH
	*Sonchus asper**	spiny sowthistle	DH, DW
	*Sonchus oleraceus**	sow thistle	DCSS, DH
	Stephanomeria virgata	twiggy wreath plant	DCSS, DH
	Xanthium strumarium	cocklebur	NNW
Bignoniaceae	*Tecoma capensis**	cape honeysuckle	DEV
Boraginaceae	*Amsinckia intermedia*	common fiddleneck	DCSS
	Amsinckia menziesii	fiddleneck	DCSS
	Cryptantha sp.	popcorn flower	DCSS
	Heliotropium curassavicum var. *oculatum*	seaside heliotrope	DH
	Pectocarya sp.	combseed	DCSS
	Phacelia distans	common phacelia	CLOW
	Phacelia sp.	phacelia	DCSS
Brassicaceae	*Brassica nigra**	black mustard	DCSS, DH
	*Hirschfeldia incana**	short-pod mustard	DH
	*Lobularia maritima**	sweet alyssum	DEV
	Nasturtium officinale	watercress	DW
	*Raphanus sativus**	jointed charlock	DH
	*Sisymbrium irio**	London rocket	DH
Caryophyllaceae	*Stellaria pallida**	pale starwort	DW
Chenopodiaceae	*Atriplex semibaccata**	Australian saltbush	DH, DEV
	*Chenopodium album**	lamb's quarters	DH, DW
	*Salsola tragus**	Russian thistle	DH, DEV
Convolvulaceae	*Calystegia* sp.	morning glory	DCSS
Euphorbiaceae	*Croton setigerus*	doveweed	DH

Appendix G
Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Euphorbiaceae	*Euphorbia maculata*	spotted spurge	DH
Fabaceae	*Acmispon glaber*	deerweed	DCSS, DH
	Astragalus trichopodus var. *trichopodus*	Santa Barbara milk vetch	DH
	*Medicago polymorpha**	California burclover	DH, DEV
	*Melilotus albus**	white sweetclover	DH
	*Melilotus indicus**	annual yellow sweetclover	DEV
Fagaceae	*Quercus agrifolia* var. *agrifolia*	coast live oak	SCWRF, CLOW
Geraniaceae	*Erodium cicutarium**	coastal heron's bill	DH, DEV
Hydrophyllaceae	*Heliotropium curassavicum*	salt heliotrope	DH
Juncaceae	*Juncus acutus* ssp. *leopoldii*+	wire grass	DW
	Schoenoplectus acutus var. *occidentalis*	common tule	DW
Lamiaceae	*Marrubium vulgare**	white horehound	DH
Meliaceae	*Melia azedarach**	Chinaberry tree	DH
Moraceae	*Ficus carica**	common fig	DEV
	*Morus alba**	mulberry	DEV
Myrsinaceae	*Lysimachia arvensis**	scarlet pimpernel	DH, DEV, DW
Myrtaceae	*Callistemon citrinus**	crimson bottlebrush	DEV
	*Eucalyptus camaldulensis**	red gum	EW
	Eucalyptus sp.*	eucalyptus	DH, DEV, EW
Oleaceae	*Fraxinus uhdei**	shamel ash	DEV
	*Olea europaea**	olive	DH
Oxalidaceae	*Oxalis pes-caprae**	Bermuda buttercup	DH
Papaveraceae	*Eschscholzia californica*	California poppy	DH
Passifloraceae	*Passiflora caerulea**	passion fruit	DEV
Phrymaceae	*Diplacus puniceus*	sticky monkeyflower	DCSS
Phytolaccaceae	*Phytolacca americana**	pokeweed	DH
Plantaginaceae	*Plantago coronopus**	cut leaf plantain	DW
	*Plantago major**	common plantain	DW
Platanaceae	*Platanus racemosa*	California sycamore	DH, SCWRF
Plumbaginaceae	*Limonium* sp.*	sea lavender	DEV
	*Plumbago auriculata**	cape leadwort	DEV
Poaceae	*Arundo donax**	giant reed	ADR, NNV
	*Avena barbata**	slim oat	DH, DCSS, NNG
	Bromus carinatus	California bromegrass	NNG
	*Bromus diandrus**	ripgut brome	NNG
	*Bromus hordeaceus**	soft chess	NNG
	*Bromus madritensis**	foxtail chess	NNG
	*Cynodon dactylon**	Bermuda grass	NNG
	Distichlis spicata	salt grass	DW
	*Hordeum murinum**	foxtail barley	DEV
	*Lamarckia aurea**	goldentop	NNG

Appendix G
Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Poaceae	*Polypogon monspeliensis**	annual beard grass	DW
	*Stipa miliacea**	smilo grass	DH, NNG, DEV
Polygonaceae	*Eriogonum fasciculatum*	california buckwheat	DCSS
	*Polygonum aviculare**	prostrate knotweed	DEV, DH
	*Rumex crispus**	curly dock	DW, DH
Portulacaceae	*Portulaca* sp.*	purslane	DH, DW
Proteaceae	*Grevillea robusta**	silkoak	DEV
Ranunculaceae	*Clematis* sp.	clematis	DCSS
Rosaceae	*Pyracantha* sp.*	firethorn	DEV, DH
Rubiaceae	*Galium angustifolium*	narrow leaved bedstraw	DCSS
	Galium aparine	cleavers	DW
Salicaceae	*Populus fremontii*	Fremont cottonwood	DH, DEV, SCWRF
	Salix exigua	narrowleaf willow	SCWRF, SWS
	Salix gooddingii	Gooding's willow	SCWRF, SWS
	Salix laevigata	red willow	SCWRF, SWS
	Salix lasiolepis	arroyo willow	SCWRF, SWS
Scrophulariaceae	*Myoporum laetum**	ngaio tree	DH, DEV
Solanaceae	*Datura wrightii*	jimsonweed	DCSS
	*Nicotiana glauca**	tree tobacco	DH, SCWRF
	Solanum sp.	solanum	DCSS, DH
Tamaricaceae	*Tamarix ramosissima**	tamarisk	DCSS, DH, SCWRF, TS
Tropaeolaceae	*Tropaeolum majus**	garden nasturtium	DEV, DW
Typhaceae	*Typha latifolia*	broadleaf cattail	FWM, DW
Urticaceae	*Urtica urens**	annual stinging nettle	CLOW, SCWRF, EW
Verbenaceae	*Lantana camara**	lantana	DWV
	Verbena sp.	verbena	DH, DEV
Viscaceae	*Phoradendron* sp.*	mistletoe	SCWRF
Vitaceae	*Vitis girdiana*	Southern California grape	DEV

[1] FWM = Freshwater Marsh; SCWRF = Southern Cottonwood-Willow Riparian Forest (including disturbed); SWS = Southern Willow Scrub (including disturbed); DW = Disturbed Wetland; DCSS = Diegan coastal sage scrub (including disturbed); EW = Eucalyptus Woodland; OW = Open Water; MMP = Man-Made Pond; NNW = Non-Native Woodland; ADR = Arundo-Dominated Riparian; NNV = Non-Native Vegetation; TS = Tamarisk Scrub; DH = Disturbed Habitat; DEV = Developed.

* Non-native Species.

† Special Status Species.

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Appendix B

Special Status Plant Species Observed or with Potential to Occur

Appendix B
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
San Diego thorn-mint *(Acanthomintha ilicifolia)*	FT/CE CRPR 1B.1 County List A MSCP Covered MSCP NE	Annual herb. Typically found on clay soils within chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Flowering period: April to June. Elevation: below 3150 feet (960 meters).	**None**. Suitable clay soils are absent from the project site. The closest records of the species are located over 1.6 miles southeast of the site at McGinty Mountain within the SDNWR.
California adolphia (*Adolphia californica*)	--/-- CRPR 2B.1 County List B	Perennial shrub. Most often found in sage scrub but occasionally occurs in peripheral chaparral habitats, particularly hillsides near creeks on clay soils. Flowering period: December to April. Elevation: below 1,312 feet (400 meters).	**Low**. Very little sage scrub occurs on site and clay soils are absent. This perennial shrub was not observed on site during biological surveys to date.
Singlewhorl burrobrush (*Ambrosia monogyra*)	--/-- CRPR 2B.2	Perennial shrub. Found on sandy soils within washes and dry riverbeds within chaparral communities. Flowering period: September to November. Elevation: below 1,640 feet (500 meters).	**Present.** Approximately 151 individuals were mapped within Diegan coastal sage scrub at the extreme southeastern portion of the site.
San Diego ambrosia (*Ambrosia pumila*)	FE/-- CRPR 1B.1 County List A MSCP NE	Perennial herb. Occurs on sandy loam or clay, sometimes alkaline, soils. Found in native grassland, valley bottoms, dry drainages, stream floodplain terraces, and vernal pool margins. Also occurs on slopes, disturbed places, and in coastal sage scrub or chaparral. Flowering period: April to July. Elevation: 164 to 1,969 feet (50 to 600 meters).	**High.** Critical habitat for this species occurs in the extreme southwestern portion of the site along Sweetwater River. Several recent observations of the species occur just south of the site within coastal sage scrub in the SDNWR.
Otay manzanita (*Arctostaphylos otayensis*)	--/-- CRPR 1B.2 County List A MSCP Covered	Perennial shrub. Found in chaparral and cismontane woodland on metavolcanics soils. Flowering period: January to April. Elevation: 900 to 5,580 feet (275 to 1,700 meters).	**None**. Suitable soils and habitat are absent from the site. The site is located below the elevation range for the species.
San Diego sagewort (*Artemisia palmeri*)	--/-- CRPR 4.2 County List D	Perennial herb. Typically found along stream courses, often beneath riparian woodland, on sandy and mesic soils. May occur in coast live oak woodland, coastal sage scrub, and southern mixed chaparral. Flowering period: June to October. Elevation: below 1,969 feet (600 meters).	**Present.** Two individuals were observed at the western project boundary at the edge of southern riparian forest along Sweetwater River.
Western spleenwort (*Asplenium vespertinum*)	--/-- CRPR 4.2 County List D	Perennial rhizomatous herb. Occurs in chaparral, cismontane woodland, and coastal scrub along rocky bluffs. Flowering period: February to June. Elevation: 180 to 1,000 meters.	**None**. Suitable rocky habitat does not occur on site and no records of the species occur within the project vicinity.

Appendix B
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Dean's milk-vetch (*Astragalus deanei*)	--/-- CRPR 1B.1 County List A	Perennial herb. Found on open, shrubby slopes in chaparral. Also occurs within coastal scrub, cismontane woodland, and riparian forest. Flowering period: February to May. Elevation: 246 to 2,280 feet (75 to 695 meters).	**Moderate.** Suitable habitat on site is limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the site, and within riparian habitat located along Sweetwater River. Few recent records of the species are present within the project vicinity.
South coast saltscale (*Atriplex pacifica*)	--/-- CRPR 1B.2 County List A	Annual herb. Found coastally on dunes and within playas in alkali sinks, sage scrub and wetland riparian communities. Flowering period: March to October. Elevation: below 984 feet (300 meters).	**Low**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the site. No records of the species occur within the project vicinity.
Encinitas baccharis (*Baccharis vanessae*)	FT/SE CRRP 1B.1 County List A MSCP Covered NE	Perennial shrub. Grows on sandstone within chaparral, maritime chaparral, woodlands, and Torrey-pine forest understory. Found in San Diego County. Flowering period: August to December. Elevation: 195 to 2,360 feet (60 to 720 meters).	**None**. Suitable habitat and soils are not present within the project site. No records of the species occur within the project vicinity.
San Diego County viguiera (*Bahiopsis laciniata*)	--/-- CRPR 4.3 County List D	Perennial shrub. Occurs on a variety of soil types within coastal sage scrub. Generally, shrub cover is more open than at mesic, coastal locales supporting sage scrub. Flowering period: February to August. Elevation: 295 to 2,461 feet (90 to 750 meters).	**Present.** Scattered individuals observed at the northwestern portion of the project site within disturbed coastal sage scrub and disturbed habitat.
San Diego goldenstar (*Bloomeria clevelandii*)	--/-- CRPR 1B.1 MSCP Covered	Perennial bulbiferous herb. Occurs in valley grasslands and coastal scrub, particularly near mima mound topography or in the vicinity of vernal pools, on clay soils. Flowering period: April to May. Elevation: 164 to 1,526 (50 to 465 meters).	**Low**. Limited suitable coastal sage scrub habitat occurs on site, but the site lacks suitable clay soils. The closest occurrence of this species is from 1991 and located approximately 0.7 mile west of the site along Sweetwater River at Campo Road.
Orcutt's brodiaea (*Brodiaea orcuttii*)	--/-- CRPR 1B.1 County List A MSCP Covered	Perennial bulbiferous herb. Occurs within closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools. Prefers mesic or clay soils. Flowering period: May to July. Elevation: 98 to 5,550 feet (30 to 1,692 meters).	**Low**. Suitable mesic soils occur along Sweetwater River but the site likes habitats associated with the species. The closest record of the species is from 1995 and located 2.8 miles south of the project within Proctor Valley.

