Tecolote Canyon Trunk Sewer Improvement Project

Biological Technical Report

June 2021 | 00149.00031.013 (SDD-31.13

Prepared for:

City of San Diego Engineering & Capital Projects Department
525 B Street, Suite 750
San Diego, CA 92101

Prepared by:

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

This page intentionally left blank

Tecolote Canyon Trunk Sewer Improvement Project

Biological Technical Report

Prepared for:

City of San Diego Engineering & Capital Projects Department
525 B Street, Suite 750
San Diego, CA 92101

Prepared by:

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

June 2021 | 00149.00031.013 (SDD-31.13)

This page intentionally left blank

TABLE OF CONTENTS

Section **Page**

TABLE OF CONTENTS (cont.)

LIST OF APPENDICES

TABLE OF CONTENTS (cont.)

LIST OF FIGURES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

AM	avoidance and minimization measure
AMSL	above mean sea level
APN	Accessors Parcel Number
BCME	Biological Construction Monitoring Exhibit
BMP	Best Management Practice
CAGN	coastal California gnatcatcher
Cal-IPC	California Invasive Plant Council
CFG	California Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
City	City of San Diego
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CSVR	Consultant Site Visit Record
CWA	Clean Water Act
dBA	decibels
ESL	Environmentally Sensitive Lands
EPP	Essential Public Projects
ESA	Endangered Species Act
HELIX	HELIX Environmental Planning, Inc.
LBVI	least Bell's vireo
L_{EQ}	Energy Equivalent Noise Level
LF	linear feet
LUAG	Land Use Adjacency Guidelines
MBTA	Migratory Bird Treaty Act
MH	Manhole
MHPA	Multi-habitat Planning Area
MM	Mitigation Measure
MMC	Mitigation Monitoring Coordination
MSCP	Multiple Species Conservation Program
NRMP	Natural Resources Management Plan for Tecolote Canyon Natural Park
NWI	National Wetlands Inventory
NWPR	Navigable Waters Protection Rule
OHWM	ordinary high water mark
Project	Tecolote Canyon Trunk Sewer Improvement Project
PUD	Public Utilities Department

ACRONYMS AND ABBREVIATIONS (cont.)

RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SDG&E	San Diego Gas and Electric
SSC	Species of Special Concern
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VPHCP	Vernal Pool Habitat Conservation Plan
WL	California Watch list

This page intentionally left blank

EXECUTIVE SUMMARY

At the request of City of San Diego (City) Engineering & Capital Projects Department (project proponent), HELIX Environmental Planning, Inc. (HELIX) has completed this biological resources technical report for the proposed Tecolote Canyon Trunk Sewer Improvement Project (project), which is located in Tecolote Canyon in the City of San Diego, California. The proposed project involves the replacement and rehabilitation of approximately 4.7 miles of the existing 6.5-mile long trunk sewer and water main and associated access improvements such as stream crossings, manhole protection, and new access pathways. The project design will include both open trenching and trenchless construction methods. The purpose of this report is to document the existing biological conditions within the project site and provide an analysis of potential impacts to sensitive biological resources with respect to local, state, and federal policy. This report provides the biological resources technical documentation necessary for review under the California Environmental Quality Act by the City's Engineering & Capital Projects Department.

HELIX biologists conducted general biological surveys, jurisdictional delineations, rare plant surveys, California Rapid Assessment Method assessment, and on-site mitigation assessment within the project's study area during the period of July 2016 and December 2019. The approximately 41-acre project site supports 15 vegetation communities/habitat types: oak riparian forest (including disturbed phase), mule fat scrub, southern riparian forest (including disturbed phase), southern willow scrub (including disturbed phase), maritime succulent scrub, coast live oak woodland, native grassland, Diegan coastal sage scrub (including disturbed phase), southern mixed chaparral (including disturbed phase), poison oak chaparral, non-native grassland (including disturbed phase), eucalyptus woodland, disturbed land, non-native vegetation/ornamental, and developed.

Three special status plant species were observed within the project's study area: San Diego sagewort (*Artemisia palmeri*), San Diego barrel cactus (*Ferocactus viridescens*), and Nuttall's scrub oak (*Quercus dumosa*). Three special status animal species were observed or detected on or directly adjacent to the project's study area during biological surveys conducted for the project: Cooper's hawk (*Accipiter cooperii*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), and coastal California gnatcatcher (*Polioptila californica californica*). Three other special status species have high potential to occur in the project's study area: least Bell's vireo (*Vireo bellii pusillus*), coast horned lizard (*Phrynosoma blainvillii*), and yellow warbler (*Setophaga petechia*). No critical habitat designated by the U.S. Fish and Wildlife Service occurs within the project's study area.

The project site supports wetland and non-wetland waters of the U.S. subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the federal Clean Water Act (CWA); wetland and non-wetland waters of the State subject to the regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA; riparian-vegetated and unvegetated streambed subject to the regulatory jurisdiction of the California Department of Fish and Wildlife (CDFW) pursuant to Section 1600 et seq. of California Fish and Game (CFG) Code; and wetlands subject to the City's Environmentally Sensitive Lands (ESL) Ordinance Regulations.

The project occurs within the boundaries of the City's adopted Multiple Species Conservation Program (MSCP) Subarea Plan (City 2017). The majority of the study area is within the boundaries of the Multi-Habitat Planning Area (MHPA) which is the City's portion of the MSCP preserve. The MSCP establishes

specific guidelines that limit activities that occur within the MHPA. Utility lines (such as sewer) and other essential public facilities in compliance with these guidelines and other policies found in MSCP are considered conditionally compatible with the biological objectives of the MSCP and are thus allowed within the City's MHPA. The proposed project consists of replacement and rehabilitation of an existing sewer line and is conformance with the applicable policies and guidelines in the MSCP. The study area is located outside the Coastal Zone.

Potential significant impacts were identified relative to special status species, sensitive natural communities and riparian habitat, jurisdictional waters and wetlands, adopted plans, and local policies/ordinances. Following City's Biology Guidelines (City 2018a), a total of 9.13 acres of the 40.60-acre study area would be considered impacted including 0.97 acre of permanent impacts and 8.16 acres of temporary impacts. The project would result in impacts to a total of 0.95 acre of riparian habitat consisting of 0.55 acre of oak riparian forest (including disturbed phase), 0.03 acre of mule fat scrub, 0.18 acre of southern riparian forest (including disturbed phase), and 0.19 acre of southern willow scrub (including disturbed phase). The project would also impact a total of 4.33 acres of sensitive Tier I, II, IIIA, and IIIB upland communities including 0.22 acre of coast live oak woodland, 0.28 acre of maritime succulent scrub, 2.28 acres of Diegan coastal sage scrub (including disturbed phase), 0.13 acre of southern mixed chaparral (including disturbed phase), 0.08 acre of poison oak chaparral, and 1.34 acres of non-native grassland (including disturbed phase).

The project would implement appropriate avoidance and minimization measures, such as biological monitoring and reduction of potentially significant indirect noise impacts on MSCP covered species, to ensure project consistency with the City's Biology Guidelines (City 2018a) and MSCP Subarea Plan (City 1997). Mitigation measures are proposed to mitigate potentially significant impacts on special status species, sensitive vegetation communities/habitats, and jurisdictional waters and wetlands. Implementation of these mitigation measures would mitigate potential impacts to below a level of significance.

1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

This report describes existing biological conditions within the Tecolote Canyon Trunk Sewer Improvement Project (project) study area, and describes the proposed project, its impacts to biological resources, and corresponding mitigation measures. Regulatory act(s)/plan(s) that apply to the project development include the federal and state Endangered Species Acts, Migratory Bird Treaty Act (MBTA), Clean Water Act (CWA), California Department of Fish and Wildlife (CDFW) California Fish and Game Code 3503.5, California Environmental Quality Act (CEQA), City of San Diego's (City) Multiple Species Conservation Program (MSCP), City's Land Development Code, City's Environmentally Sensitive Lands Ordinance, and City's Tecolote Canyon Natural Park Natural Resources Management Plan (NRMP; HELIX 2006). Required project approvals include a Site Development Permit. This report also includes information from the wetland jurisdictional delineation completed for the project.