Appendix B
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Thread-leaved brodiaea (*Brodiaea filifolia*)	FT/SE CRPR 1B.1 County List A MSCP Covered NE	Perennial herb. Often associated with vernal pools. Also occurs within playas, grasslands, coastal scrub, openings in chaparral, and cismontane woodland; often on clay soils. Found in Los Angeles, Orange, San Bernardino, Riverside, and San Diego Counties. Flowering period: March to June. Elevation: 80 to 3,675 feet (25 to 1,120 meters).	**Low.** Suitable vernal pool habitat and clay soils typically associated with the species are not present within the project site. No records of the species occur within the project vicinity.
Brewer's calandrinia (*Calandrinia breweri*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs within chaparral or coastal scrub on sandy or loamy soil, disturbed sites, and after burns. Flowering Period: January to June. Elevation: 32 to 4,000 feet (10 to 1,220 meters).	**Low.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the site. However, no records of the species occur within the project vicinity.
Round leaved filaree (*California macrophylla*)	--/-- County List B	Annual herb. Occurs in open sites on clay, occasionally serpentine, soils within grasslands and cismontane woodlands. Found along the central and southern coast; Sacramento and San Joaquin Valleys; North Coast, South Coast, western Transverse, and Peninsular Ranges; San Francisco Bay area; southern Sierra Nevada foothills; Tehachapi and San Jacinto mountains; and the Channel Islands. Flowering Period: March to July. Elevation: below 3,940 feet (1,200 meters).	**None.** Suitable clay or serpentine soils are not present within the project site. No records of the species occur within the project vicinity.
Cataline mariposa (*Calochortus catalinae*)	--/-- CRPR 4.2 County List D	Perennial herb. Occurs within grasslands, coastal scrub, chaparral, and cismontane woodlands. Found along the coastal regions from San Luis Obispo County south to San Diego County and east to western San Bernardino and Riverside Counties. Flowering period: March to June. Elevation: 50 to 2,300 feet (15 to 700 meters).	**Low.** Suitable coastal sage scrub habitat on site is limited and highly disturbed. No records of the species occur within the project vicinity.
Dunn's mariposa lily (*Calochortus dunnii*)	--/-- CRPR 1B.2 County List A MSCP Covered MSCP NE	Perennial bulbiferous herb. Found in closed-cone coniferous forest, chaparral, and valley and foothill grassland, typically on gabbroic, metavolcanics, or rocky soils. Flowering Period: Feb to June. Elevation: 600 to 6,000 feet (185 to 1,830 meters).	**None**. Suitable soils do not occur on site and the project site is below the known elevation range for the species.

Appendix B
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Lewis' evening-primrose (*Camissoniopsis lewisii*)	--/-- CRPR 3 County List C	Annual herb. Occurs on sandy or clay soils within grasslands, coastal scrub, cismontane woodland, and coastal bluffs and dunes. Flowering period: March to June. Elevation: below 984 feet (300 meters).	**Low.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the site. However, no records of the species occur within the project vicinity.
Mojave paintbrush (*Castilleja plagiotoma*)	--/-- CRPR 4.3	Perennial herb. Occurs in dry Great Basin sagebrush scrub, Joshua Tree woodland, lower montane coniferous forests, and pinyon woodland. Flowering Period: April to June. Elevation: 980 to 8,200 feet (300 to 2,500 meters).	**None**. Suitable habitats do not occur on site and the project is below the known elevation range for the species.
Slender pod jewelflower (*Caulanthus [stenocarpus] heterophyllus*)	--/-- MSCP Covered	Annual herb. Grows on dry sites within open coastal scrub and chaparral. Often occurs in burned and disturbed areas. Found along the coast of southern California; South Coast, western Transverse, and Peninsular Ranges; San Gabriel and San Bernardino mountains; and the Channel Islands. Flowering period: March to May. Elevation: below 4,600 feet (1,400 meters).	**Moderate.** Suitable coastal sage scrub habitat on site is limited. Documented occurrences are located further southeast of the project within the SDNWR. The species was not observed during rare plant survey conducted in 2019.
Lakeside ceanothus (*Ceanothus cyaneus*)	--/-- CRPR 1B.2 County List A MSCP Covered MSCP NE	Perennial shrub. Occurs on slopes and ridgelines in closed cone coniferous forest and chaparral. Flowering Period: April to June. Elevation: 770 to 2,540 feet (235-755 meters).	**None**. Suitable habitats do not occur on site and the project is below the known elevation range for this species. This conspicuous perennial shrub would have been observed if present.
Otay Mountain ceanothus (*Ceanothus otayensis*)	--/-- CRPR 1B.2	Perennial shrub. Found in chaparral dominated by chamise and ceanothus species on metavolcanics or gabbroic soils. Mild soil disturbances may enable this plant to pioneer on road cuts and in burn areas. Only known from Otay Mountain in San Diego County. Flowering Period: January to April. Elevation: 1,960 to 3,600 feet (600 to 1,100 meters).	**None**. Suitable habitat and soils are absent from the project site. Furthermore, the site is outside of the known distribution and elevation range for the species.
Wart-stemmed ceanothus (*Ceanothus verrucosus*)	--/-- CRPR 2B.2 County List B MSCP Covered	Perennial shrub. Found on rocky slopes within chaparral, particularly southern maritime chaparral. Found in Riverside and San Diego Counties. Flowering period: December to May. Elevation: below 1,245 feet (380 meters).	**None.** Suitable rocky soils and chaparral habitat are not present within the project site. No records of the species occur within the project vicinity.

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Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Southern tarplant (*Centromadia parryi* ssp. *australis*)	--/-- CRPR 1B.1 County List A	Annual herb. Found at the margins of salt marshes, vernally mesic areas within grasslands, and vernal pools. Found in the coastal regional from Santa Barbara County south to San Diego County and the Channel Islands. Flowering Period: May to November. Elevation: below 1,575 feet (480 meters).	**Low.** Vernally mesic areas occur within the project site along the Sweetwater River. However, there are no records of the species occur within the project vicinity.
Smooth tarplant (*Centromadia pungens* ssp. *laevis*)	--/-- CRPR 1B.1 County List A	Annual herb. Occurs on alkaline soils in chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland. Flowering Period: April to September. Elevation: below 2,100 feet (640 meters).	**Low**. Potentially suitable habitat occurs along the Sweetwater River but alkaline soils are not known to occur within the project site. No known occurrences of the species occur within the project vicinity.
Southern mountain misery (*Chamaebatia australis*)	--/-- CRPR 4.2 County List D	Perennial shrub. Occurs in chaparral on gabbroic or metavolcanics soils. Flowering Period: November to May. Elevation: 980 to 3,350 feet (300 to 1,020 meters).	**None**. Suitable habitats do not occur on site and the project is below the known elevation range for the species.
Long-spined spineflower *(Chorizanthe polygonoides* var. *longispina)*	--/-- CRPR 1B.2 County List A	Annual herb. Occurs in chaparral, coastal scrub, and native grassland, often in sandy soils. Flowering period: April to June. Elevation: 98 to 4,920 feet (30 to 1,500 meters).	**Low.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur within the project vicinity.
Delicate clarkia (*Clarkia delicata*)	--/-- CRPR 1B.2 County List A	Annual herb. Occurs in shaded areas or the periphery of oak woodlands and cismontane chaparral, often on gabbroic soils. Flowering period: April to May. Elevation: below 3,281 feet (1,000 meters).	**None**. Suitable habitats and soils are not present on site.
San Miguel savory (*Clinopodium chandleri*)	--/-- CRPR 1B.2 MSCP Covered	Perennial shrub. Occurs within chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland on rocky, gabbroic, or metavolcanic soils. Flowering Period: March to July. Elevation: 390 to 3,530 feet (120 to 1,075 meters.	**None**. Suitable rocky, gabbroic, and metavolcanic soils are absent from the project site. Furthermore, the is below the species' preferred elevation range.
Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)	--/-- CRPR 1B.2 County List A	Perennial shrub. Occurs in chaparral and cismontane woodland. Flowering period: May to June. Elevation: 328 to 1,804 feet (100 to 550 meters).	**None**. Suitable habitats do not occur on site and the project is below the known elevation range for the species.

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Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Small-flowered morning-glory (*Convolvulus simulans*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs on clay soils and serpentinite seeps in openings within chaparral, coastal scrub, and native grassland. Flowering period: April to June. Elevation: 98 to 2,871 feet (30 to 875 meters).	**Low**. Suitable clay soils are absent from the project site and no known records of the species occur within the project vicinity.
San Diego sand aster (*Corethrogyne filaginifolia* var. *incana*)	--/-- CRPR 1B.1 County List A	Perennial herb. Occurs within grasslands, coastal bluff scrub, coastal scrub, and chaparral. Flowering period: June to September. Elevation: 15 to 2,362 feet (5 to 720 meters).	**Moderate.** Suitable habitat on site us limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. Few records of the species occur within the project vicinity with the closest occurrence found to the east in the foothills of the McGinty Mountain Ecology Reserve.
Snake cholla (*Cylindropuntia californica* var. *californica*)	--/-- CRPR 1B.1 MSCP Covered MSCP NE	Perennial herb (stem succulent). Occurs within coastal sage scrub and coastal chaparral communities. Flowering period: April to July. Elevation: below 820 feet (250 meters).	**Presumed Absent**. Suitable habitat on site limited to coastal sage scrub in the extreme northeastern and southwestern portions of the project. This conspicuous perennial species would have been observed if present.
Otay tarplant (*Deinandra conjugens*)	FT/SE CRPR 1B.1 County List A MSCP Covered MSCP NE	Annual herb. Grows in clay soils within coastal scrub openings and grasslands. Flowering period: May to June. Elevation: 65 to 980 feet (20 to 300 meters).	**Low**. Suitable habitat on site limited to coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, clay soils are absent from the project site.
Paniculate tarplant (*Deinandra paniculata*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs in vernally mesic areas, sometimes sandy soils, in coastal scrub, valley and foothill grassland, and vernal pools with sandy soil. Flowering Period: March to December. Elevation: 80 to 3,100 feet (25 to 940 meters).	**Low.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur in the project vicinity.
Western dichondra (*Dichondra occidentalis*)	--/-- CRPR 4.2 County List D	Perennial herb. Found among rocks and shrubs within grasslands, coastal sage scrub, chaparral, and oak woodlands. Often proliferates on recently burned slopes. Flowering period: March to June. Elevation: below 1,706 feet (520 meters).	**Low.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur in the project vicinity.
Orcutt's bird's-beak (*Dicranostegia orcuttiana*)	--/-- CRPR 2B.1 County List B MSCP Covered	Annual herb. Found coastally within coastal sage scrub. Flowering period: March to August. Elevation: below 1,148 feet (350 meters).	**Low**. All records of the species occur further southwest outside of the project vicinity within Otay and Chula Vista.

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Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Variegated dudleya (*Dudleya variegata*)	--/-- CRPR 1B.2 County List A MSCP Covered MSCP NE	Perennial herb succulent. Occurs on clay soils of dry hillsides and mesas within chaparral, valley grassland, foothill woodland and coastal sage scrub communities. Flowering period: April to June. Elevation: below 984 feet (300 meters).	**Low**. Suitable habitat on site limited to coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, clay soils are absent from the project site. Furthermore, the nearest occurrence of the species is approximately 1.8 miles southwest within SDNWR.
Sticky dudleya (*Dudleya viscida*)	--/-- CRPR 1B.2 County List A MSCP Covered	Perennial herb. Occurs in rocky areas within coastal bluffs, coastal sage scrub, chaparral, and woodlands. Grows primarily on very steep north-facing slopes. Found in Orange, Riverside, and San Diego Counties. Flowering period: May to June. Elevation: 30 to 1,805 feet (10 to 550 meters).	**None.** Suitable rocky areas and steep slopes are absent from the project site. No records of the species occur within the project vicinity.
Palmer's goldenbush (*Ericameria palmeri* var. *palmeri*)	--/-- CRPR 1B.1 County List B MSCP Covered MSCP NE	Perennial Shrub. Found in mesic areas within coastal sage scrub and chaparral. Flowering period: September to November. Elevation: below 1,968 feet (600 meters).	**Presumed Absent.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, this conspicuous perennial species would have been observed if present.
San Diego button celery (*Eryngium aristulatum* var. *parishii*)	FE/SE CRPR 1B.1 County List A MSCP Covered	Annual or perennial herb. Grows in vernal pools and other mesic areas, such as marshes. Flowering period: May to June. Elevation: below 2,313 feet (705 meters).	**None**. No vernal pools occur within the project site. Potentially suitable mesic areas along Sweetwater River have been highly disturbed as part of previous mining activities and golf course development and operation. Furthermore, no records of the species occur within the project vicinity. The closest occurrence is over 5 miles southwest of the site, just south of Sweetwater Reservoir.
Palomar monkeyflower (*Erythranthe diffusua*)	--/-- CRPR 4.3 County List D	Annual herb. Grows in sandy or gravelly areas within chaparral and lower montane coniferous forests. Found in Riverside, Orange, and San Diego Counties. Flowering period: April to June. Elevation: 4,000 to 6,005 feet (1,220 to 1,830 meters).	**None.** The project site is outside the known elevation range of this species. No records of the species occur within the project vicinity.

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Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
San Diego barrel cactus (*Ferocactus viridescens*)	--/-- CRPR 2B.1 County List B MSCP Covered	Perennial (stem succulent) shrub. Grows in sandy to rocky areas within chaparral, valley grassland and coastal sage scrub communities. Flowering period: May to June. Elevation: 33 to 492 feet (10 to 150 meters).	**Presumed Absent**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, this conspicuous perennial species would have been observed if present.
Mexican flannelbush (*Fremontodendron mexicanum*)	FE/SR CRPR 1B.1 County List A	Perennial shrub. Occurs on gabbroic, metavolcanic, and serpentinite soils within chaparral, foothill woodland and closed-cone pine forest communities. Flowering period: March to June. Elevation: 33 to 2,349 feet (10 to 716 meters).	**None**. Suitable soils and habitats for this species do not occur within the project site.
Mission Canyon bluecup (*Githopsis diffusa* ssp. *filicaulis*)	--/-- CRPR 3.1 County List C	Annual herb. Grows in mesic and disturbed areas within chaparral. Found in Riverside and San Diego Counties. Flowering period: April to June. Elevation: 1,475 to 2,300 feet (450 to 700 meters).	**None.** Suitable chaparral habitat is absent from the project site. No records of the species occur within the project vicinity.
Palmer's grapplinghook (*Harpagonella palmeri*)	--/-- CRPR 4.2 County List D	Annual herb. Found in clay soils in annual grasslands and coastal sage scrub. Flowering Period: March to May. Elevation: 65 to 3,100 feet (20 to 955 meters).	**Low.** Suitable habitat on site limited to coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, clay soils are absent from the project site.
Tecate cypress (*Hesperocyparis forbesii*)	--/-- CRPR 1B.1 MSCP Covered	Perennial tree. Found within closed-cone coniferous forest and chaparral on clay, gabbroic, or metavolcanics soils. Elevation: 262 to 4,900 feet (80 to 1500 meters).	**None**. Suitable soils and habitats do not occur within the project site. Additionally, the site is located below the known elevation range of the species.
Graceful tarplant (*Holocarpha virgata* ssp. *elongata*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs in grasslands, coastal scrub, chaparral, and cismontane woodland. Flowering period: May to November. Elevation: 195 to 3,600 feet (60 to 1,100 meters).	**Low.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur in the project vicinity.
Vernal barley (*Hordeum intercedens*)	--/-- CRPR 3.2 County List C	Annual herb. Occurs in vernal pools, alkaline flats, and dry, saline streambeds. Also found in saline flats and depressions within grasslands. Flowering period: March to June. Elevation: below 3.280 feet (1,000 meters).	**None**. No vernal pools, or suitable alkaline and saline habitats occur within the project site. The nearest record of the species is located over 6 miles south of the site within the Rancho Jamul Ecological Reserve.