1.2 PROJECT LOCATION

The approximately 6.5-mile existing Tecolote Canyon Trunk Sewer is located within the Tecolote Canyon Natural Park, south of Genesee Avenue, and northwest of Tecolote Road in the City of San Diego, California (Figure 1, *Regional Location*). The study area is located within unsectioned lands of the Pueblo land grant in Townships 15 and 16 South, Range 3 West as shown on the U.S. Geological Survey 7.5-minute La Jolla quadrangle map (Figure 2, *Project Vicinity [USGS Topography]*). The project study area was established as the areas within approximately 100 feet of the existing trunk sewer and associated project improvement areas, which consists of 40.6 acres. The study area is described in this report as having north, central, and southern reaches. The northern reach is north of Balboa Avenue, the central reach is between Balboa Avenue and Mount Acadia Boulevard, and the southern reach is south of Mount Acadia Boulevard (Figures 3, *Project Vicinity [Aerial Photograph]* and 4-1 through 4-9, *Vegetation*). The majority of the study area is within the boundaries of the Multi-habitat Planning Area (MHPA) of the City's MSCP Subarea Plan (City 1997; Figure 5, *MHPA Boundary*). The study area is located outside the Coastal Zone. There are 18 Accessor's Parcel Numbers (APNs) listed for the study area, and most parcels are owned by the City. Other ownership includes private trust lands, San Diego Gas and Electric (SDG&E), and the University of San Diego.

1.3 PROJECT DESCRIPTION

The Tecolote Canyon Trunk Sewer is located in the Claremont Mesa, Linda Vista, and Bay Park communities in the City of San Diego. The 6.5-mile long, gravity-fed pipeline begins at the north side of the Genesee Avenue and Chateau Drive intersection. The pipe generally runs southwest within Tecolote Canyon to its termination location at the intersection of Tecolote Road and West Morena Boulevard; however, the project area does not extend west of the San Diego Tennis Racquet Club. Sewer mains greater than 18 inches in diameter are defined as trunk sewer. The Tecolote Canyon Trunk Sewer was built in the 1950s and is composed of vitrified clay that is generally greater than 18 inches in diameter. The existing pipe is largely composed of vitrified clay. In 2012, the trunk sewer was assessed and it was determined that improvements were required. Computer modeling indicated the sewer would reach capacity in 2017-2020 and that improved capacity is required due to rainfall inflow and infiltration during the rainy season. Inflow occurs from runoff entering the sewer system via manholes, and infiltration occurs from water entering cracks and breaks in the existing sewer pipelines. Additionally,

closed circuit television investigation of the pipe revealed deteriorated conditions and damages in the upper portion of the alignment.

Many of the City's sewer lines are located within canyons, which are often considered Environmentally Sensitive Lands. The fact they are situated within Environmentally Sensitive Lands makes them difficult to access and maintain. Analysis was performed to determine the feasibility of removing the sewer from Tecolote Canyon and replacing the trunk sewer in a less environmentally sensitive location (HELIX 2006). However, it was determined that it is not economically feasible to remove the sewer from Tecolote Canyon.

The project will involve the replacement and rehabilitation of approximately 4.7 miles of the 6.5-mile long trunk sewer and water main (Figures 6-1 through 6-3, *Site Plan*). It will also involve access improvements to minimize damage associated with future emergency repairs, and will include stream crossings, manhole protection, and new access pathways. The project design will include both open trenching and trenchless construction methods to minimize impacts to City Environmentally Sensitive Lands.

The capacity of the trunk sewer will be increased along most of its length. The project consists to upsizing of the trunk sewer which are included: 8,380 linear feet (LF) will be increased from 15- to 18-inch pipe, 630 LF will be increased from 18- to 21-inch pipe, 5,250 LF will be increased from 21- to 24-inch pipe, 2,060 LF of 21- and 24-inch pipe will be increased to 27-inch pipe, and 1,990 LF of 24-inch pipe will be increased to 30-inch pipe. Also, a total of 6,487 LF of 15-inch sewer main will be rehabilitated and 51 LF will be replaced in place without upsizing. In addition, as part of the project, approximately 690 LF of water main will be replaced with alignment change in the Tecolote Canyon Golf Course area. Other activities include slope restoration and erosion protection around manholes. The small vehicle trail that accesses the sewer will be improved, including the installation of five total stream crossing, which includes three engineered stream crossings (average 100-foot length; 12-foot width; three to 10-foot depth), the installation of a new bridge near MH 51, and replacement of an existing bridge near MH 268Z. Currently, the dirt access trail ranges from four to 12 feet in width. The new path will utilize existing paths to the maximum extent possible. Trail improvements will include construction of access paths to manholes and improvement of existing pathways. The trench and manhole depth for the trunk sewer ranging from 11 to 25 feet deep and for the water main the depth range from five to seven feet.

The Tecolote Canyon Trunk Sewer Improvement project would be constructed over a period of approximately 26 months after permits and funding are secured.

2.0 SURVEY METHODS

2.1 LITERATURE REVIEW

Prior to conducting field investigations, HELIX performed a review of existing literature, including a search of the CDFW's California Natural Diversity Database (CNDDB; CDFW 2017b) and the Tecolote Canyon Natural Park NRMP (HELIX 2006) for information regarding special status species reported within 0.5 mile of the project site. Additional sources include the U.S. Fish and Wildlife Service (USFWS; 2017a) and MSCP (City 1997). Soils data were obtained from the U.S. Department of Agriculture (USDA) Web Soil Service (U.S. Department of Agriculture [USDA] 2014).

2.2 NOMENCLATURE

Nomenclature used in this report follows the conventions used in the City's Biology Guidelines (City 2018a) and the MSCP (City 1997). Vegetation community classifications follow Holland (1986) and Oberbauer (2008) as modified by the City's Biology Guidelines (City 2018a); plant names follow Baldwin et al. (2012) or Rebman and Simpson (2014). Calflora (2017) was used to update scientific names and augment common names. Animal nomenclature is taken from American Ornithologists' Union (2016) for birds, Baker et al. (2003) for mammals, and Collins and Taggart (2002) for reptiles. Sensitive plant species status follows the California Native Plant Society (CNPS; 2017) and sensitive animal species status follows the CDFW (2017a).

2.3 GENERAL BIOLOGICAL SURVEY

HELIX senior scientist Jasmine Bakker conducted a general biological field survey of the Tecolote Canyon Trunk Sewer Improvement study area on July 27 and August 11, 2016 (Table 1, *HELIX Survey Information*). The general biological survey involved updating existing vegetation maps using data available from the NRMP overlaid on an aerial photograph (1 inch: 200 feet). A list of plant and animal species observed or detected within the study area was prepared. Animals were identified in the field by direct visual observation with the aid of binoculars or indirectly by detection of calls, tracks, burrows, or scat. HELIX biologists Stacy Nigro and Laura Moreton verified the vegetation mapping on November 26 and December 5, 2019.

Table 1
HELIX SURVEY INFORMATION

Survey Date	Personnel	Purpose
07/27/2016	Jasmine Bakker	General Biological Survey (northern portion of project)
08/11/2016	Jasmine Bakker	General Biological Survey (southern portion of project)
03/28/2017	W. Larry Sward	Jurisdictional Delineation
03/29/2017	W. Larry Sward	Jurisdictional Delineation
04/07/2017	Amy Mattson, Sally Trnka	Rare Plant Survey
04/14/2017	Sally Trnka, Vince Rivas	Rare Plant Survey
06/14/2017	Sally Trnka	On-site Mitigation Assessment
06/20/2017	Sally Trnka	On-site Mitigation Assessment
06/21/2017	Erica Harris, Hannah Lo	California Rapid Assessment Method
11/26/2019	Stacy Nigro, Laura Moreton	Verification of Vegetation Mapping and Jurisdictional Delineation
12/4/2019	Stacy Nigro, Laura Moreton	Verification of Vegetation Mapping and Jurisdictional Delineation

2.4 JURISDICTIONAL DELINEATION

HELIX principal biologist W. Larry Sward conducted a formal jurisdictional delineation of various locations along Tecolote Creek on March 28 and 29, 2017 (Table 1). The delineation was conducted to identify and map existing waters of the U.S. under U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the federal CWA (33 USC 1344). The Regional Water Quality Control Board (RWQCB) has jurisdiction over waters of the State according to Section 401 of the CWA. A Section 401 Water Quality Certification, which is administered by the RWQCB, must be obtained prior to the issuance of any 404 Permit. The delineation also identified habitats under CDFW jurisdiction pursuant to Section 1600 of the California Fish and Game Code, and City wetlands pursuant to City's Biology

Guidelines of the Land Development Code (City 2018a). Additional information used to determine jurisdiction was obtained by Mr. Sward during field work for the Central Tecolote Mitigation project in June 2017. HELIX biologists Stacy Nigro and Laura Moreton conducted additional fieldwork on November 26 and December 5, 2019 to verify the jurisdictional delineation for the project. This information is necessary to evaluate jurisdictional impacts and permit requirements associated with development of the project. This report presents HELIX's best efforts to quantify the extent of waters of the U.S., waters of the State, CDFW, and City jurisdictional habitats within the project using the current regulations, written policies, and guidance from regulatory agencies. The jurisdictional boundaries provided are subject to verification by the USACE, RWQCB, CDFW, and City.