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Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*)	--/-- CRPR 1B.2 County List A	Perennial shrub. Occurs in sandy soil and disturbed areas on the inland side of dunes, hillsides, and arroyos within coastal sage scrub and chaparral communities. Flowering period: July to November. Elevation: below 656 feet (200 meters).	**Moderate.** Suitable habitat on site is limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the site, and along undisturbed areas of Sweetwater River. Few recent records of the species are present within the project vicinity. This perennial shrub would most likely have been observed if present.
San Diego marsh-elder (*Iva hayesiana*)	--/-- CRPR 2B.2 County List B	Perennial herb. Found in alkaline flats, depressions, and streambanks within wetland communities. Flowering period: April to October. Elevation: 32 to 1,640 feet (10 to 500 meters).	**None**. Suitable habitat alkaline soils are not found within the project site.
Southern California black walnut (*Juglans californica*)	--/-- CRPR 4.2 County List D	Perennial tree. Grows in alluvial soils within coast sage scrub, chaparral, riparian woodlands, and cismontane woodlands. Found along the southern California coast; Coast, western Transverse, and Peninsular Ranges; and San Gabriel and San Jacinto mountains. Flowering period: March to August. Elevation: 165 to 2,955 feet (50 to 900 meters).	**Presumed Absent.** No individuals were observed within the project site during rare plant surveys conducted in 2019. This conspicuous perennial species would most likely have been observed if present.
Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*)	--/-- CRPR 4.2 County List D	Perennial herb. Found in moist saline environments such as alkaline seeps and meadows, and coastal salt marshes and swamps. Flowering period: May to June. Elevation: below 984 feet (300 meters).	**Present**. Suitable saline and alkaline soils do not occur on site, and the species is not known to occur within the project vicinity.
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	--/-- CRPR 1B.1 County List A	Annual herb. Grows in vernal pools, playas, and saline habitats within alkali sinks, coastal salt marshes, and wetland communities. Flowering period: April to May. Elevation: below 3,281 feet (1,000 meters).	**Low**. Potentially suitable habitat occurs along the Sweetwater River and associated riparian habitat within the project site. However, no records of the species occur within the project vicinity.
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	--/-- CRPR 4.3 County List A	Annual herb. Grows in openings in sage scrub and chaparral at the coastal and foothill elevations. Typically observed in relatively dry, exposed locales rather than beneath a shrub canopy. Also, found in disturbed areas Flowering period: March to June. Elevation: below 9,186 feet (2,800 meters).	**High**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. Occurrences of the species are reported to the southeast within McGinty Mountain and further west near Mt. San Miguel.

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Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Willowy monardella (*Monardella viminea*)	FE/SE CRPR 1B.1 County List A MSCP Covered NE	Perennial herb. Associated with riparian scrub, usually at sandy locales in seasonally dry washes. Generally, there is no canopy cover and river cobbles may lie in close proximity. Found in San Diego County Flowering period: June to August. Elevation: 160 to 740 feet (50 to 225 meters).	**Low.** Suitable sandy locales and seasonally dry washes occur on site; however, the species was not detected during rare plant surveys conducted in 2019. No records of the species occur within the project vicinity.
Little mousetail (*Myosurus minimus* ssp. *apus*)	--/-- CRPR 3.1 County List C	Annual herb. Occurs in alkaline vernal pools within native grassland. Flowering period: March to June. Elevation: 65 to 2,100 feet (20 to 640 meters).	**None**. Suitable vernal pool habitat does not occur on site.
Mud nama (*Nama stenocarpa*)	--/-- CRPR 2B.2 County List B	Annual herb. Occurs in intermittently wet areas such as streambanks and muddy lake edges. Flowering period: March to October. Elevation: below 2,657 feet (810 meters).	**Low**. Marginal suitable habitat occurs within the project site along Sweetwater River. However, the site has been heavily disturbed and altered by previous mining activities and golf course development. Additionally, the closest occurrence of the species is over 4 miles west at the Sweetwater Reservoir.
Spreading navarretia (*Navarretia fossalis*)	FT/-- CRPR 1B.1 County List A	Annual herb. Occurs in vernal pools, chenopod scrub, marshes, swamps, and playas. Flowering period: April to June. Elevation: 98 to 4,265 feet (30 to 1,300 meters).	**None**. Vernal pools and other potentially suitable habitat does not occur within the project site. No occurrences of the species have been reported in the project vicinity.
chaparral nolina (*Nolina cismontana*)	--/-- CRPR 1B.2 County List A	Perennial shrub. Grows on sandstone or gabbro soils within coastal scrub and chaparral. Found in the coastal regions of southern California from Ventura south to San Diego County and extreme western Riverside County. Flowering period: May to July. Elevation: 455 to 4,185 feet (140 to 1,275 meters)	**None.** Suitable sandstone and gabbro soils are not present within the project site. No records of the species occur within the project vicinity.
Dehesa nolina (*Nolina interrata*)	--/SE CRPR 1B.1 County List A MSCP Covered NE	Perennial herb. Grows on gabbroic, metavolcanics, or serpentine soils within chaparral. Found in San Diego County. Flowering period: June to July. Elevation: 605 to 2,805feet (185 to 855 meters).	**None.** Suitable chaparral habitat and gabbro, metavolcanic, and serpentine soils absent from the project site. No records of the species occur within the project vicinity.

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Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
California adder's-tongue (*Ophioglossum californicum*)	--/-- CRPR 4.2 County List D	Perennial herb. Grows on the marginals of vernal pools and mesic areas within grasslands and chaparral. Found within the Sacramento and San Joaquin Valleys, Sierra Nevada and Peninsular Ranges, and along the central and southern coasts. Flowering period: January to June. Elevation: 195 to 1,725 feet (60 to 525 meters)	**None.** Suitable vernal pool, grassland, and chaparral habitat is absent from the project site. No records of the species occur within the project vicinity.
Golden-rayed pentachaeta (*Pentachaeta aurea* ssp. *aurea*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs in grassy areas within coastal scrub, chaparral, cismontane woodland, lower montane coniferous forest, riparian woodland. Flowering period: March to July. Elevation: 260 to 6,100 feet (80 and 1,850 meters).	**Low**. Suitable grassy habitats are absent from the site. The site is largely characterized by disturbed and developed lands associated with golf course development and operations. Furthermore, there are no known occurrences of the species with the project vicinity.
Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri*)	--/-- CRPR 4.2 County List D	Perennial herb. Grows in vernal pools and other vernally mesic places within grasslands, chaparral, and upland forests. Found along the coast and the North Coast Ranges in northwestern California. Flowering period: June to October. Elevation: below 2,000 feet (610 feet).	**None.** The site located outside the known distribution of this species. No records of the species occur within the project vicinity.
Woolly chaparral-pea (*Pickeringia montana* var. *tomentosa*)	--/-- CRPR 4.3	Evergreen shrub. Occurs in chaparral on gabbroic, granitic, or clay soils. Flowering period: May to August. Elevation: below 5,600 feet (1,700 meters).	**None**. Suitable soils and chaparral habitat do not occur within the project site.
Chaparral rein orchid (*Piperia cooperi*)	--/-- CRPR 4.2 County List D	Perennial herb. Generally found on dry sites within grasslands, chaparral, and cismontane woodland. Flowering period: March to June. Elevation: 50 to 5,200 feet (15 to 1,585 meters).	**Low**. Suitable habitat habitats are absent from the project site and no there are no known occurrences of the species within the project vicinity.
Narrow-petaled rein orchid (*Piperia leptopetala*)	--/-- CRPR 4.3 County List D	Perennial herb. Grows on generally dry sites within cismontane woodland and coniferous forests. Found in the Coast, Klamath, Cascade, and Sierra Nevada Ranges and associated foothills; Tehachapi mountains; San Francisco Bay area; South Coast, western Transverse, and Peninsular Ranges; and the San Gabriel, San Bernardino, and San Jacinto mountains. Flowering period: May to July. Elevation: 1,245 to 7,300 feet (380 to 2,225 meters).	**None.** The site is located outside of the known elevation range for this species. No records of the species occur within the project vicinity.

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Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Otay mesa mint (*Pogogyne nudiuscula*)	FE/SE CRPR 1B.1 County List A MSCP Covered	Annual herb. Grows in vernal pools of San Diego County. Flowering period: May to July. Elevation: 295 to 820 feet (90 to 820 meters).	**None.** Suitable vernal pool habitat is absent from the project site. No records of the species occur within the project vicinity.
White rabbit-tobacco (*Pseudognaphalium leucocephalum*)	--/-- CRPR 2B.2	Perennial herb. Occurs on sandy or gravelly soils of benches, dry stream bottoms, and canyon bottoms within coastal scrub, chaparral, cismontane woodland, and riparian woodland. Flowering period: July to November. Elevation: below 6,890 feet (2,100 meters).	**Low.** Though potentially suitable habitat occurs on site along Sweetwater River, the site has been highly disturbed by previous mining activities and golf course development and operation. Additionally, recorded occurrences of the species are well over 7 miles north of the site within Santee and Lakeside, within habitat associated with the San Diego River.
Cedros Island oak (*Quercus cedrosensis*)	--/-- CRPR 2B.2 County List B	Perennial tree. Occurs within closed-cone coniferous forest, chaparral, and coastal scrub of San Diego County. Flowering period: April to May. Elevation: 835 to 3,150 feet (255 to 960 meters).	**Presumed Absent.** This conspicuous perennial tree would most likely have been observed if present. Majority of documented occurrences of this species are found further south of the site along the U.S./Mexico border.
Nuttall's scrub oak (*Quercus dumosa*)	--/-- CRPR 1B.1 County List A	Perennial shrub. Occurs on sandy or clay loam soils near the coast within coastal scrub, chaparral, cismontane woodland, and riparian woodland. Flowering period: March to May. Elevation: below 656 feet (200 meters).	**Presumed Absent.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, this conspicuous perennial species would have been observed if present.
Engelmann oak (*Quercus engelmannii*)	--/-- CRPR 4.2 County List D	Perennial tree. Occurs on slopes and foothills within grasslands, chaparral, oak woodland, and riparian woodlands. Flowering period: March to June. Elevation: 160 to 4,300 feet (50 to 1,300 meters).	**Presumed Absent.** This conspicuous perennial tree would have been observed if present. No records of the species occur within the project vicinity and are generally located further east or south of the site in higher elevation areas.
Coulter's matilija poppy (*Romneya coulteri*)	--/-- CRPR 4.2 County List D	Perennial herb. Occurs in dry washes and canyons coastal scrub chaparral. Often in burned areas. Flowering period: March to August. Elevation: 65 to 3,900 feet (20 to 1,200 meters).	**Presumed Absent**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur within the project vicinity. This conspicuous perennial species would have been observed if present.

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Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Munz's sage (*Salvia munzii*)	--/-- CRPR 2B.2 County List B	Perennial shrub. Occurs within chaparral and coastal scrub of San Diego County. Flowering period: February to April. Elevation: 370 and 3,500 feet (115 to 1,065 meters).	**Low**. Suitable coastal sage scrub habitat on site is limited and highly disturbed. Documented occurrences of the species are located further southwest of the site within Otay Mesa.
Ashy spike-moss (*Selaginella cinerascens*)	--/-- CRPR 4.1 County List D	Fern. Grows in sunny spots or under shrubs within coastal sage scrub and chaparral. Often associated with "red clay" soils. Elevation: below 1,804 feet (550 meters).	**Low**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur within the project vicinity.
Chaparral ragwort (*Senecio aphanactis*)	--/-- CRPR 2B.2 County List B	Annual herb. Occurs on alkali flats and dry, open, rocky areas within grasslands, coastal scrub, and cismontane woodland. Flowering period: February to May. Elevation: 33 to 1,804 feet (10 to 550 meters).	**Low**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. The project site lacks suitable associated with the species. No recent records of the species occur within the project vicinity.
Purple stemodia (*Stemodia durantifolia*)	--/-- CRPR 2B.1 County List B	Perennial herb. Grows on wet sand or rocks within riparian habitats or drying streambeds. Flowering period: year-round. Elevation: 1,312 feet (400 meters).	**Low.** Suitable habitat occurs along Sweetwater River, but the project site has been highly disturbed from past mining activities and golf course development and operation. The closet occurrence is over 5 miles to the west, just west of Sweetwater Reservoir.
San Diego County needle grass (*Stipa diegoensis*)	--/-- CRPR 4.2	Perennial herb. Found in rocky, mesic soils near streams or the coast within coastal scrub and chaparral. Flowering period: February to June. Elevation: 30 to 2,600 (10 and 800 meters).	**Low**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur within the project vicinity. The closest occurrence of the species is over 4.5 miles south of the site within Proctor Valley.
Estuary seablite (*Suaeda esteroa*)	--/-- CRPR 1B.2 County List A	Perennial herb. Found in coastal salt marshes and swamps. Flowering period: May to October. Elevation: below 16 feet (5 meters).	**None**. Suitable habitat does not occur on site and the species is not known to occur within the project vicinity. Observations of the species are concentrated in coastal areas such as the San Diego Bay and Tijuana River Estuary.