2.4.1 Methods

Prior to beginning fieldwork, aerial photographs and vegetation maps were reviewed to determine the location of potential jurisdictional areas that may be affected by the proposed project. Data were collected in areas that were suspected to be jurisdictional habitats. The jurisdictional study area was defined as the project footprint and a buffer 50 feet in width.

The waters of the U.S. and waters of the State wetland boundaries were determined using the three criteria (vegetation, hydrology, and soils) established for wetland delineations, as described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008).

With regard to USACE regulatory authority and jurisdictional delineation results, this report follows the definition of waters of the U.S. published in the Navigable Waters Protection Rule (NWPR), which became effective on June 22, 2020. The key change in waters of the U.S. definition that applies to this project is the deregulation of ephemeral waters by the NWPR.

Wetland affiliations of plant species follow the National Wetland Plant List (Lichvar et al. 2016). Vegetation was mapped according to Oberbauer et al. (2008).

Soil samples were evaluated for hydric soil indicators (e.g., hydrogen sulfide [A4], sandy redox [S5], depleted matrix [F3], redox dark surface [F6], and depleted dark surface [F7]). Soil chromas were identified according to Munsell's Soil Color Charts (Kollmorgen 1994).

Sample points were inspected for primary wetland hydrology indicators (e.g., surface water [A1], saturation [A3], water marks [non-riverine, B1], sediment deposits [non-riverine, B2], drift deposits [non-riverine, B3], surface soil cracks [B6], inundation visible on aerial imagery [B7], salt crust [B11], aquatic invertebrates [B13], hydrogen sulfide odor [C1], and oxidized rhizospheres along living roots [C3]) and secondary wetland hydrology indicators (e.g., water marks [riverine, B1], sediment deposits [riverine, B2], drift deposits [riverine, B3], drainage patterns in wetlands [B10], shallow aquitard [D3], and positive FAC-neutral test [D5]).

Areas were determined to be non-wetland waters of the U.S. if there was evidence of regular surface flow (e.g., bed and bank), but lack of wetland vegetation. Jurisdictional limits for these areas were defined by the ordinary high water mark (OHWM), which is defined in 33 CFR Section 329.11 as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas." The USACE has issued further guidance on the OHWM (Riley

2005; Lichvar and McColley 2008), which also has been used for this delineation. The OHWM widths were measured to the nearest foot at various locations along the mapped tributary.

Potential RWQCB jurisdiction for waters of the State found within the study area extends to the top of bank for streams and to the outer edge of wetlands when the OHWM is not apparent, pursuant to the State Water Resources Control Board's (SWRCB's) wetland definition that was adopted on April 2, 2019 (SWRCB 2019) and implemented as of May 28, 2020. Due to an obvious OHWM, HELIX mapped the waters of the State as part of the jurisdictional delineation, and as discussed in the results section below, the waters of the State were mapped along the OHWM within the study area. All waters of the State are subject to RWQCB jurisdiction pursuant to CWA Section 401.

The CDFW jurisdictional boundaries were determined based on the presence of riparian vegetation or regular surface flow. Streambeds within CDFW jurisdiction were delineated based on the definition of streambed as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports riparian vegetation" (Title 14, Section 1.72). This definition for CDFW jurisdictional habitat allows for a wide variety of habitat types to be jurisdictional, including some that do not include wetland species (e.g., oak woodland and alluvial fan sage scrub streambed widths were measured to the nearest foot at various locations along the channel. The CDFW publication on dryland watersheds (Vyverberg 2010) was used as an aid to map streambeds.

City wetland boundaries were determined based on the City's Biology Guidelines (City 2018a), which rely primarily on the presence of wetland vegetation. There are certain instances where City wetlands can occur without wetland vegetation (e.g., where human activities or naturally occurring events have removed wetland vegetation). There are also situations where wetland vegetation created by human activities is not considered wetlands.

Three sample points were studied. Standard data forms were completed for each sample point in the field. Photographs were taken of the sample points and are included in this report.

Appendix A, *Jurisdictional Delineation Data*, provides a full definition of City wetlands, CDFW jurisdictional areas, wetland and non-wetland waters of the U.S., as well as data sheets and photographs.

2.5 RARE PLANT SURVEY

A rare plant survey was conducted on April 7 and 14, 2017, by HELIX biologists Sally Trnka, Amy Mattson, and Vince Rivas. All plant and animal species observed are included in Appendix B, *Species Observed*. The survey consisted of a visual search for any rare or listed plant species with the potential to occur on-site (Appendix C, *Special Status Species Observed or With Potential to Occur*). Transects were walked throughout the study area to obtain maximum visual coverage of the area. HELIX also searched for and recorded rare plant species during other surveys conducted for the proposed project (Table 1).

2.6 SURVEY LIMITATIONS

Surveys within the project area focus predominantly on locations to be permanently or temporarily impacted. Focused surveys during the breeding season for special status animal species were not conducted.

3.0 SURVEY RESULTS

3.1 PHYSICAL CHARACTERISTICS

This section describes the physical characteristics of the project study area, including topography, soils, water resources, land uses, current conditions, sensitive habitats, and jurisdictional habitats present.

3.1.1 Topography, Soils, and Water Resources

The study area is situated along the east side of Tecolote Creek along most of the project length and crosses the creek in four locations. The study area is located within the bottom of the canyon, which runs generally from north to south. The surrounding topography rises above the project site to the east and west. The canyon sides from an elevation of a few feet, to up to 200 feet, above Tecolote Creek. The northern end of the project site is approximately 200 feet above mean sea level (amsl) in elevation and the south end of the project site is approximately 45 feet amsl in elevation. The elevation of the top of the canyon varies along the length of the canyon and varies from east to west.

The project study area is mapped as supporting nine soil types (USDA 2014). The two most common soil types are Terrace escarpments and Reiff fine sandy loam, two to five percent slopes. The seven other soil types present on-site include: Salinas clay loam, two to nine percent slopes; Huerhuero loam, 15 to 30 percent slopes, eroded; Huerhuero loam, two to nine percent slopes; Gaviota fine sandy loam, 30 to 50 percent slopes; Chesterton-Urban land complex, two to nine percent slopes; Olivenhain cobbly loam, nine to 30 percent slopes; and Carlsbad-Urban land complex, nine to 30 percent slopes. These seven soil types are generally located in the southern half of the project study area.

Tecolote Creek is within the Tecolote Hydrological Area of the Peñasquitos Hydrologic Unit. Water flowing within Tecolote Creek moves south and west through the canyon. The creek is highly incised along most of its length and conveys flows from Clairemont into Mission Bay. Tecolote Creek is a perennial stream with flows that vary with the season. The project site receives an average of 10.5 inches of rain per year. Urban run-off enters the site year-round through approximately 77 storm drains that direct water into Tecolote Creek (HELIX 2006).

3.1.2 Land Uses

The study area is open space within the Tecolote Canyon Natural Park. Other land uses within Tecolote Canyon include the Tecolote Canyon Golf Course, which is an 18-hole public golf course under lease from the City until 2022. The golf course is located in the center of the canyon. Tecolote Canyon is surrounded by residential development. Residential and commercial development of the area began in the 1940s. At the south end of the canyon there is a Nature Center, which serves as the entrance to the Tecolote Canyon Natural Park. An additional land use within the canyon is a utility easement. SDG&E owns 24 acres in Tecolote Canyon, and an SDG&E right-of-way runs north to south through the southern

end of the canyon. Existing Public Utilities Department mitigation sites also occur within Tecolote Canyon, including the Central Tecolote Canyon Mitigation Project (HELIX 2017), which mitigates for past and future impacts to upland and wetland habitat within Tecolote Canyon Natural Park and Los Peñasquitos watershed associated with the maintenance of water and sewer pipelines and related access paths. The Central Tecolote Canyon Mitigation Project also includes a Weed Management Area, of which 25 percent of the total acreage provides enhancement mitigation credits, as well as areas of habitat restoration that were implemented as part of the mitigation project but do not provide mitigation credit. The Tecolote Canyon Trunk Sewer Improvements Project was anticipated when the Central Tecolote mitigation project was completed. The final mitigation acreages for the Central Tecolote Canyon restoration project excluded the areas where disturbance would occur due to the trunk sewer project (HELIX 2017).

3.1.3 Habitats

Vegetation in the bottom of the canyon is dominated by riparian habitats, predominantly oak riparian forest. Other wetland habitats within the study area include coast live oak woodland, mule fat scrub, southern riparian forest, and southern willow scrub. The dominant upland habitats on-site are Diegan coastal sage scrub and developed land, including the golf course. A full description of vegetation communities is provided in Section 3.2.1.

The MHPA occurs within most of Tecolote Canyon; however, toward the center of the project study area the MHPA boundary parallels Tecolote Creek and does not include the surrounding developed golf course habitat (Figure 5).

3.1.4 Environmentally Sensitive Lands

Environmentally sensitive lands in the study area include wetlands, and Tier I, II, IIIA, and IIIB uplands. Wetland habitat, such as oak riparian forest, occur throughout the study area and in the five locations where the project crosses Tecolote Creek. Uplands make up the remainder of the study area beyond the creek and its associated wetland habitat.

3.1.5 Designated Critical Habitat

No areas designated by the USFWS as critical habitat for any species listed under the federal Endangered Species Act are located within the study area.

3.1.6 Jurisdictional Habitats

Potentially jurisdictional habitats that occur in the jurisdictional study area are shown on Figures 7-1 through 7-9 for *Waters of the U.S/ Impacts*, Figures 8-1 through 8-9 for *Waters of the State/ Impacts*, Figures 9-1 through 9-9 for *CDFW Jurisdictional Habitats Impacts*, and Figures 10-1 through 10-9 for *City of San Diego Wetlands Impacts*. Wetlands are dominated by hydrophytic plants and have wetland hydrology and hydric soils. Wetland plant species within the study area include species such as arroyo willow (*Salix lasiolepis*), Brazilian pepper (*Schinus terebinthifolius*), western cottonwood (*Populus fremontii*), western sycamore (*Platanus racemosa*), California rose (*Rosa californica*), and umbrella sedge (*Cyperus involucratus*; Table 2, *Plant Species Observed at Sampling Points*).

Table 2
PLANT SPECIES OBSERVED AT SAMPLING POINTS

Family	Species	Common Name	Indicator Status†
Anacardiaceae	*Schinus terebinthifolius**	Brazilian pepper	FAC
	Toxicodendron diversilobum	poison oak	UPL
Apiaceae	*Foeniculum vulgare**	Fennel	UPL
Asteraceae	*Ambrosia psilostachya*	western ragweed	FACU
	Baccharis pilularis	coyote brush	UPL
	*Helminthotheca echioides**	bristly-ox tongue	FAC
	*Sonchus asper**	prickly sow-thistle	FAC
Cyperaceae	*Cyperus involucratus**	umbrella sedge	FACW
Fabaceae	*Medicago polymorpha**	bur clover	FACU
Fagaceae	*Quercus agrifolia*	coast live oak	UPL
Platanaceae	*Platanus racemose*	western sycamore	FAC
Poaceae	*Bromus madritensis**	red brome	UPL
	*Cortaderia selloana**	pampas grass	FACU
Rosaceae	*Rosa californica*	California rose	FAC
Salicaceae	*Populus fremontii*	western cottonwood	FAC
	Salix lasiolepis	arroyo willow	FACW

† FACW=facultative wetland species, FAC=facultative species, FACU=facultative upland species, and UPL=obligate upland species. Please also see Appendix A.

* Indicates non-native species.

The National Wetlands Inventory (NWI) indicates freshwater forested/shrub wetland occurs along the length of Tecolote Creek and its major tributaries (USFWS 2017b). The NWI mapping also indicates riverine along some of the minor tributaries, and one patch of freshwater emergent wetland. The project-specific mapping completed as part of this report generally agrees with the NWI mapping except for the emergent wetland, which actually supports southern willow scrub habitat.

Sample Points

Data from three jurisdictional delineation sampling points were collected within the delineation study area. A summary of these points is provided below. Two sample points were completed in potential wetland areas and one was completed in an upland adjacent to a wetland.

Sample Point 1. This sample point was located between Tecolote Creek and the University of San Diego (Figure 7-7). The hydrology was provided by a culvert outlet from the university. The point was situated in the lowest part of a streambed. Wetland vegetation was present based on the dominant species satisfying the Dominance Test, with three of four species being wetland species. Dominant species included arroyo willow, umbrella sedge, and Brazilian pepper. A soil pit excavated to a depth of 16 inches did not reveal any hydric soil indicators. However, the soil analysis was hindered by the abundance of large roots. Soil at this location was saturated within 12 inches of the soil surface and appears to have been so for an extended time, which meets the National Technical Committee for Hydric Soil's definition of a hydric soil. One primary wetland hydrology indicator (saturation; A3) and two secondary indicators (drift deposits [B3, riverine] and FAC-neutral Test [D5]) were present, which satisfied the wetland hydrology criterion. This location is considered a wetland waters of the U.S./waters of the State, CDFW jurisdictional habitat, and City wetland.

Sample Point 2. This sample point was in non-native grassland adjacent to the tributary where Sample Point 1 was located (Figure 7-7). The vegetation was dominated by upland species, including coast live oak (*Quercus agrifolia*), coyote brush (*Baccharis pilularis*), bur clover (*Medicago polymorpha*), and red brome (*Bromus madritensis)*. A soil pit dug to 15 inches did not reveal any hydric soil indicators, nor were any wetland hydrology indicators present. This location is upland and is not considered waters of the U.S./waters of the State, a CDFW jurisdictional wetland, or City wetland.

Sample Point 3. This sample point was located in a low area east of Tecolote Creek (Figure 7-7). The vegetation at this location was dominated by wetland species, including western cottonwood, western sycamore, and arroyo willow, which met the dominance test for hydrophytic vegetation. A soil pit dug to 14 inches did not reveal any hydric soil indicators. Wetland hydrology was present based on the presence of one primary wetland hydrology indicator (sediment deposits [B2]). Sediment deposits indicate ponded surface water. Unlike Sample Point 1, there were no signs that water ponding at this location was a regular occurrence, and they likely only occur during extraordinary rainfall years. This location is not a waters of the U.S./waters of the State but is considered a CDFW jurisdictional habitat and a City wetland.

Potentially Jurisdictional Habitats

The following potentially jurisdictional habitats occur in the jurisdictional study area: oak riparian forest, southern riparian forest, coast live oak woodland, southern willow scrub, mule fat scrub, and streambed. Both types of forest and the mule fat scrub also occur in disturbed phases. All or some of each of these habitats are regarded as waters of the U.S./waters of the State, CDFW jurisdictional habitat, and City wetlands. The extent of waters of the U.S./waters of the State and City wetlands within the study area tends to be smaller than the CDFW jurisdictional habitat because of the more inclusive parameters for CDFW habitat.