Appendix B
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Parry's tetracoccus (*Tetracoccus dioicus*)	--/-- CRPR 1B.2 County List A MSCP Covered	Perennial shrub. Occurs on dry slopes within coastal sage scrub and chaparral. Usually, conditions are quite xeric with only limited annual growth. Flowering period: April to May. Elevation: below 3,281 feet (1,000 meters).	**Moderate**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. Recorded occurrences of the species are located over 1.8 miles southeast of the site on the southeastern facing slopes of McGinty Mountain. This perennial shrub would most likely have been observed if present.

[1] F = Federal; S = State of California; E = Endangered; T = Threatened; CE = Candidate Endangered; R = Rare

CRPR = California Native Plant Society Rare Plant Rank: 1A – presumed extirpated in California and either rare or extinct elsewhere; 1B – rare, threatened, or endangered in California and elsewhere; 2A – presumed extirpated in California, but more common elsewhere; 2B – rare, threatened, or endangered in California, but more common elsewhere; 3 – more information needed; 4 – watch list for species of limited distribution. Extension codes: .1 – seriously endangered; .2 – moderately endangered; .3 – not very endangered.

County of San Diego Sensitivity Status: Plant species are divided into Lists A through D on the County Rare Plant List. **Lists A and B** Plants include those that have a very high level of sensitivity, either because they are listed as threatened or endangered or because they have very specific natural history requirements that must be met. **Lists C and D** Plants include those species that are becoming less common but are not yet so rare that extirpation or extinction is imminent without immediate action. These species tend to be prolific within their suitable habitat types.

MSCP Covered Species: Covered Species under County MSCP Subarea Plan; NE = Narrow Endemic Species under County MSCP Subarea Plan.

[2] Potential to Occur is assessed as follows. **None**: There are no present or historical records of the species occurring on or in the immediate vicinity of the project site and the diagnostic habitats and soils associated with the species do not occur on or in the immediate vicinity of the project; **Low**: Suitable habitat is present in the project site and a historical record of the species occurs in the immediate vicinity but existing conditions such as elevation, soils, density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, and/or isolation substantially reduce the possibility that the species may occur; **Moderate**: The diagnostic habitats associated with the species occur on or in the immediate vicinity of the project site, but there is not a recorded occurrence of the species within the immediate vicinity. Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity; **High**: Suitable habitat occurs in the project site and the species has been recorded recently on or in the immediate vicinity but the species was not observed during project surveys; **Present**: The species was observed within the project site during biological surveys for the project; **Presumed Absent**: Species would be visible all year and would have been observed if present.

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Appendix C

Animal Species Observed or Detected

Appendix C
Animal Species Observed or Detected

Taxon		Scientific Name†	Common Name
Order	**Family**		
INVERTEBRATES			
Lepidoptera	Nymphalidae	*Danaus gilippus*	Queen
		Danaus plexippus†	Monarch
		Junonia coenia	Common blueBuckeye
		Nymphalis antiopa	Mourning Cloak
		Vanessa cardui	Painted Lady
	Papilionidae	*Papilio rutulus*	Western Tiger Swallowtail
	Pieridae	*Colias eurytheme*	Orange Sulphur
		Pieris rapae	Cabbage White
		Pontia protodice	Checkered White
		Pontia sisymbrii	Spring White
Odonata	unidentified	*unidentified*	unidentified dragonfly
VERTEBRATES			
Amphibians			
Anura	Bufonidae	*Anaxyrus boreas*	western toad
	Hylidae	*Pseudacris hypochondriaca*	Baja California treefrog
		Pseudacris cadaverina	California treefrog
	Ranidae	*Lithobates catesbeianus*	American bullfrog
Reptiles			
Cryptodira	Emydidae	*Trachemys scripta elegans*	red-eared slider
Squamata	Phrynosomatidae	*Sceloporus occidentalis*	western fence lizard
		Uta stansburiana	common side-blotched lizard
	Teiidae	*Aspidoscelis hyperythra beldingi*†	Belding's orange-throated whiptail
Birds			
Accipitriformes	Accipitridae	*Accipiter cooperii*†	Cooper's Hawk
		Buteo jamaicensis	Red-tailed Hawk
		Buteo lineatus†	Red-shouldered Hawk
	Cathartidae	*Cathartes aura*†	Turkey Vulture
Anseriformes	Anatidae	*Anas platyrhynchos*	Mallard
Apodiformes	Trochilidae	*Calypte anna*	Anna's Hummingbird
		Selasphorus sasin	Allen's Hummingbird
Charadriiformes	Charadriidae	*Charadrius vociferus*	Killdeer
	Scolopacidae	*Phalaropus lobatus*	Red-necked Phalarope
Columbiformes	Columbidae	*Zenaida macroura*	Mourning Dove
Cuculiformes	Cuculidae	*Geococcyx californianus*	Greater Roadrunner
Falconiformes	Falconidae	*Falco peregrinus*†	Peregrine Falcon
	Falconidae	*Falco sparverius*	American Kestrel
Galliformes	Odontophoridae	*Callipepla californica*	California Quail
Gruiformes	Rallidae	*Fulica americana*	American Coot
Passeriformes	Aegithalidae	*Psaltriparus minimus*	Bushtit
	Bombycillidae	*Bombycilla cedrorum*	Cedar Waxwing
	Cardinalidae	*Pheucticus melanocephalus*	Black-headed Grosbeak
	Corvidae	*Corvus brachyrhynchos*	American Crow
	Estrildidae	*Lonchura punctulata*	Scaly-breasted Munia
	Fringillidae	*Haemorhous mexicanus*	House Finch
		Spinus lawrencei†	Lawrence's Goldfinch
		Spinus psaltria	Lesser Goldfinch
	Hirundinidae	*Hirundo rustica*	Barn Swallow

Appendix C
Animal Species Observed or Detected

Taxon		Scientific Name†	Common Name
Order	**Family**		
Birds (cont.)			
Passeriformes	Hirundinidae	*Petrochelidon pyrrhonota*	Cliff Swallow
		Tachycineta bicolor	Tree Swallow
	Icteria	*Icteria virens*†	Yellow-breasted Chat
	Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird
		Euphagus cyanocephalus	Brewer's Blackbird
		Icterus bullockii	Bullock's Oriole
		Icterus cucullatus	Hooded Oriole
		Molothrus ater	Brown-headed Cowbird
		Quiscalus mexicanus	Great-tailed Grackle
	Mimidae	*Mimus polyglottos*	Northern Mockingbird
		Toxostoma redivivum	California Thrasher
	Paridae	*Baeolophus inornatus*†	Oak Titmouse
	Parulidae	*Cardellina pusilla*	Wilson's Warbler
		Geothlypis trichas	Common Yellowthroat
		Oreothlypis celata	Orange-crowned Warbler
		Setophaga coronata	Yellow-rumped Warbler
		Setophaga petechia†	Yellow Warbler
	Passerellidae	*Melospiza melodia*	Song Sparrow
		Melozone crissalis	California Towhee
		Pipilo maculatus	Spotted Towhee
		Zonotrichia leucophrys	White-crowned Sparrow
	Polioptilidae	*Polioptila caerulea*	Blue-gray Gnatcatcher
		Polioptila californica californica†	Coastal California Gnatcatcher
	Ptilogonatidae	*Phainopepla nitens*	Phainopepla
	Regulidae	*Regulus calendula*	Ruby-crowned Kinglet
	Sittidae	*Sitta carolinensis*	White-breasted Nuthatch
	Sturnidae	*Sturnus vulgaris*	European Starling
	Troglodytidae	*Thryomanes bewickii*	Bewick's Wren
	Troglodytidae	*Troglodytes aedon*	House Wren
	Turdidae	*Sialia mexicana*†	Western Bluebird
		Turdus migratorius	American Robin
	Tyrannidae	*Empidonax difficilis*	Pacific-slope Flycatcher
		Myiarchus cinerascens	Ash-throated Flycatcher
		Pyrocephalus rubinus†	Vermilion Flycatcher
		Sayornis nigricans	Black Phoebe
		Sayornis saya	Say's Phoebe
		Tyrannus verticalis	Western Kingbird
		Tyrannus vociferans	Cassin's Kingbird
	Vireonidae	*Vireo bellii pusillus*†	Least Bell's Vireo
		Vireo huttoni	Hutton's Vireo
Pelecaniformes	Ardeidae	*Ardea alba*	Great Egret
		Ardea herodias†	Great Blue Heron
		Butorides virescens†	Green Heron
		Egretta thula	Snowy Egret
		Nycticorax nycticorax	Black-crowned Night-Heron
Piciformes	Picidae	*Dryobates nuttallii*	Nuttall's Woodpecker
		Dryobates pubescens	Downy Woodpecker

Appendix C
Animal Species Observed or Detected

Taxon		Scientific Name†	Common Name
Order	**Family**		
Birds (cont.)			
Piciformes	Picidae	*Melanerpes formicivorus*	Acorn Woodpecker
Podicipediformes	Podicipedidae	*Podilymbus podiceps*	Pied-billed Grebe
Strigiformes	Tytonidae	*Tyto alba*†	Barn Owl
MAMMALS			
Carnivora	Procyonidae	*Procyon lotor*	raccoon
Lagomorpha	Leporidae	*Sylvilagus audubonii*	desert cottontail
Rodentia	Geomyidae	*Thomomys bottae*	Botta's pocket gopher
	Sciuridae	*Otospermophilus beecheyi*	California ground squirrel

† Special Status Species

Appendix D

Special Status Animal Species Observed or with Potential to Occur

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
INVERTEBRATES			
San Diego fairy shrimp (*Branchinecta sandiegonensis*)	FE/-- County Group 1 MSCP NE MSCP Covered	Restricted to vernal pools and other ephemeral basins in southern California from coastal Orange County to San Diego County. Found in seasonally astatic pools which occur in tectonic swales or earth slump basins and other areas of shallow, standing water often in patches of grassland and agriculture interspersed in coastal sage scrub and chaparral.	**None**. No vernal pools or other suitable habitat to support the species is present within the project site. The closest reported occurrence of the species is located over 2.8 miles southwest of the site.
Thorne's hairstreak (*Callophrys thornei*)	--/-- County Group 1 MSCP Covered MSCP NE	Occupies Tecate cypress forests, which larvae exclusively feed upon. Tecate cypress is a relict species from a time when southern California's climate was cooler and wetter. There are five remaining populations of the species, all are located within the Otay Mountain wilderness.	**None**. The species' host plant does not occur within the project site, or within adjacent areas. The project is located outside of the known range of the species, Otay Mountain wilderness, which occurs approximately 10 miles to the south.
Monarch butterfly (*Danaus plexippus*)	--/-- County Group 2	The population west of the Rocky Mountains migrates to, and overwinters, along the coast of central and southern California. Inhabits a wide variety of open habitats including fields, meadows, marshes, and roadsides and roosting on wind-protected tree groves (such as eucalyptus [*Eucalyptus* spp.], Monterey pine [*Pinus radiata*], cypress [*Hesperocyparis* sp.]), with nectar and water sources nearby. Breeds in areas that have a suitable abundance of their host plant, milkweed (*Asclepias* sp.).	**Present.** A single individual was observed flying within non-native woodland in the southeastern portion of the project site in August 2018. An additional individual was observed just outside of the project boundary, to the south of the patch of riparian habitat east of Steele Canyon Road, in July 2019.

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Quino checkerspot butterfly (*Euphydryas editha quino*)	FE/-- County Group 1 MSCP NE	Occurs in California from western Riverside County southwards to southern San Diego County. Inhabits open and sparsely vegetated areas that contain larval host plant species (principally dot-seed plantain [*Plantago erecta*], woolly plantain [*Plantago patagonia*] but also Coulter's snapdragon [*Antirrhinum coulterianum*], and rigid bird's beak [*Cordylanthus rigidus*]) and nectar sources. Often found on rounded hilltops, ridgelines, and occasionally rocky outcrops. Occurs within a wide range of open-canopied habitats including vernal pools, sage scrub, chaparral, grassland, and open oak and juniper woodland communities.	**None**. The project site is a developed golf course lacking suitable habitat for the species. Potential habitat for the species occurs outside of the project boundary to the southwest and southeast of the site within lands preserved by the SDNWR and other open space areas.
Dun skipper (*Euphyes vestris harbisoni*)	--/-- County Group 1 MSCP NE	Occurs in the foothills of northern and southern San Diego County, extreme western Riverside County, and southern Orange County. Prefers oak woodlands but is also found within chaparral or riparian areas that have narrow canyons or drainages where the species host plant, San Diego sedge (*Carex spissa*) is found. Generalist feeder with a preference for milkweeds and thistle. Nectaring resources include morning glory (*Calystegia macrostegia tenuifolia*), red thistle (*Cirsium occidentale*), loosestrife (*Lythrum californicum*), and less frequently golden yarrow (*Eriophyllum confertiflorum*) and black mustard (*Brassica nigra*).	**None**. The site lacks narrow canyons and drainages where the species is typically found, and the host plant was not documented within the project site.
Hermes copper butterfly (*Lycaena hermes*)	--/-- County Group 1	Found in coastal sage scrub and southern mixed chaparral habitats with mature specimens of its larval host plant, spiny redberry (*Rhamnus crocea*). This species appears to utilize redberry stands growing in deeper, well drained soils of canyon bottoms and north-facing hillsides. Nectaring resources include California buckwheat (*Eriogonum fasciculatum*), chamise (*Adenostoma fasciculatum*), and California sunflower (*Encelia californica*), among others.	**None**. The species host plant, redberry, does not occur within the project site. Potentially suitable habitat for the species occurs to the southeast and southwest of the site within the SDNWR and other open space areas.