Oak Riparian Forest. Oak riparian forest is an open to locally dense, evergreen, sclerophyllous, riparian forest that is dominated by coast live oak. This community appears to be richer in herbs and poorer in understory shrubs than other riparian communities. This habitat typically occurs on fine-grained alluvial soils on the floodplains along large streams in the canyons and valleys of coastal southern California (Holland 1986). Associated species include toyon (*Heteromeles arbutifolia*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), California rose, and poison oak (*Toxicodendron diversilobum*).

Southern Riparian Forest. Southern riparian forests are composed of winter-deciduous trees that require water near the soil surface. Willow (*Salix* spp.), cottonwood (*Populus* spp.), and western sycamore form a dense medium-height woodland or forest in moist canyons and drainage bottoms. Associated understory species include mule fat (*Baccharis salicifolia*) and stinging nettle (*Urtica dioica* ssp. *holosericea*) (Beauchamp 1986). The canopies of individual tree species overlap in this habitat type so that canopy cover exceeding 100 percent may occur in the upper tree stratum.

Coast Live Oak Woodland. Coast live oak woodland is an open to dense evergreen woodland or forest community, dominated by coast live oak that may reach a height of 35 to 80 feet. The shrub layer may consist of toyon, blue elderberry, and poison oak. A dense herbaceous understory dominated by miner's lettuce (*Claytonia perfoliata* var. *perfoliata)* may also be present. This community occurs along the coastal foothills of the Peninsular Ranges typically on north-facing slopes and shaded ravines (Holland 1986). Coast live oak woodland may or may not be CDFW jurisdictional habitat depending on the landscape position. Where it occurs in or near streams it is jurisdictional habitat.

Southern Willow Scrub. Southern willow scrub consists of dense, broad-leaved, winter-deciduous stands of trees dominated by shrubby willows in association with mule fat, and with scattered emergent cottonwood and western sycamores. This vegetation community appears as a single layer; it lacks separate shrub and tree layers and generally appears as a mass of short trees or large shrubs. In the absence of periodic flooding, this early seral type would be succeeded by southern cottonwood or western sycamore riparian forest, provided the requisite hydrology is present to support the greater water needs of those habitats.

Mule Fat Scrub. Mule fat scrub is a depauperate, shrubby riparian scrub community dominated by mule fat and interspersed with small willows. This vegetation community occurs along intermittent stream channels with a coarse substrate and moderate depth to the water table. This early seral community is maintained by frequent flooding, the absence of which would lead to a cottonwood or sycamore dominated riparian woodland or forest (Holland 1986). In some environments, limited hydrology may favor the persistence of mule fat.

Streambed. Sections of Tecolote Creek and its tributaries that regularly convey water but are unvegetated are regarded as streambeds. These areas are subject to periodic scouring by flood waters or convey water so infrequently that the hydrological regime is insufficient to support wetlands. These features are non-wetland waters of the U.S. or CDFW streambed based on the regulations. In some instances, the habitat is a vegetated jurisdictional habitat for CDFW, but due to more restrictive parameters for wetland waters of the U.S. is considered non-wetland waters of the U.S./waters of the State. These streambed areas occur within vegetation communities that were mapped according to City Biology Guidelines. However, streambed did not constitute its own community in accordance with the City vegetation mapping. Lastly, these streambed areas do not support wetland vegetation, are not considered City wetlands (see Section 3.1.6.3) and are not mapped as natural flood channel.

Jurisdictional Habitat Summary

Jurisdictional areas within the study area occur as vegetated habitat and streambed. The vegetated habitats are dominated by wetland species for waters of the U.S./waters of the State and City wetlands. The CDFW jurisdictional habitats include habitats dominated by wetland and riparian species.

The jurisdictional habitats are associated with Tecolote Creek and its tributaries. The project is designed to avoid impacts to sensitive and jurisdictional habitats. As a result, the amount of jurisdictional areas reported here occur mostly in the buffer areas adjacent to the project footprint.

Waters of the U.S. (USACE)

A total of 0.110 acre (269 linear feet [lf]) of waters of the U.S. were delineated in the USACE review area, of which 0.037 acre (70 lf) are wetland waters of the U.S., and 0.073 acre (199 lf) are non-wetland waters (Figures 7-1 through 7-9; Table 3a, *Aquatic Resources Summary within the USACE Review Area – Intermittent and Perennial Streams and Wetlands*). An additional 0.102 acre (977 lf) of ephemeral waters also were delineated; however, under the 2020 Navigable Waters Protection Rule, ephemeral waters are no longer regulated by the USACE (Table 3b, *Aquatic Resources Summary within the USACE Review Area – Ephemeral Streams/Excluded Waters)*.

Table 3a
AQUATIC RESOURCES SUMMARY WITHIN THE USACE REVIEW AREA
INTERMITTENT AND PERENNIAL STREAMS AND WETLANDS

Jurisdictional Areas	Area (acres)	Length (feet)
Wetland		
Southern Willow Scrub	0.037	70
Non-wetland		
Intermittent/Perennial Streambed	0.073	199
TOTAL	**0.110**	**269**

Table 3b
AQUATIC RESOURCES SUMMARY WITHIN THE USACE REVIEW AREA
EPHEMERAL STREAMS/EXCLUDED WATERS

Jurisdictional Areas	Area (acres)	Length (feet)
Waters Excluded from Federal Jurisdiction by the 2020 Navigable Waters Protection Rule		
Non-wetland		
Ephemeral Streambed	0.102	977
TOTAL	**0.102**	**977**

Waters of the State (RWQCB)

A total of 0.284 acre (1,246 linear feet [lf]) of waters of the State were delineated in the review area, of which 0.037 acre (70 lf) are wetland waters and 0.247 acre (1,176 lf) are non-wetland waters (Figures 8-1 through 8-9; Table 4, *RWQCB Waters of the State in the RWQCB Review Area*). Total waters of the State identified herein include non-federally regulated ephemeral waters excluded by the federal 2020 Navigable Waters Protection Act that are subject to regulation by the RWQCB under the Porter-Cologne Water Quality Control Act.

Table 4
RWQCB WATERS OF THE STATE IN THE RWQCB REVIEW AREA

Wetlands	Acres	Linear Feet
Southern Willow Scrub	0.037	70
Non-wetland Waters		
Perennial, Intermittent, and Ephemeral Streambed	0.247	1,176
TOTAL	**0.284**	**1,246**

California Department of Fish and Wildlife Jurisdiction

A total of 7.30 acres of CDFW jurisdictional habitat occur within the study area, composed of 0.13 acre of stream channel and 7.17 acres of wetland/riparian habitat (Table 5, *CDFW Jurisdictional Habitats in the Study Area*; Figures 9-1 through 9-9, *CDFW Jurisdictional Habitats/Impacts*).

Table 5
CDFW JURISDICTIONAL HABITATS IN THE STUDY AREA

Habitats	Acres
Coast Live Oak Woodland	0.15
Mule Fat Scrub	0.17
Oak Riparian Forest (including disturbed)	5.10
Southern Riparian Forest (including disturbed)	0.95
Southern Willow Scrub (including disturbed)	0.80
Stream Channel	0.13
TOTAL	**7.30**

[1]Rounded to the nearest hundredth.

City Jurisdiction

The City wetlands in the project study area include 8.34 acres (Figures 10-1 through 10-9; Table 6, *City of San Diego Wetlands*). City wetlands often coincide with CDFW jurisdictional habitats. That is not the case within the project study area for the coast live oak woodland or streambed (natural flood channel) because these areas do not support wetland vegetation.

Table 6
CITY OF SAN DIEGO WETLANDS[1]

Wetland Habitat	Area (acres)	
Southern Riparian Forest (including disturbed)	1.52	
Oak Riparian Forest (including disturbed)	5.98	
Southern Willow Scrub (including disturbed)	0.67	
Mule Fat Scrub	0.17	
TOTAL	**8.34**	

[1] City ESL wetlands include areas that overlap with the boundaries of existing PUD mitigation sites present within Tecolote Canyon, including upland restoration areas.

Permitting

Federal Permitting

Impacts to waters of the U.S. are regulated by the USACE under Section 404 of the CWA (33 USC 401 et seq.; 33 USC 1344; USC 1413; and Department of Defense, Department of the Army, Corps of Engineers 33 CFR Part 323). A federal CWA Section 404 Permit would be required for the project to place fill in waters of the U.S.

State Permitting

A CWA Section 401 Water Quality Certification, which is administered by the RWQCB, must be obtained prior to the issuance of any 404 Permit. Impacts to CDFW jurisdictional habitats (i.e., streambeds and lakes) are regulated by CDFW under California Fish and Game Code 1602. The CDFW requires a Streambed Alteration Agreement (SAA) for projects that will divert or obstruct the natural flow of water; change the bed, channel, or bank of any stream; or use any material from a streambed. The SAA is a contract between the applicant and CDFW stating what activities can occur in the riparian zone and stream course (California Association of Resource Conservation Districts 2002).

City Permitting

Under the City's Environmentally Sensitive Lands regulations, impacts to City wetlands should be avoided. Development of a site with City wetlands typically requires a Neighborhood Development Permit or Site Development Permit. Findings are required for these permits, including six specifically for sites with sensitive biological resources. These are:

(1) The site is physically suitable for the design and siting of the proposed development and the development will result in minimum disturbance to environmentally sensitive lands;

(2) The proposed development will minimize the alteration of natural land forms and will not result in undue risk from geologic and erosional forces, flood hazards, or fire hazards;

(3) The proposed development will be sited and designed to prevent adverse impacts on any adjacent environmentally sensitive lands;

(4) The proposed development will be consistent with the City's Multiple Species Conservation Program Subarea Plan;

(5) The proposed development will not contribute to the erosion of public beaches or adversely impact local shoreline sand supply; and

(6) The nature and extent of mitigation required as a condition of the permit is reasonably related to, and calculated to alleviate, negative impacts created by the proposed development.

Impacts to City wetlands require a deviation from the Environmentally Sensitive Lands regulations, and then only if the development qualifies as one of three options:

(1) Essential Public Projects Option;

(2) Economic Viability Option; and

(3) Biologically Superior Option.

The Tecolote Canyon Trunk Sewer Improvement Project would qualify under Option 1. Most development near City wetlands also require an adjacent upland buffer area be preserved. These buffers help to protect the functions and values of the adjacent wetland by reducing physical disturbance from noise, activity, and domestic animals, and provide a transition zone where one habitat phases into another. Wetland buffers range in width from 25 to 100 feet. This is generally where a permanent structure is being constructed. The impacts from this project are both temporary and permanent. The buffer requirement does not apply to areas that are being temporarily impacted.

3.2 BIOLOGICAL RESOURCES

This section describes the biological resources on the project site, including vegetation communities, general flora and fauna, and rare, threatened, endangered, endemic, sensitive, and MSCP-covered species. A list of all plant and animal species observed is provided in Appendix B; the potential for narrow endemic and special status plant and animal species to occur on the project site is analyzed in

Appendix C; and special status species with high potential to occur on the project site are discussed in detail.

3.2.1 Botanical Resources–Flora

Vegetation Communities/Land Use Areas

A total of 15 vegetation communities/land use areas occur in the Tecolote Canyon project study area (Figures 4-1 through 4-9; Table 7, *Existing Vegetation Communities/Land Use Areas in Study Area*): oak riparian forest (including disturbed phase), mule fat scrub, southern riparian forest (including disturbed phase), southern willow scrub (including disturbed phase), maritime succulent scrub, coast live oak woodland, native grassland, Diegan coastal sage scrub (including disturbed phase), southern mixed chaparral (including disturbed phase), poison oak chaparral, non-native grassland (including disturbed phase), eucalyptus woodland, disturbed land, non-native vegetation/ornamental, and developed. These communities are discussed in detail below.

Table 7
EXISTING VEGETATION COMMUNITIES/LAND USE AREAS IN STUDY AREA (acre)

Vegetation Community[1, 2]	Tier	Area
Wetlands		
Oak riparian forest - including disturbed phase (61310)	Wetland	5.98
Mule fat scrub (63310)	Wetland	0.17
Southern riparian forest - including disturbed phase (61300)[2]	Wetland	1.52
Southern willow scrub – including disturbed phase (63320)	Wetland	0.67
	Wetlands Subtotal	***8.34***
Sensitive Uplands		
Coast live oak woodland (71160)	I	1.14
Maritime succulent scrub (32400)	I	1.32
Native grassland (42100)[2]	I	0.13
Diegan coastal sage scrub – including disturbed phase (32500)[2]	II	8.81
Southern mixed chaparral – including disturbed phase (37120)	IIIA	0.95
Poison oak chaparral (NA)[3]	IIIA	0.31
Non-native grassland – including disturbed phase (42200)	IIIB	5.49
	Sensitive Uplands Subtotal	***18.15***
Non-Sensitive Uplands		
Eucalyptus woodland (79100)	IV	0.11
Disturbed land (11300)	IV	5.23
Non-native vegetation/Ornamental (11000)	IV	1.17
Developed (12000)	--	7.60
	Non-Sensitive Uplands Subtotal	***14.11***
	TOTAL	**40.60**

1 Vegetation community codes are from Oberbauer (2008).
2 Includes restored habitat areas.
3 Although poison oak chaparral is not listed as a vegetation community in Oberbauer (2008), it is classified as Tier IIIA because it is a chaparral community that is composed of native species, dominated by one species (poison oak).

Oak Riparian Forest (including disturbed phase)

A description of this community is provided in Section 3.1.6. Approximately 5.98 acres of oak riparian forest, of which 0.37 acre is disturbed, occur within the study area.

Mule Fat Scrub

A description of this community is provided in Section 3.1.6. Mule fat scrub covers 0.17 acre of the study area.

Southern Riparian Forest (including disturbed phase)

A description of this community is provided in Section 3.1.6. Approximately 1.49 acres of southern riparian forest, of which 0.95 acre is disturbed, occurs within the study area. Southern riparian forest within the study area also includes restored habitat present within existing mitigation sites.

Southern Willow Scrub (including disturbed phase)

A description of this community is provided in Section 3.1.6. Approximately 0.70 acre of southern willow scrub, of which 0.09 acre is disturbed, occur within the study area.

Coast Live Oak Woodland

A description of this community is provided in Section 3.1.6. Approximately 1.14 acres of coast live oak woodland occur within the study area.

Maritime Succulent Scrub

Maritime succulent scrub is a low open scrub community that is dominated by a mixture of stem and leaf succulent species and drought deciduous species that also occur within sage scrub communities. This vegetation community occurs on thin, rocky or sandy soils, on steep slopes of coastal headlands and bluffs. Maritime succulent scrub is restricted to within a few miles of the coast from about Torrey Pines to Baja and on San Clemente and Catalina islands. This vegetation community was mapped within Tecolote Canyon in the MSCP and includes California sagebrush (*Artemisia californica*), buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), lemonadeberry (*Rhus integrifolia*), coast cholla (*Cylindropuntia prolifera*), San Diego barrel cactus (*Ferocactus viridescens*), and prickly pear cactus (*Opuntia littoralis*). The MSCP mapping for this community was revised to include only those areas with high concentrations of cactus species listed above. Approximately 1.32 acres of maritime succulent scrub occur within the study area.

Native Grassland

Native grassland is a mid-height (up to two feet) grassland dominated by perennial, tussock-forming needlegrass. Native and introduced annuals occur between the perennials, often exceeding the bunchgrasses in cover. The percentage cover of native species at any one time may be quite low but is considered native grassland if 20 percent aerial cover of native species is present. Native grassland usually occurs on fine-textured (often clay) soils, moist or even waterlogged during winter, but very dry in summer. Species associated with the habitat on-site include purple needlegrass (*Stipa pulchra*) and foothill needlegrass (*Stipa lepida*). A total of 0.13 acre of native grassland was mapped within the study area and is comprised of restored habitat present within existing mitigation sites.

Diegan Coastal Sage Scrub (including disturbed phase)

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). Four distinct coastal sage scrub geographical associations (northern, central, Venturan, and Diegan) are recognized along the California coast. Diegan coastal sage scrub may be dominated by a variety of species depending upon soil type, slope, and aspect. Diegan coastal sage scrub species observed on-site include California sagebrush, buckwheat, laurel sumac, and black sage (*Salvia mellifera*). Within the study area, approximately 8.81 acres of Diegan coastal sage scrub were mapped, of which 0.72 acre is disturbed. Diegan coastal sage scrub within the study area also includes restored habitat present within existing mitigation sites.