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Robinson's rain scarab beetle (*Phobetus robinsoni*)	--/-- County Group 2	Only known from three localities in San Diego (Scissor's crossing) and Orange County (O'Neill Park and Laguna Beach).	**None**. The project site is located outside of the known range of the species.
VERTEBRATES			
Amphibians			
Arroyo toad (*Anaxyrus californicus*)	FE/SSC County Group 1 MSCP NE MSCP Covered	Inhabits low gradient, medium to large streams and rivers with intermittent and perennial flow in coastal and desert drainages of central and southern California. Breeding habitat specialists that require slow-moving streams composed of sandy soils with sandy streamside terraces. May occupy first-order streams, though most populations inhabit second-sixth-order streams that have extensive braided channels and sediment deposits of sand, gravel, or pebbles that are redistributed by flooding. Utilizes shallow pools (at least 1-inch deep) for breeding, egg-laying, and tadpole development. Vulnerable to habitat destruction and alteration due to changes in hydrology, including construction of dams and water diversions. Impacted by the presence of non-native predators such as American bullfrog (*Lithobates catesbeianus*).	**Low.** The species was not detected during the 2019 protocol surveys. Though Sweetwater River is within the historical range of the species and potentially suitable habitat is present on site, the site has been significantly degraded by previous mining activities and golf course development. Furthermore, the hydrological regime of the region has been heavily altered by development of artificial impoundments upstream (Loveland Reservoir) and downstream (Sweetwater Reservoir) of the site. Arroyo toads have been observed downstream of Loveland Reservoir but have not been documented west of Sloan Canyon Road since 1997. Focused surveys for the species were conducted at the site in 2003 by USGS; no arroyo toads were observed (USGS 2005).
California red-legged frog (*Rana draytonii*)	FT/SSC County Group 1 MSCP Covered MSCP NE	The species has been extirpated from 70 percent of its former range. Current distribution includes coastal drainages of central California, from Marin County south to northern Baja California, and in isolated drainages in the Sierra Nevada, northern Coast, and northern Transverse Ranges at elevations below 5,000 feet. Inhabits a variety of aquatic habitats including pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds and lagoons. Breeds in artificial impoundments such as stock ponds.	**None.** Though the site contains suitable aquatic habitat that could potentially support the species, there are no known occurrences of the species within the region.

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Western spadefoot toad (*Spea hammondii*)	--/SSC County Group 2	Occurs from northern California southward to San Diego County, and west of the Sierra Nevada at elevations below 4,500 feet. This terrestrial species requires temporary pools for breeding. Suitable upland habitats include coastal sage scrub, chaparral, and grasslands. Most common in grasslands with vernal pools or mixed grassland-coastal sage scrub areas. Breeds in temporary pools formed by heavy rains, but also found in riparian habitats with suitable water resources. Breeding pools must lack exotic predators such fish, bullfrogs, and crayfish for the species to successfully reproduce. Estivates in burrows within upland habitats adjacent to potential breeding sites.	**High.** Potentially suitable habitat occurs within the project site along the Sweetwater River. However, the site has been heavily degraded and disturbed by previous mining activities and golf course development and operations. Occurrences of the species are reported just south of the site within the SDNWR.
Reptiles			
Southwestern pond turtle (*Actinemys pallida*)	--/SSC County Group 1 MSCP Covered	Found in California from the central coast south of the San Francisco Bay area to San Diego County, including the Mojave River. Habitat generalist that occurs within many types of water from freshwater to brackish environments and permanent to intermittent waterbodies. Inhabit creeks, slow moving rivers, marshes, ponds, lakes, reservoirs, vernal pools, canals and even sewage treatment plants. Prefers habitats with slow flowing water particularly where basking sites (such as rocks, downed logs, or emergent vegetation), deep water retreats, and egg laying areas are readily available.	**Low**. Man-made ponds could potentially provide suitable habitat for the species. However, no records of the species occur within the project vicinity. The closest location is over 5 miles northeast of the site, along Sweetwater River, downstream of Loveland Reservoir near the river's confluence with Lawson Creek. Furthermore, USGS conducted visual and trapping surveys for the species in 2002 throughout the local area. No pond turtles were detected along portions of the Sweetwater River within the SDNWR, or at Sweetwater Reservoir during surveys (USGS 2005b and 2003).

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
San Diegan legless lizard (*Anniella stebbinsi*)	--/SSC County Group 2	Occurs in sparsely vegetated areas with moist warm, loose soil with plant cover; moisture is essential. Common in several habitats but especially in beach dunes, coastal scrub, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Found primarily in areas with sandy or loose organic soils or where there is plenty of leaf litter. Sometimes found in suburban gardens in southern California.	**Moderate.** Potentially suitable habitat occurs along the Sweetwater River. However, the site has been heavily degraded by previous mining activities and golf course development. The species is reported to occur over 1 mile west of the site along Sweetwater River within the SDNWR.
Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*)	--/WL County Group 2 MSCP Covered	Found within the southwestern portion of California in southern San Bernardino, western Riverside, Orange, and San Diego Counties on the western slopes of the Peninsular ranges below 3,500 feet. Suitable habitat includes coastal sage scrub, chaparral, juniper woodland, oak woodland, and grasslands along with alluvial fan scrub and riparian areas. Occurrence of the species correlated with the presence perennial plants (such as California buckwheat, California sagebrush, black sage, or chaparral) to provide a food base for its major food source, termites.	**Present.** Individuals were observed on several occasions in the northeastern portion of the site between Willow Glen Drive and Sweetwater River, and adjacent to the patch of riparian habitat east of Steele Canyon Road.
San Diego tiger whiptail (*Aspidoscelis tigris stejnegeri*)	--/SSC County Group 2	Occurs along the coastal region of southern California from San Luis Obispo south to San Diego County. Inhabits a wide variety of habitats, primarily in hot and dry open areas with sparse vegetation, from sea level to 4,900 feet. Associated habitats include coastal sage scrub, chaparral, riparian areas, woodlands, and rocky areas with sandy or gravel substrates.	**Moderate.** Potentially suitable coastal sage scrub habitat occurs in the extreme southwestern and southeastern portions of the project site. However, these remnant patches have been disturbed by previous mining activities and golf course development. The species is reported to occur over 1 mile west of the site within the SDNWR.

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
San Diego banded gecko (*Coleonyx variegatus abbotti*)	--/SSC County Group 1	Occurs in the coastal regions of southern California from interior Ventura County to San Diego County, although the species is absent from the extreme outer coast. Inhabits coastal sage scrub and chaparral habitats, most often occurring in granite or rocky outcrops.	**Low.** Two remnant patches of coastal sage scrub occur in the extreme southwestern and southeastern portions of the project site. However, these areas are small in size, have been previously disturbed by golf course development, and lack suitable structural habitat (i.e., rocky areas) associated with this species. No occurrences of the species are reported in the project vicinity.
Red diamond rattlesnake (*Crotalus ruber*)	--/SSC County Group 2	Occurs in southwestern portion of California from San Bernardino County southward to San Diego County at elevations below 5,000 feet. Has a wide tolerance for varying environments including the desert, dense foothill chaparral, warm inland mesas and valleys, and cool coastal zones. Most commonly found near heavy brush with large rocky microhabitats. Chamise and red shank chaparral associations may offer better structural habitat for refuges and food resources.	**Low.** Two remnant patches of coastal sage scrub occur in the extreme southwestern and southeastern portions of the project site. However, these areas are small in size, have been previously disturbed by golf course development, and lack suitable structural habitat (i.e., rocky areas) associated with this species.
San Diego ring-necked snake (*Diadophis punctatus similis*)	--/-- County Group 2	Found mainly in San Diego County along the coast to the west of the mountain and desert regions, and in extreme southwestern Riverside County. Prefers moist habitats and often found near intermittent streams. Suitable habitat includes wet meadows, rocky hillsides, farmland, grassland, chaparral, mixed coniferous forests, and woodlands. Secretive with individuals usually found under the cover of rocks, wood, boards and other surface debris, but occasionally seen moving on the surface on cloudy days, dusk, or at night.	**Moderate.** Potentially suitable riparian habitat occurs along the Sweetwater River. However, the site has been disturbed by previous mining activities and golf course development and operations. The species is reported to occur over 1 mile west of the site along Sweetwater River within the SDNWR.

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Blainville's horned lizard (*Phrynosoma blainvillii*)	--/SSC County Group 2 MSCP Covered	Occurs from southern California to northern Baja California. In California, the species predominately occurs from Kern County south to San Diego County west of the desert at elevations below 8,000 feet. Inhabits a wide variety of vegetation types including sagebrush scrub, chaparral, grasslands, forests, and woodlands but is restricted to areas with suitable sandy, loose soils with open areas for basking. Diet primarily composed of native harvester ants (*Pogonmyrmex* sp.) and are generally excluded from areas invaded by Argentine ants (*Linepithema humile*).	**Low.** Though the species has been observed within the project vicinity, potentially suitable coastal sage scrub habitat is limited to remnant patches of habitat along the site's southern boundary that has been disturbed by golf course development and operations. No harvester ants were observed during the biological surveys.
Rosy boa (*Lichanura orcutti*)	--/-- County Group 2	Occurs in throughout southern California south of Los Angeles County from the coast east towards the Mojave and Colorado deserts, and south to San Diego County, though the species is absent from most of Imperial County. Inhabits arid scrublands, semi-arid shrublands, rocky shrublands, rocky deserts, canyons, and other rocky areas. Appears to be common in riparian areas but does not require permanent water.	**Low.** Potentially suitable coastal sage scrub and riparian habitats occur within the project site but lacks rocky areas associated with the species. The site has also been heavily disturbed by previous mining activities and golf course development. The species is reported to occur over 1 mile west of the site along Sweetwater River within the SDNWR.
Coronado skink (*Plestiodon skiltonianus interparietalis*)	--/WL County Group 2	Occurs from in coastal and inland portions of southern San Diego County, though can occur up into Riverside County where it intergrades with Skilton's skink (*Plestiodon skiltonianus skiltonianus*). Suitable habitats include grassland, woodlands, pine forests, and chaparral, especially in open sunny areas such as clearings and edges of creeks or rivers. Prefers rocky areas near streams with lots of vegetation but can also be found in areas away from water. Occasionally seen foraging in leaf litter but more commonly found underneath surface objects, such as bark or rocks, where it lives in extensive burrows.	**Low.** Potentially suitable coastal sage scrub and riparian habitats occur within the project site but lacks rocky areas associated with the species. The site has also been heavily disturbed by previous mining activities and golf course development. No occurrences of the species are reported in the project vicinity.

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	--/SSC County Group 2	Occurs in the coastal regions of California from the northern Carrizo Plains in San Luis Obispo County south to San Diego County at elevations below 7,000 feet. Inhabits semi-arid shrubby areas such as chaparral and desert scrub. Also found along washes, sandy flats, canyons, and rocky areas. Takes refuge and overwinters in burrows and woodrat nests.	**Low.** Remnant patches of coastal sage scrub occur in the extreme southwestern and southeastern portions of the project site. However, these areas are small in size, have been previously disturbed by golf course development. The nearest reported occurrences of the species are located over 3 miles southwest of the project near Sweetwater Reservoir.
Two-striped garter snake (*Thamnophis hammondii*)	--/SSC County Group 1	Found in California from Monterey County south along the coast to San Diego County at elevations below 7,000 feet. Commonly inhabits perennial and intermittent streams with rocky beds bordered by riparian habitats dominated by willows and other dense vegetation. The species has also been found in stock ponds and other artificially created aquatic habitats if bordered by dense vegetation and potential prey, such as amphibians and fish, are present.	**High.** Potentially suitable riparian habitats occur within the project site along Sweetwater River, but the site lacks rocky streambed habitat typically associated with the species. Artificial ponds within the site are open, lacking sufficient vegetative cover for the species. The patch of riparian habitat east of Steele Canyon Road along the southern boundary contains potentially suitable ponded areas bordered by dense riparian habitat. The species is reported to occur west of the site along Sweetwater River within the SDNWR, and a single SanBIOS record from 2003 is located within or adjacent to the southwestern portion of the site.
South Coast garter snake (*Thamnophis sirtalis infernalis*)	--/SSC County Group 2	This unformal subspecies occurs within scattered localities of California from Ventura County south San Diego County at elevations below 2,880 feet. Inhabits marsh and uplands habits near permanent water sources and suitable riparian habitats.	**low.** Potentially suitable riparian habitats occur within the project site along Sweetwater River, but the site lacks rocky streambed habitat typically associated with the species. There are no reported occurrences of the species within the project vicinity.