Southern Mixed Chaparral (including disturbed phase)

Southern mixed chaparral is composed of broad-leaved sclerophyllous shrubs that can reach six to 10 feet in height and form dense often nearly impenetrable stands with poorly developed understories. In this mixed chaparral, the shrubs are generally tall and deep rooted, with a well-developed soil litter layer, high canopy coverage, low light levels within the canopy, and lower soil temperatures (Keeley and Keeley 1988). This vegetation community occurs on dry, rocky, often steep north-facing slopes with little soil. As conditions become more mesic, broad-leaved sclerophyllous shrubs that resprout from underground root crowns become dominant. Species commonly associated with this community include chamise (*Adenostoma fasciculatum*), Ceanothus species (excluding wart stemmed ceanothus [*Ceanothus verrucosus*]), Manzanita species, and scrub oaks. No single species may make up more than 50 percent cover (City 2018a). The southern mixed chaparral on-site is dominated by very dense thickets of spiny redberry (*Rhamnus crocea*), lemonadeberry, laurel sumac, and Nuttall's scrub oak (*Quercus dumosa*). Approximately 0.95 acre of southern mixed chaparral occurs within the study area, of which 0.56 acre is disturbed.

Poison Oak Chaparral

Poison oak chaparral is a chaparral community dominated by poison oak. Little compositional data are available as this habitat is largely inaccessible due to its poisonous nature. Although poison oak chaparral is not listed as one of the Oberbauer communities, this is the best description of this chaparral community given the predominance of poison oak. Approximately 0.31 acre of poison oak chaparral occurs within the study area.

Non-Native Grassland

Non-native grassland is a dense to sparse cover of annual grasses, often associated with numerous species of showy-flowered native annual forbs. This association occurs on gradual slopes with deep, fine-textured, usually clay soils. Characteristic species include oats (*Avena* spp.), red brome, common ripgut grass (*Bromus diandrus*), ryegrass (*Festuca* sp.), and mustard (*Brassica* sp.). Most of the annual introduced species that make up the majority of species and biomass within the non-native grassland originated from the Mediterranean region, an area with a long history of agriculture and a climate similar to California. These two factors, in addition to intensive grazing and agricultural practices in conjunction with severe droughts, contributed to the successful invasion and establishment of these species and the replacement of native grasslands with an annual dominated non-native grassland (Jackson 1985). Non-native grassland in the study area was mapped as covering 5.49 acres, of which 1.38 acres are disturbed.

Eucalyptus Woodland

Eucalyptus woodland is dominated by eucalyptus (*Eucalyptus* spp.), an introduced genus that has often been planted purposely for wind blocking, ornamental, and hardwood production purposes. Most groves are monotypic. The understory within well-established groves is usually very sparse due to the closed canopy and allelopathic nature of the abundant leaf and bark litter. If sufficient moisture is available, this species becomes naturalized and can reproduce and expand its range. Approximately 0.11 acre of eucalyptus woodland occurs in the study area.

Disturbed Land

Disturbed land includes land cleared of vegetation (e.g., dirt roads), land containing a preponderance of non-native plant species such as ornamentals or ruderal exotic species that take advantage of disturbance (previously cleared or abandoned landscaping), or land showing signs of past or present animal usage that removes any capability of providing viable habitat. Approximately 5.23 acres of disturbed land were mapped within the study area.

Non-Native Vegetation/Ornamental

Non-native vegetation/ornamental is a category describing stands of naturalized trees and shrubs (e.g., acacia [*Acacia* spp.], pepper [*Schinus* spp.]), many of which are also used in landscaping. In the areas adjacent to development, they are often composed of escaped landscaping plants. A total of 1.17 acres of non-native vegetation/ornamental were mapped within the study area.

Developed

Developed land is where permanent structures and/or pavement have been placed, which prevents the growth of vegetation, or where landscaping is clearly tended and maintained. Developed areas on the project site include a golf course as well as roads, residential development, and walking paths. A total of 7.60 acres of developed habitat was mapped in the study area, of which 7.60 acres were part of the golf course.

Plant Species Observed

A total of 170 plant species were observed during biological surveys for the project, including three special status species (San Diego barrel cactus, Nuttall's scrub oak, and San Diego sagewort [*Artemisia palmeri*]) and 80 non-native species (Appendix B). Special status plant locations were mapped and are included in Figures 4-1 through 4-9.

3.2.2 Zoological Resources – Fauna

A total of 42 animal species were detected during biological surveys (Appendix B). Animals detected during the biological surveys are mostly common urban wildlife associated with developed and disturbed places. Three special status animal species were observed on-site: coastal California gnatcatcher (*Polioptila californica californica*; CAGN), Cooper's hawk (*Accipiter cooperii*), and orange-throated whiptail (*Aspidoscelis hyperythra*).

3.2.3 Rare, Threatened, Endangered, Endemic, and/or Special Status Species

A search of CNDDB, NRMP, USFWS, and MSCP databases returned records of 66 special status plant and animal species reported within 0.5 mile of the project site. These 66 species, including the Narrow Endemic species designated in the MSCP (City 1997), were analyzed for potential to occur on the project site (Appendix C).

Special Status Plant Species

A total of 28 special status plant species have been reported within 0.5 mile of the Tecolote Canyon Trunk Sewer Improvement project site. Three special status plant species were observed on the project site during biological surveys conducted for this report: San Diego barrel cactus, Nuttall's scrub oak, and San Diego sagewort. The remaining 25 plant species have either a low potential to occur or are not expected to occur on the project site due to lack of suitable habitat, inappropriate soils, or the fact they are a large shrub or tree species that would have been observed during the rare plant surveys, if present (Appendix C).

San Diego Barrel Cactus

San Diego barrel cactus occurs within maritime succulent scrub and Diegan coastal sage scrub in Tecolote Canyon. Approximately 25 individuals of San Diego barrel cactus were observed adjacent to the north reach of the study area (Figure 4-1), along the east-facing slope south of Genesee Avenue.

Nuttall's Scrub Oak

Nuttall's scrub oak occurs primarily within southern mixed chaparral in Tecolote Canyon. At least five individuals of Nuttall's scrub oak were observed adjacent to and within the north, central, and south reaches of the study area (Figures 4-1, 4-3, 4-4, 4-6, and 4-8). These individuals were growing along access paths through riparian and Diegan coastal sage scrub habitat.

San Diego Sagewort

San Diego sagewort is a common understory component of riparian habitat in Tecolote Canyon. San Diego sagewort was observed throughout the riparian corridor in both the central and south reaches of the study area (Figures 4-4 through 4-9); approximately 1,393 individuals of San Diego sagewort were mapped during the 2017 rare plant survey.

Multiple Species Conservation Program Narrow Endemic Species Potential to Occur

None of the 15 species designated as Narrow Endemics in the MSCP (City 1997) has potential to occur within the Tecolote Canyon Trunk Sewer Improvement project study area (Appendix C). Of the 15 Narrow Endemic species, seven had potential to occur on-site or within 0.5 mile of the project site, according to a search of the CNDDB and the NRMP (HELIX 2006). However, the seven species identified are all associated with vernal pools, a habitat that does not occur within the study area. No narrow endemic species were observed during the rare plant survey or other field surveys conducted by HELIX.

Special Status Animal Species

A total of 38 special status animal species have been reported within 0.5 mile of the Tecolote Canyon Trunk Sewer Improvement project study area. Of the 38 special status animal species analyzed, three occur on-site (CAGN, Cooper's hawk, and orange-throated whiptail) and three species have high potential to occur (least Bell's vireo [*Vireo bellii pusillus*], coast horned lizard [*Phrynosoma blainvillii*], and yellow warbler [*Setophaga petechia*]). The remaining species have low or moderate potential to occur or are not expected due to lack of suitable habitat on the project site (Appendix C).