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Birds			
Cooper's Hawk (*Accipiter cooperii*)	--/WL County Group 1 MSCP Covered	In California, the species breeds from Siskiyou County south to San Diego County and east towards Owens Valley at elevations below 9,000 feet. Inhabits forests, riparian areas, and more recently suburban and urban areas. Nests within dense woodlands and forests and isolated trees in open areas.	**Present.** Species observed on multiple occasions perched in trees within the developed golf course and riparian habitat and flying over the site. Species has the potential to nest within, or in the vicinity of, the project site.
Sharp-shinned Hawk (*Accipiter striatus*)	--/WL County Group 1	Primarily winters and migrates throughout California with breeding records in the northern and central portions of the State, but the species breeding range in California is poorly known. Breeds within most closed-canopy woodlands and forests, including riparian habitats, from sea level to near alpine elevations, generally nesting in trees near openings. Wintering habitat similar to breeding habitat but more expansive to include suburban and agricultural areas.	**High**. Species would only be present as a wintering or migrating individual. Multiple eBird sightings of the species occur within the surrounding area, including the SDNWR to the southwest. The species would likely utilize preserved and open space areas found to the east, south, and west of the site that provide higher quality foraging habitat.
Tricolored Blackbird (*Agelaius tricolor*)	BCC/SCE, SSC County Group 1 MSCP Covered	Highly colonial, nomadic species occurring as a year-round resident of California from Sonoma County to San Diego. Common locally in the Central Valley and sporadically throughout the state. Breeds in dense colonies. Breeding habitat typically characterized by emergent freshwater marsh dominated by tall, dense cattails and bulrush (*Schoenoplectus* spp.; *Scirpus* ssp.), though also utilizes willows, blackberries (*Rubus* spp.), thistles (*Cirsium* and *Centaurea* spp.), nettles (*Urtica* sp.), and agricultural crops. Forages in grasslands and cropland habitats adjacent to breeding areas.	**Low.** Freshwater marsh habitat on site is limited and too small in size to support the species. The most recent documented occurrences of this species are located further west of the site at Sweetwater Reservoir.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)	--/WL County Group 1 MSCP Covered	Restricted to southwestern California occurring from Santa Barbara County southwards to San Diego County at elevations below 5,000 feet. Generally found on moderate to steep slopes vegetated with grassland, coastal sage scrub, and chaparral. Prefer areas with California sagebrush but are generally absent from areas with dense stands of coastal sage scrub or chaparral. May occur on steep grassy slopes without shrubs if rock outcrops are present.	**None.** The project site is generally flat, lacking suitable sloped hillsides inhabited by the species. Occurrences of the species are found further southeast and southwest of the site along the foothills and hillsides of Mt. San Miguel and McGinty Mountain.
Grasshopper Sparrow (*Ammodramus savannarum*)	--/SSC County Group 1	Occurs west of the Cascade and Sierra Nevada mountains from Mendocino County south to San Diego County at elevations below 5,000 feet. Prefers moderately open grasslands and prairies with scattered shrubs. Generally avoids grasslands with extensive shrub cover.	**None**. The site lacks grassland habitat that is required by the species.
Golden Eagle (*Aquila chrysaetos*)	BCC/WL, FP County Group 1 MSCP Covered	Uncommon permanent resident and migrant throughout California, except the center of the Central Valley. More common in southern California than in northern regions. Inhabits a variety of habitats, nesting in cliffs or trees and rugged terrain and foraging over plains, grasslands, or low and open shrublands including chaparral and coastal sage scrub. Typically absent from heavily forested areas or on the immediate coast and are almost never detected in urbanized environments.	**Low.** The site lacks suitable nesting habitat for the species, and no known nests occur within 4,000 feet of the project site. The species has been observed within the surrounding area but would not be expected to utilize the site for foraging opportunities based on the presence of development and other human disturbances. Additionally, extensive, higher quality habitat is present within preserved and open space areas off site, including the SDNWR.
Great Blue Heron (*Ardea herodias*)	--/-- County Group 2	Year-round resident of California occurring throughout most of the State in saline and freshwater wetlands and shallow estuaries. Nests as single pairs and in small colonies with nests located on the ground, in trees and bushes, and on artificial structures that are usually adjacent to water and secluded from human disturbance. Found in a wide variety of habitats foraging in various wetland habitats, water bodies, and occasionally uplands.	**Present.** Individuals observed foraging in two separate locations within the project site. One individual was detected within the patch of riparian habitat just east of Steele Canyon Road and another was detected at the edge of a man-made pond to the west of Steele Canyon Road.

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Bell's sparrow (*Artemisiospiza belli*)	BCC/WL County Group 1	Non-migratory resident on the coastal ranges of California and western slopes of the central Sierra Nevada mountains. Occurs year-round in southern California. Breeds in dry coastal sage scrub and chaparral, desert scrub, and similar other open, scrubby habitats. In foothill chaparral, they tend toward younger, less dense stands that are recovering from recent fires; less common in older, taller stands that have remained unburned.	**Low.** Small patches of remnant coastal sage scrub occur in the extreme southwestern and southeastern portions of the project site. The closest records of the species are over 2.5 miles south within higher quality coastal sage and chaparral habitat in the SDNWR.
Long-eared Owl (*Asio otus*)	--/SSC County Group 1	Occurs throughout California, particularly in the Central Valley and southern California deserts. Found in dense riparian habitats and oak woodlands adjacent to open foraging areas. Typically nests in abandoned raptor nests in willows and oaks and atop woodrat nests and accumulations of debris trapped in the crotches of large oaks. Winters in communal roosts in dense willow thickets, tamarisk groves, palo verde, and conifers.	**Low**. Suitable riparian habitat occurs in the southwestern portion of the site along Sweetwater River. However, no records of the species occur within the project vicinity.
Burrowing Owl (*Athene cunicularia*)	BCC/SSC County Group 1 MSCP NE MSCP Covered	Found from central California east to the Mojave Desert and south to coastal San Diego County. Primarily a grassland species that prefers areas with level to gentle topography and well-drained soils. Species can also occupy agricultural areas, vacant lots, and pastures. Requires underground burrows for nesting and roosting that are typically dug by other species such as California ground squirrel (*Spermophilus beecheyi*). Also utilizes natural rock cavities, debris piles, culverts, and pipes for nesting and roosting.	**Low**. The site consists of a developed golf course that is subject to on-going maintenance activities (such as irrigation and mowing) and human disturbance. There are no observations of the species within the project vicinity. The closest occurrence record for the species is located over 5 miles west, to the south of Sweetwater Reservoir.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Oak Titmouse (*Baeolophus inornatus*)	BCC/--	Year-round resident found from southern Oregon south through California to northwestern Baja California, Mexico. Occurs throughout most of California but is generally absent from the northwestern coastal region and San Joaquin Valley. Inhabits dry oak and oak-pine woodlands and may use scrub oaks and other scrub habitat near woodlands. Also found in juniper woodlands and open pine forests.	**Present.** One individual foraging within trees in the developed golf course to the west of Steele Canyon Road.
Canada Goose (*Branta canadensis*)	--/-- County Group 2 MSCP Covered	Winters in southern California within mixed fresh and brackish water habitats with low grass or succulent leaves. Typically roosts on open water of lakes or ponds. Feeds mainly on cultivated grains, wild grasses, and forbs, but also aquatic plants. Often seen in flocks.	**High.** Artificial ponds and developed golf course areas provide suitable overwintering and foraging habitat for the species and the species is known to occur within the project vicinity.
Red-shouldered Hawk (*Buteo lineatus*)	--/-- County Group 1	In California, the species occurs to the west of Sierra Nevada occupying mature oak and riparian woodlands, eucalyptus groves, and suburban areas near forested areas. Nests in trees, both native and non-native, often located near a water source such as stream or pond.	**Present.** Multiple individuals observed perched in trees or flying overhead within both the eastern and western portions of the site.
Ferruginous Hawk (*Buteo regalis*)	BCC/WL County Group 1 MSCP Covered	Relatively uncommon wintering visitor to California. Occurs at lower elevations in the Modoc Plateau, Central Valley, and Coast Ranges. Inhabits open terrains including grasslands, agricultural areas, and deserts.	**Low**. The species would only occur as wintering and migrating individuals. Suitable foraging habitat for the species in generally absent from the site as it is occupied by a developed golf course. Furthermore, there are no reported sightings of the species within the project vicinity. The nearest occurrence of the species is located over 5 miles west, near the Sweetwater Reservoir.
Green Heron (*Butorides virescens*)	--/-- County Group 2	In California, the species is a year-round found generally west of the Sierra Nevada and within the southern deserts. Found in a wide variety of wetland habitats such as swamps, marshes, riparian habitat along creeks and streams, lake edges, and man-made ditches, canals, and ponds preferring thick vegetation and avoiding open areas.	**Present.** Detected in three separate locations within the project site. A pair was observed at a man-made pond at the eastern boundary, an individual was observed perched within riparian habitat just east of Steele Canyon Road, and another individual was detected at the edge of man-made pond to the west of Steele Canyon Road.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*)	BCC/SSC County Group 1 MSCP NE MSCP Covered	One of seven subspecies occurring in southern California from southern Orange County south to San Diego County. Occupies native scrub vegetation with thickets of mature cacti consisting of cholla (*Cylindropuntia* spp.) or prickly-pear cactus (*Opuntia littoralis*). Cacti must be tall enough to support and protect the bird's nest (typically 3 feet or more in height). Surrounding vegetation usually consists of coastal sage scrub habitat with shrubs normally below the level of nest placement.	**Not expected.** Small patches of remnant coastal sage scrub occur in the extreme southwestern and southeastern portions of the project site but lack mature cacti stands required by the species for nesting. The closest documented location of the species is over 2 miles west of the site, adjacent to the SDNWR.
Turkey Vulture (*Cathartes aura*)	--/-- County Group 1	Observed throughout San Diego County with the exception of extreme coastal San Diego where development is heaviest. Foraging habitat includes most open habitats with breeding occurring in crevices among boulders. Roosts communally preferring stands of large trees or hilly areas, usually away from human disturbance.	**Present**. A single individual was observed soaring overhead in the southwestern portion of the site. No potentially suitable breeding habitat is present on site.
Northern Harrier (*Circus cyaneus*)	--/SSC County Group 1 MSCP Covered	Occurs as a year-round resident in California. Inhabits open areas including wetlands, marshes, marshy meadows, grasslands, riparian woodlands, desert scrub, and pastures and agricultural areas. Breeding populations in southern California from Ventura County to San Diego County are highly fragmented with many local populations extirpated mostly likely as a result of habitat loss and degradation. Nests on the ground in wetlands and uplands within patches of dense, often tall, vegetation in undisturbed areas.	**Moderate.** Potentially suitable riparian habitat occurs along Sweetwater River, but the site has been heavily disturbed and degraded by previous mining activities and golf course development. Individuals would likely utilize higher quality habitat located offsite within the SDNWR. There are multiple occurrences of the species are reported within the surrounding area.
Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)	FT, BCC/SE County Group 1 MSCP NE	Uncommon summer resident of California. Current breeding distribution is restricted to isolated sites in Sacramento, Amargosa, Kern, Santa Ana, and Colorado River valleys. Riparian obligates that nest in riparian woodlands with native broadleaf trees and shrubs, such as cottonwoods and willows, at least 50 acres or more in size within the arid to semiarid landscapes. Most likely to be found in patches of riparian habitat greater than 200 acres.	**None**. The site does not contain a sufficient amount of suitable riparian habitat to support this species. Additionally, there are no known breeding records of the species within the project vicinity or greater region.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
White-tailed Kite (*Elanus leucurus*)	--/FP County Group 1	Year-long resident of California residing along the coasts and valleys west of the Sierra Nevada foothills and southeast deserts, though the species has also been documented breeding in arid regions east of the Sierra Nevada and within Imperial County. Inhabits low elevation grasslands, wetlands, oak woodlands, open woodlands, and is associated with agricultural areas. Breeds in riparian areas adjacent to open spaces nesting in isolated or relatively large stands of trees.	**High.** Suitable riparian habitat occurs in the southwestern portion of the site along Sweetwater River and the species is known to occur in the local area. However, the species would most likely nest in more extensive higher quality habitat off site, such as riparian habitat within the SDNWR.
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)	FE/SE County Group 1 MSCP NE MSCP Covered	Breeds in southern California, Arizona, New Mexico, southwestern Colorado, and extreme southern portions of Nevada and Utah. Riparian obligates that breed in relatively dense riparian habitats along rivers, streams, or other wetlands where surface water is present, or soils are very saturated. Breeding habitat can consist of monotypic stands of willows, a mixture of native broadleaf trees and shrubs, monotypic stands of exotics such as tamarisk (*Tamarix* spp.) or Russian olive (*Elaeagnus angustifolia*), or mixture of native broadleaf trees and shrubs with exotics. Restricted in San Diego County to two modest colonies at San Luis Rey River and Santa Margarita River, with a few scattered pairs.	**Low.** Critical habitat for the species is mapped to the west of the site along the Sweetwater River; however, the species was not detected to protocol surveys conducted in 2019. Low quality riparian habitat occurs in the southwestern portion of the project along Sweetwater River; however, there are no reported sightings of the species in the area. The last recorded breeding occurrence in the project vicinity was over 2.5 miles west of the site along Sweetwater River, east of Sweetwater Reservoir. Migrating individuals may utilize the site or adjacent off site areas as stop-over habitat, but breeding pairs are not anticipated based on the lack of recent observations and declining status of the species.
California Horned Lark (*Eremophila alpestris actia*)	--/WL County Group 2	In California occurs along the coastal ranges of from San Joaquin Valley south to U.S./Mexico border. Inhabits a wide variety of open habitats with low, sparse vegetation where trees and large shrubs are generally absent. Suitable habitats include grasslands along the coast, deserts within the inland regions, shrub habitat at higher elevations, and agricultural areas.	**High.** Active and abandoned golf course areas provide suitable foraging habitat for the species and the species is known to occur within the project vicinity.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Merlin (*Falco columbarius*)	--/WL County Group 2	Uncommon winter migrant in California occurring from September to May at elevations below 5,000 feet. Often found in open woodland, grasslands, cultivated fields, marshes, estuaries and seacoasts; rarely found in heavily wooded areas or over open deserts.	**High.** The project site provides suitable overwintering and foraging habitat for this species which can also be found within urbanized areas. There are numerous eBird sightings of the species in the project vicinity.
Prairie Falcon (*Falco mexicanus*)	BCC/WL County Group 1	In California, the species is an uncommon permanent resident and migrant that ranges from southeastern deserts northwest along the inner coastal mountains and Sierra Nevada but is absent from northern coastal fog belt. Primary habitats include grasslands, savannahs, alpine meadows, some agricultural fields during the winter season, and desert scrub areas where suitable cliffs or bluffs are present for nest sites. Requires sheltered cliff ledges for cover and nesting which may range in height from low rock outcrops of thirty feet to cliffs up to and higher than 400 feet.	**Low**. The project site does not contain suitable nesting habitat for the species. The site consists of a developed golf course that would provide limited foraging habitat for the species. Few occurrences of the species are present to the west of the site within SDNWR lands surrounding Sweetwater Reservoir.
American Peregrine Falcon (*Falco peregrinus anatum*)	BCC/FP County Group 1 MSCP NE MSCP Covered	In California, the species is a very uncommon breeding resident and migrant throughout the State. Active nesting sites of this species within California are known from along the coast north of Santa Barbara, in the Sierra Nevada, and other mountains of northern California. Few nest sites are known anecdotally for southern California mostly at coastal estuaries and inland oases. Inhabits a large variety of open habitats including marshes, grasslands, coastlines, and woodlands but is generally absent from desert areas. Typically nest on cliff faces in remote rugged sites where adequate food is available nearby, but the species can also be found in urbanized areas nesting on man-made structures.	**Present**. A pair was observed flying overhead on May 5, 2019. The pair flew north and perched on a transmission tower located the hillside north of the project site. An individual was later observed perched on a tree in the western portion of the site before flying further west and off-site. The pair is presumed to have been foraging individuals moving through the area. No suitable nesting habitat for the species is present within or immediately adjacent to the project site, and no nesting individuals were observed during project surveys.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Yellow-breasted Chat (*Icteria virens*)	--/SSC County Group 1	In California, occurs as a migrant and summer resident breeding from the coastal regions in northern California, east of the Cascades, and throughout the central and southern portions of the State. Breeds in early successional riparian habitats with well-developed shrub layer and an open canopy nesting on the borders of streams, creeks, rivers, and marshes.	**Present.** A single individual was heard signing in the southwestern portion of the site within the patch of riparian habitat along Sweetwater River. Additional individuals were detected further west of the site within the SDNWR.
Loggerhead Shrike (*Lanius ludovicianus*)	BCC/SSC County Group 1	In California, found year-round throughout the foothills and lowlands from coastal regions to the dessert. Winter migrants found coastally north of Mendocino County. Inhabits a variety of habitats seen foraging over open ground within areas of short vegetation, pastures with fence rows, old orchards, mowed roadsides, cemeteries, golf courses, riparian areas, open woodland, agricultural fields, desert washes, desert scrub, grassland, broken chaparral and beach with scattered shrubs. Individuals forage by perching to search for prey (such as large insects, small mammals, amphibians, reptiles, and fish) and using impaling as a means of handling prey.	**High.** The site contains suitable habitat for the species. Reported eBird sightings of the species occur to the west of the site within the SDNWR.
California Gull (*Larus californicus*)	--/WL County Group 2	In California, winters along coastal regions with breeding populations localized at Mono Lake and southern San Francisco Bay. Breeding colonies nearly always occur on islands in natural lakes, rivers, or reservoirs. In the winter, the species is found along coastal California at beaches, rocky coasts, mudflats, coastal estuaries, and deltas of rivers and streams.	**Low.** Suitable wintering and breeding habitat is absent from the project site. Reported sightings of the species are located further west at Sweetwater Reservoir.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Coastal California Gnatcatcher (*Polioptila californica californica*)	FT/SSC County Group 1 MSCP Covered	Year-round resident of California occurring from Ventura County south to San Diego County, and east within the western portions of San Bernardino and Riverside Counties. Typically occurs in arid, open sage scrub habitats on gently sloping hillsides to relatively flat areas at elevations below 3,000 feet. The composition of sage scrub in which gnatcatchers are found varies; however, California sagebrush is at least present as dominant or co-dominant species. Mostly absent from areas dominated by black sage, white sage, or lemonadeberry, though may occur more regularly in inland regions dominated by black sage.	**Present.** A female gnatcatcher was observed foraging with and feeding one fledgling in the extreme southwestern portion of the site on June 11, 2019. Additional observations of the species include a single juvenile calling within the patch of riparian habitat along Sweetwater River in the southwestern portion of the site on July 1 and another female/juvenile type foraging in the same general area on July 17. Though the species was observed within the project site, suitable habitat present is limited to small remnant patches of coastal sage scrub in the extreme southwestern and southeastern portions of the site that connect to larger blocks of coastal sage scrub that continue off site. The species may utilize these areas for foraging opportunities but would most likely breed off site in more extensive, higher quality habitat.
Vermilion Flycatcher (*Pyrocephalus rubinus*)	--/SSC County Group 1	Scarce breeding records occur in southern California with a few individuals wintering regularly along the California coast from Ventura County south to San Diego County. Suitable habitat includes arid scrub, farmlands, parks, golf courses, desert, savanna, cultivated lands, and riparian woodland, usually near water. Wintering individuals can be found in open and semi-open areas with hedges, scattered trees and bushes, and often near water. The species is known to breed and winter at selected sites within San Diego.	**Present.** Multiple individuals and pairs were observed within and throughout the project site during project surveys. At least 2 breeding pairs were confirmed to occupy the site during 2019. A pair with at least on fledging was observed in the eastern portion of the site, just southwest of the clubhouse. Another pair with 2 fledglings was observed in the western portion of the site, to the east of Sweetwater River.
Yellow Warbler (*Setophaga petechia*)	BCC/SSC County Group 2	Common to locally abundant species breeding throughout California at elevations below 8,500 feet, excluding most of the Mojave Desert, and all of the Colorado Desert. Breeds in riparian areas dominated by willows and cottonwoods, near rivers, streams, lakes, and wet meadows. Also breeds in montane shrub and conifer forests at higher elevation areas.	**Present.** Multiple individuals were detected throughout the project site within riparian habitat and the developed golf course. Observations include both migrating and breeding individuals.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Western Bluebird (*Sialia mexicana*)	--/-- County Group 2 MSCP Covered	Common year-round resident throughout California, but absent from the higher mountains and eastern deserts. Breeds in open woodlands, riparian habitats, grasslands, and farmlands. Nests and roosts in cavities of trees and snags, often in holes previously created by woodpeckers, and nest boxes. Winters in a wider variety of habitats.	**Present.** Multiple individuals were detected throughout the project site within riparian habitat and the developed golf course. Suitable breeding habitat is present on site.
Lawrence's Goldfinch (*Spinus lawrencei*)	BCC/--	Resident of California breeding from Tehama, Shasta, and Trinity Counties to the foothills surrounding Central Valley, south through the southern Coast Range to Santa Barbara County continuing into San Diego County and east to the western edge of the southern Mojave and Colorado Deserts. Found year-round in areas south of Kern County with wintering individuals observed further east into the desert regions and Colorado River valley. Inhabits arid and open woodlands adjacent to scrub or chaparral habitats, grasslands or meadows, and water resources such as a stream, pond, or lake from sea level up to 10,000 feet.	**Present.** A small flock was observed foraging within the eastern portion of the project along the southern boundary. The species is highly nomadic, flocking to areas where food sources are abundant, and most likely utilizes the site for foraging opportunities.
Barn Owl (*Tyto alba*)	--/-- County Group 2	Common, yearlong resident of California found in open habitats such as grassland, chaparral, riparian, and wetlands avoiding dense forests and open desert habitats. Also found in urban and suburban areas. Nest in sheltered areas of cliffs or man-made structures, on ledges, in crevices, culverts, nest boxes, and in cavities in trees. Roosts in dense vegetation, cliffs, and buildings and other man-made structures.	**Present.** A single individual was observed foraging in the eastern portion of the site during an evening toad survey.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Least Bell's Vireo (*Vireo bellii pusillus*)	FE/SE County Group 1 MSCP NE MSCP Covered	In California, breeds along the coast and western edge of the Mojave Desert from Santa Barbara County south to San Diego County, and east to Inyo, San Bernardino, and Riverside Counties. Breeding habitat consists of early to mid-successional riparian habitat, often where flowing water is present, but also found in dry watercourses within the desert. A structurally diverse canopy and dense shrub cover is required for nesting and foraging. Dominant species within breeding habitat includes cottonwood and willows with mule fat, oaks, and sycamore, and mesquite (*Prosopis glandulosa*) and arrowweed (*Pluchea sericea*) within desert habitats. The species can be tolerant of the presence of non-native species such as tamarisk.	**Present.** A total of two vireo pairs, and six additional male vireos were detected during the 2019 protocol surveys. One LBVI pair and three male vireos were detected within the project site. The LBVI pair was observed foraging with and feeding three fledglings on May 30, 2019 in the patch of riparian habitat directly east of Steele Canyon Road. Additionally, one LBVI pair and three male vireos were detected outside of the project site. The pair was observed to the west within the San Diego National Wildlife Refuge, two of the males were detected within the Steele Canyon Golf Course, and one male was observed to the west within the San Diego National Wildlife Refuge. Critical habitat for the species occurs both on-site and off-site along Sweetwater River.
Mammals			
Pallid bat (*Antrozous pallidus*)	--/SSC County Group 2	Locally common species found at low elevations in California. Associated with arid and open habitats including grasslands, shrublands, woodlands, and forests, often with open water nearby. Prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging. Day roosts in caves, crevices, mines, and occasionally hollow trees and buildings. Appears to be intolerant of most human disturbances, being mostly absent from urban and suburban areas.	**Low.** Potentially suitable roosting and foraging habitat occurs within the project site. However, the site is subject to anthropogenic disturbances related to golf course activities and residential development occurs within much of the surrounding region.
Ringtail (*Bassariscus astutus*)	--/FP County Group 2	Wide-ranging species found throughout California. Inhabits riparian areas and stands of most forest and shrub habitats in close association with rocky areas or riparian habitats.	**Low.** Though suitable habitat occurs on site, there are few documented occurrences of the species west of the Cuyamaca and Laguna Mountains. The nearest sighting of the species is located further east near Crestwood Ecological Reserve and Harbison Canyon.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Dulzura pocket mouse (*Chaetodipus californicus femoralis*)	--/SSC County Group 2	Occurs in the foothills and mountains of San Diego County, although can also be found on the upper portions of mountain slopes extending into the desert regions. Ranges from the coastal regions (Oceanside to Del Mar, and possibly south to the Tijuana River Valley), eastwards to the Palomar and Cuyamaca Mountains, and extends to the desert slopes of San Felipe Valley, Cigarette Hills, and McCain Valley. Prefers gravelly substrates with sun exposure and can be found within open to dense vegetation. Inhabits chaparral habitats, but is occurs within coastal sage scrub, oak woodland, and at the edge of grasslands.	**Low.** The project site is an active golf course. Though remnant patches of coastal sage scrub occur at the extreme southeastern and southwestern portions of the site, these areas are small in size lacking gravelly and rocky substrates and preferred shrub cover. Recorded observations of the species occur further west within the SDNWR.
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	--/SSC County Group 2	Occurs throughout southwestern California from western Riverside County south to San Diego County at elevations below 6,000 feet. Inhabits coastal sage scrub, grasslands, and chaparral communities, and generally exhibits a strong microhabitat affinity for moderately gravelly and rocky substrates. Forage for seeds from California sagebrush, California buckwheat, lemonade berry, and grasses under shrub and tree canopies, or around rock crevices.	**Low.** The project site is an active golf course. Though remnant patches of coastal sage scrub occur at the extreme southeastern and southwestern portions of the site, these areas are small in size lacking gravelly and rocky substrates and preferred shrub cover. Recorded observations of the species occur further west within the SDNWR.
Mexican long-tongued bat (*Choeronycteris mexicana*)	--/SSC County Group 2	Found in arid habitats at elevations from sea level to 1,640 feet in San Diego County. This species is associated with urban coastal areas and inland valleys. Found near ornamental plants that offer nectar as a food source. Primarily roosts in caves, but can also be found roosting in crevices, mines, buildings, and under exposed roots of trees.	**High.** Occurrences of the species in small numbers are found approximately 3 miles northwest of the site within the communities of El Cajon and Mt. Helix. Suitable nectaring resources occur on site and within adjacent areas.
Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)	--/SSC County Group 2	Occurs throughout California but distribution is strongly correlated with the availability of caves and cave-like roosting habitat. Found in a variety of habitats with presence of caves or cave-like structures (such as buildings). In San Diego County, presumed absent from coastal areas being found more commonly in historic mining districts and boulder-strewn regions (i.e., Escondido, Lakeside, Dulzura, Jacumba, etc.).	**Low.** Buildings within the project site and adjacent areas may provide suitable roosting habitat. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along Sweetwater River. Majority of the occurrences for this species are found further east of the site.

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Stephens' kangaroo rat (*Dipodomys stephensi*)	FE/ST County Group 1	Occurs in southern California within the San Jacinto Valley, western Riverside County, and southwestern San Bernardino County, and northwestern San Diego county at elevations between 4,100 feet. Inhabits native to open grasslands and sparse coastal sage scrub (less than 30 percent cover) on relatively flat or gently sloping ground. Dominant species include native and non-native herbaceous species such as filaree (*Erodium* sp.), non-native grasses (*Bromus* ssp.), California sagebrush, and California buckwheat.	**None.** The project site occurs outside of the known range of the species and lacks suitable grassland habitat in which the species occurs.
Spotted bat (*Euderma maculatum*)	--/SSC County Group 2	In California, found in a small number of localities in the foothills, mountains, and desert regions at elevations below 10,000 feet. Inhabits rocky arid and semi-arid environments including forested mountains, open shrublands, and deserts. Roosts in rock crevices along cliffs adjacent to wide expanses of open habitat. Occasionally roosts in caves and buildings.	**None.** Suitable rocky habitats for the species are absent from the project site and there are no documented occurrences of the species within the project vicinity.
Western mastiff bat (*Eumops perotis californicus*)	--/SSC County Group 2	In California, the species occurs from Monterey County to San Diego County from the coast eastward to the Colorado Desert. Found in open, semi-arid to arid habitats including coastal and desert scrub, grasslands, woodlands, and palm oases. Prefers to roost in high situations above the ground on vertical cliffs, rock quarries, outcrops of fractured boulders, and occasionally tall buildings.	**Moderate.** Suitable roosting habitat is absent from the project site. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along Sweetwater River. May utilize the site for foraging opportunities.
Mountain lion (*Felis concolor*)	--/-- County Group 2 MSCP Covered	Uncommon permanent resident found throughout California in nearly all habitats, expect xeric regions of Mojave and Colorado deserts. Requires extensive riparian vegetation and brushy habitats with interspersed irregular terrain, rocky outcrops, and tree or brush edges. Main prey is mule deer.	**Low**. The project is an active golf course with residential development to the north and south. The site is not located within a high functioning wildlife corridor or linkage and in its current condition is unlikely to facilitate movement and connect the species to adjacent open spaces areas in the region.

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Western red bat (*Lasiurus blossevillii*)	--/SSC County Group 2	In California, the species is locally common occurring from Shasta County south to San Diego County and west of the Sierra Nevada/Cascade Range and deserts. Mainly occurs in riparian woodlands populated by willows, cottonwoods, sycamores, and oak trees but can be found in non-native vegetation such as tamarisk, eucalyptus, and orchards. Primarily roosts in trees preferring heavily shaded areas which are open underneath.	**Low.** Limited suitable riparian habitat occurs in the southwestern portion of the site along Sweetwater River. More extensive higher quality habitat occurs off site within the SDNWR. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along the Sweetwater River.
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	--/SSC County Group 2	Occurs along the coastal regions of southern California south to northern Baja California. Found in arid regions preferring grasslands, agricultural fields, and sparse scrub. Typically absent from areas with high-grass or dense brush, such as closed-canopy chaparral, primarily occupying short-grass and open scrub habitats.	**Low.** The project site is an active golf course. Though remnant patches of coastal sage scrub occur at the extreme southeastern and southwestern portions of the site, these areas are small in size lacking gravelly and rocky substrates and preferred shrub cover. Recorded observations of the species occur further southeast and southwest within the SDNWR.
California leaf-nosed bat (*Macrotus californicus*)	--/SSC County Group 2	In California, ranges from Ventura County south to the U.S./Mexico Border. Within San Diego County, primarily occurs as a desert species within the Anza-Borrego Desert, but has also been documented in the western foothills along the Santa Margarita River and inland valley of Dulzura. Uses caves and similar structures for roosting including buildings, bridges, and fallen palm trunks. Forages along desert washes and floodplains in the east, and sandy river valleys along the coast.	**None.** The project site is located outside of the known habitat and distribution of the species.
Small-footed myotis (*Myotis ciliolabrum*)	--/-- County Group 2	Found throughout California occurring in desert, chaparral, riparian areas, and forests. Presence of riparian areas and waters appears to be important in distribution. Strongly associated with chaparral and montane habitats in San Diego County. Roosts solitarily or in small numbers in rocky crevices, caves, mines, snags, buildings, and bridges.	**Moderate.** Limited suitable riparian habitat occurs in the southwestern portion of the site along Sweetwater River. More extensive higher quality habitat occurs off site within the SDNWR. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along Sweetwater River.

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Long-eared myotis (*Myotis evotis*)	--/-- County Group 2	Widespread in California, but generally believed to be uncommon in most of its range. Avoids the arid Central Valley and hot deserts, occurring along the entire coast and in the Sierra Nevada, Cascades, and coastal mountain ranges below 9,000 feet. Occurs in riparian zones and chaparral but is found primarily in oak woodlands and pine forests in the foothills and mountains. It roosts in crevices and cavities in rocks and trees and is sometimes found in man-made structures such as buildings, bridges, and mines.	**Moderate.** Limited suitable riparian habitat occurs in the southwestern portion of the site along Sweetwater River. More extensive higher quality habitat occurs off site within the SDNWR. The species was recorded in 2003 approximately 1 mile west of the site adjacent to Campo Road along Sweetwater River.
Yuma myotis (*Myotis yumanensis*)	--/-- County Group 2	Widespread in California but uncommon in the Mojave and Colorado Deserts, except in the mountain ranges bordering the Colorado River valley. Found in a variety of habitats including juniper and riparian woodlands, riparian forests, and desert regions where bodies of water (i.e., rivers, streams, ponds, lakes, etc.) are present. Closely associated with water which it uses for foraging and sources of drinking water. Roosts in caves, attics, buildings, mines, underneath bridges, and other similar structures.	**Moderate.** Limited suitable riparian habitat occurs in the southwestern portion of the site along Sweetwater River. More extensive higher quality habitat occurs off site within the SDNWR. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along Sweetwater River.
San Diego Bryant's (formerly desert) woodrat (*Neotoma bryanti [formerly lepida] intermedia*)	--/SSC County Group 2	Occurs along the coastal regions of California being found as far north as San Luis Obispo County, south to San Diego County, and in the western portions of San Bernardino and Riverside Counties. Inhabits a variety of shrub and desert habitats such as coastal sagebrush scrub, chaparral, pinyon-juniper woodland, and Joshua tree woodland among others. Often associated with rock outcroppings, boulders, cacti patches, and areas with dense understories. Construct dens used for shelter, food storage, and nesting around rock outcroppings and cacti using various materials such as twigs, sticks, and other debris.	**Low.** The project site is an active golf course. Though remnant patches of coastal sage scrub occur at the extreme southeastern and southwestern portions of the site, these areas are small in size lacking preferred shrub cover and rocky areas inhabited by the species.

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	--/SSC County Group 2	Rare in California occurring from Los Angeles County eastwards to San Bernardino County, and southwards to San Diego County. Closely associated with their preferred roosting habitats consisting of vertical cliffs, quarries, and rocky outcrops. Sometimes roosts under tiled roofs and observed utilizing bat boxes. Habitat generalists foraging in grasslands, shrublands, riparian areas, oak woodlands, forests, meadows, and ponds favoring larger water bodies for drinking.	**Low.** The site lacks suitable roosting habitat, though the species may utilize the site for foraging opportunities. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along the Sweetwater River.
Big free-tailed bat (*Nyctinomops macrotis*)	--/SSC County Group 2	Rare in California with species found in urban areas of San Diego County. Closely associated with their preferred roosting habitats consisting of vertical cliffs, quarries, and rocky outcrops. Also roosts in buildings and occasionally holes in trees. Associated with coastal and desert scrub, forests, riparian zones, and montane woodlands. Probably does not breed in California.	**Low.** The site lacks suitable roosting habitat, though the species may utilize the site for foraging opportunities. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along the Sweetwater River.
Southern mule deer (*Odocoileus hemionus fuliginatus*)	--/-- County Group 2 MSCP Covered	Found throughout California with the species lacking from only completely urbanized areas and the desert floor. Distribution determined by vegetation type, water availability, and quality and quantity of foraging habitat. Inhabits a wide array of habitats from grasslands, meadows, coastal sage scrub, chaparral, riparian and montane forests. Crepuscular activity and movements are along routes that provide the greatest amount of protective cover.	**Low**. The project is an active golf course with residential development to the north and south. The site is not located within a high-functioning wildlife corridor or linkage and in its current condition is unlikely to facilitate movement and connect the species to adjacent open spaces areas in the region.
Southern grasshopper mouse (*Onychomys torridus ramona*)	--/SSC County Group 2	Ranges from the San Joaquin Valley of Los Angeles County south to northwest Baja California. Typically found in open valleys on the coastal side of the mountains but may extend a short distance onto the eastern desert slopes. Within San Diego County, has only been found on the eastern desert slopes within Dameron Valley, San Felipe Valley, and Scissors Crossing. Prefers open habitats with soft terrain and friable soils within grasslands, coastal sage scrub, alluvial fans, and desert scrub.	**None.** The project site is located outside of the known distribution of the species.

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
American badger (*Taxidea taxus*)	--/SSC County Group 2 MSCP Covered	Uncommon, permanent resident found through California, except for the extreme north coast areas. Associated with large blocks of undeveloped land composed of open valleys, alluvial fans, meadows, grasslands, and sandy desert. Dens function as sites for resting and parturition. Friable, easily crumbled soils are important for denning.	**Low.** The project site is an active golf course with residential development occurs to the north and south. There are no recent records of the species within the project vicinity.

F = Federal; S = State of California; E = Endangered; T = Threatened; CE = Candidate Endangered; R = Rare; BCC = Federal Bird of Conservation Concern; SSC = State Species of Special Concern; FP = State Fully Protected; WL = Watch List

County of San Diego Sensitivity Status: Animals are divided into Groups I and II on the Sensitive Animal List. **Group I** Animals include those that have a very high level of sensitivity, either because they are listed as threatened or endangered or because they have very specific natural history requirements that must be met. **Group 2** Animals include those species that are becoming less common but are not yet so rare that extirpation or extinction is imminent without immediate action. These species tend to be prolific within their suitable habitat types.

MSCP Covered Species: Covered Species under County's Subarea Plan.

[2] Potential to Occur is assessed as follows. **None**: The project site is located outside of the species known range and distribution, or the species is so limited to a particular habitat that it cannot disperse on its own, and habitat suitable for its establishment and survival does not occur in the project site; **Not Expected**: There are no present or historical records of the species occurring on or in the immediate vicinity of the project site. The species moves freely and might disperse through or across the study area, but suitable habitat for residence or breeding does not occur; **Low**: Suitable habitat is present in the project site and there is a historical record of the species in the project vicinity, but no sign of the species was observed during surveys. Existing conditions such as elevation, species composition, density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, and/or isolation may substantially reduce the possibility that the species may occur; **Moderate:** Diagnostic habitats associated with the species occur on or adjacent to the project site, but there is no recent documented occurrence of the species within the immediate vicinity. Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity; **High**: Suitable habitat associated with the species occurs in the project site and the species has been recorded recently on or near the project but was not observed during biological surveys; **Present**: The species was observed during biological surveys for the project and is assumed to occupy the project site.

Appendix E

Explanation of Status Codes for Plant and Animal Species

Appendix E
Explanation of Status Codes for Plant and Animal Species

FEDERAL, STATE, AND LOCAL CODES

U.S. FISH AND WILDLIFE SERVICE (USFWS)

FE Federally listed endangered
FT Federally listed threatened
BCC Birds of Conservation Concern (discussed in more detail below)
BGEPA Bald and Golden Eagle Protection Act (discussed in more detail below)

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE (CDFW)

SE State listed endangered
ST State listed threatened
SSC State species of special concern
WL Watch List

Fully Protected — Fully Protected species refer to all vertebrate and invertebrate taxa of concern to the Natural Diversity Data Base regardless of legal or protection status. These species may not be taken or possessed without a permit from the Fish and Game Commission and/or CDFW.

COUNTY OF SAN DIEGO

Plant sensitivity

List A — Plants rare, threatened, or endangered in California or elsewhere
List B — Plants rare, threatened, or endangered in California but more common elsewhere
List C — Plants that may be quite rare, but more information is needed to determine rarity status
List D — Plants of limited distribution and are uncommon, but not presently rare or endangered

Animal sensitivity

Group 1 — Animals that have a very high level of sensitivity, either because they are listed as threatened or endangered or because they have very specific natural history requirements that must be met
Group 2 — Animals that are becoming less common but are not yet so rare that extirpation or extinction is imminent without immediate action. These species tend to be prolific within their suitable habitat types

MULTIPLE SPECIES CONSERVATION PROGRAM (MSCP) COVERED

Multiple Species Conservation Program covered species for which the County has take authorization within the MSCP area.

Appendix E
Explanation of Status Codes for Plant and Animal Species

MSCP NARROW ENDEMIC (NE)

Narrow endemic species are native species that have "restricted geographic distributions, soil affinities, and/or habitats." The MSCP participants' subarea plans have specific conservation measures to ensure impacts to narrow endemics are avoided to the maximum extent practicable.

OTHER CODES AND ABBREVIATIONS

USFWS BIRDS OF CONSERVATION CONCERN (BCC)

The primary legal authority for Birds of Conservation Concern (2008) is the Fish and Wildlife Conservation Act of 1980 (FWCA), as amended. Other authorities include the Endangered Species Act, Fish and Wildlife Act (1956) and 16 USC §701. A FWCA 1988 amendment (Public Law 100-653, Title VIII) requires the Secretary of the Interior through the USFWS to "identify species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." The 2008 BCC report is the most recent effort by the USFWS to carry out this proactive conservation mandate.

The BCC report aims to identify accurately the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the USFWS' highest conservation priorities and draw attention to species in need of conservation action. The USFWS hopes that by focusing attention on these highest priority species, the report will promote greater study and protection of the habitats and ecological communities upon which these species depend, thereby ensuring the future of healthy avian populations and communities. Birds of Conservation Concern 2008 lists are available online at https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php.

USFWS BALD AND GOLDEN EAGLE PROTECTION ACT (BGEPA)

In 1782, Continental Congress adopted the bald eagle as a national symbol. During the next one and a half centuries, the bald eagle was heavily hunted by sportsmen, taxidermists, fisherman, and farmers. To prevent the species from becoming extinct, Congress passed the Bald Eagle Protection Act in 1940. The Act was extremely comprehensive, prohibiting the take, possession, sale, purchase, barter, or offer to sell, purchase, or barter, export or import of the bald eagle "at any time or in any manner."

In 1962, Congress amended the Eagle Act to cover golden eagles, a move that was partially an attempt to strengthen protection of bald eagles, since the latter were often killed by people mistaking them for golden eagles. The golden eagle, however, is accorded somewhat lighter protection under the Act than the bald eagle. Another 1962 amendment authorizes the Secretary of the Interior to grant permits to Native Americans for traditional religious use of eagles and eagle parts and feathers.

Appendix E
Explanation of Status Codes for Plant and Animal Species

CALIFORNIA NATIVE PLANT SOCIETY (CNPS) CALIFORNIA RARE PLANT RANKING (CRPR)

Lists

1A = Presumed extinct.

1B = Rare, threatened, or endangered in California and elsewhere. Eligible for state listing.

2 = Rare, threatened, or endangered in California but more common elsewhere. Eligible for state listing.

3 = Distribution, endangerment, ecology, and/or taxonomic information needed. Some eligible for state listing.

4 = A watch list for species of limited distribution. Needs monitoring for changes in population status. Few (if any) eligible for state listing.

List/Threat Code Extensions

.1 – Seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)

.2 – Fairly endangered in California (20 to 80 percent occurrences threatened)

.3 – Not very endangered in California (less than 20 percent of occurrences threatened, or no current threats known)

A "CA Endemic" entry corresponds to those taxa that only occur in California.

All List 1A (presumed extinct in California) and some List 3 (need more information; a review list) plants lacking threat information receive no extension. Threat Code guidelines represent only a starting point in threat level assessment. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Code.