Coastal California Gnatcatcher (Federally Threatened)

Coastal California gnatcatcher is a songbird that occurs in Diegan coastal sage scrub in the coastal areas of San Diego County. This species is listed as threatened by the USFWS, a Species of Special Concern by the CDFW, and is MSCP Covered. This species is present in Tecolote Canyon and was observed during HELIX's general biological survey of the project site in 2016 (Figures 4-3, 4-2, and 4-7). The CNDDB and NRMP (HELIX 2006) includes multiple observations of this species throughout Tecolote Canyon Natural Park.

Cooper's Hawk (CDFW Watch List)

Cooper's hawk is a medium sized raptor species found year-round throughout California. It inhabits dense stands of oak woodlands, riparian habitat, and evergreen forests but is also tolerant of human disturbance and habitat fragmentation and has increasingly been found breeding in suburban and urban areas. Cooper's hawk is a CDFW Watch List species and is MSCP covered. This species is present in Tecolote Canyon and was observed during HELIX's rare plant surveys in 2017 (Figure 4-4). The CNDDB and NRMP (HELIX 2006) also include multiple observations of this species throughout Tecolote Canyon Natural Park.

Orange-throated Whiptail (CDFW Watch List)

Orange-throated whiptail is a small lizard that inhabits sage scrub and grassland habitats throughout San Diego. This species is a CDFW Watch List species and is MSCP Covered. This species has been documented in Tecolote Canyon, predominantly on the east edge, along the length of the canyon, and was observed on the project site during rare plant surveys in 2017.

Coast Horned Lizard (CDFW Species of Special Concern)

The coast horned lizard (*Phrynosoma blainvillii*) has a high potential to occur on-site. This species frequents a wide variety of habitats but is most often found in lowlands along sandy washes with scattered low bushes. It requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants and other insects. It is found in chaparral, cismontane woodland, coastal bluff scrub, and coastal scrub. This species is a CDFW Species of Special Concern and is MSCP Covered. This species was observed east of the Tecolote Canyon Golf Course and west of Manning Street in 2004 (HELIX 2006).

Least Bell's Vireo (Federally Endangered, State Endangered)

Least Bell's vireo (*Vireo bellii pusillus*; LBVII) is a songbird that occurs in dense riparian thickets along major rivers in San Diego County. The CNDDB and NRMP (HELIX 2006) lists the species as having been

documented from Tecolote Canyon within the project site in 1991 and 2004. The LBVI is listed as federally endangered by the USFWS, state endangered by the CDFW, and MSCP Covered. Based on historical observations (Figure 4-8), LBVI has potential to be present within the project footprint. HELIX has not documented LBVI use within the Central Tecolote Canyon Mitigation areas, which was implemented and monitored between 2011 and 2017.

Yellow Warbler (CDFW Species of Special Concern, USFWS Bird of Conservation Concern)

The yellow warbler (*Setophaga petechia*) has high potential to occur on-site. The species frequents riparian woodland habitat. Yellow warblers breed in shrubby thickets and woods, particularly along watercourses and in wetlands in southern California. Tree species they are commonly associated with this species include willows, alders (*Alnus* sp.), and cottonwoods. Yellow warblers feed on insects they glean from foliage or capture in flight, including midges, caterpillars, beetles, leafhoppers, and wasps. Yellow warblers are a CDFW Species of Special Concern and USFWS Bird of Conservation Concern. This species was observed at the golf course in Tecolote Canyon in 2004 (HELIX 2006).

4.0 MULTIPLE SPECIES CONSERVATION PROGRAM CONSISTENCY ANALYSIS

In July 1997, the USFWS, CDFW, and City adopted the Implementing Agreement for the MSCP. This program allows the incidental take of threatened and endangered species as well as regionally sensitive species that are conserved by it (covered species). The MSCP designates regional preserves that are intended to be mostly void of development activities, while allowing development of other areas subject to the requirements of the program. Impacts to biological resources are regulated by the City's Environmentally Sensitive Lands Ordinance (ESL) regulations.

The City's MSCP Subarea Plan (City 1997) has been prepared to meet the requirements of the California Natural Communities Conservation Planning Act of 1992. This Subarea Plan describes how the City's portion of the MSCP Preserve, the MHPA, will be implemented.

The MSCP identifies a MHPA that is intended to link all core biological areas into a regional wildlife preserve. Land uses within the MHPA must be managed to ensure minimal MHPA impacts. Compatible land uses within the MHPA include utilities and roads in compliance with general planning policies and design guidelines for the MSCP (City 1997). Expansion of existing permitted uses within the MHPA must comply with applicable land use regulations and should provide measures to minimize impacts on the MHPA including lighting, noise, or uncontrolled access. Expansion of uses should be generally restricted to existing approved development areas. Development within the MHPA should be directed to areas of lower quality habitat and/or areas considered less important to long-term viability of the MHPA.

The proposed project is partially located within the MHPA. The project's consistency with the City's MSCP Subarea Plan applicable management directives, policies, and guidelines are detailed in the following sections.

4.1 LAND USE ADJACENCY GUIDELINES – SECTION 1.4.3 OF THE MSCP

The City's MSCP Subarea Plan (City 1997) addresses indirect impacts to preserve areas from adjacent development in Section 1.4.3, Land Use Adjacency Guidelines (LUAGs). The LUAGs provide requirements for land uses adjacent to the habitat preserve in order to minimize indirect impacts from drainage, toxics, lighting, noise, barriers, invasive species, brush management, and grading to the sensitive resources contained therein. Projects that are within or adjacent to the MHPA must demonstrate compliance with the LUAGs.

The project is located within and adjacent to the MHPA. The project's compliance with the City's LUAGs is summarized below:

Drainage

- *All new and proposed parking lots and development areas in and adjacent to the preserve must not drain directly into the MHPA.*

  The project would not result in new drainage outfalls within the preserve and would have negligible effects on drainage. The project would not result in new or proposed parking lots or developed areas that drain directly into the MHPA.

- *All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials, and other elements that might degrade or harm the natural environment or ecosystem processes within the MHPA.*

  Best Management Practices (BMPs) would be implemented during project construction to control runoff, erosion, and contaminants, as necessary, in order to prevent the release of toxins, chemicals, petroleum products, exotic plant materials, and other elements that might be contained within stormwater. The BMP program will meet applicable requirements of the State Water Resources Control Board and the City's Municipal Code and Storm Water Standards Manual (City 2018b). Furthermore, the project would strictly prohibit and would not introduce exotic plant materials into any revegetation or landscaped area that could drain into the MHPA. With the incorporation of BMPs and restrictions, the project would not degrade or harm the natural environment or ecosystem processed within the MHPA.

Toxins

- *Land uses, such as recreation and agriculture, that use chemicals or generate by-products such as manure, that are potentially toxic or harmful to wildlife, sensitive species, habitat, or water quality need to incorporate measures to reduce impacts caused by the application and/or drainage of such materials into the MHPA.*

  The proposed project does not involve agriculture or creation of recreational areas such as playing fields or any other uses that would introduce new toxins, chemicals, or by-products within the MHPA. The trunk sewer transports materials that may be harmful to wildlife, sensitive species, habitat, or water quality. The improvements in the existing facilities have been proposed because the existing infrastructure is not sufficient to prevent sewage from impacting the habitat in the long

term. During project construction, sewage will be pumped around the active work locations to avoid impacts to habitat. The long-term result of the of the project will be an improved condition that reduces the potential for future spills or breaks resulting from the deteriorated condition of the sewer line.

Lighting

- *Lighting of all developed areas adjacent to the MHPA should be directed away from the MHPA. Where necessary, development should provide adequate shielding with non-invasive plant materials (preferably native), berming, and/or other methods to protect the MHPA and sensitive species from night lighting.*

  No new permanent lighting sources would be installed as part of the project. Night work would occur which requires lighting; however, it would be temporary in nature and directed into the work area.

Noise

- *Uses in or adjacent to the MHPA must be designed to minimize noise impacts. Berms or walls should be constructed adjacent to commercial areas, recreational areas, and any other use that may introduce noises that could impact or interfere with wildlife utilization of the MHPA.*

  The proposed project would not introduce new uses within or adjacent to the MHPA, and therefore, would not result in an adverse noise impact on wildlife use of the MHPA area.

- *Excessively noisy uses or activities adjacent to breeding areas must incorporate noise reduction measures and be curtailed during the breeding season of sensitive species. Adequate noise reduction measures should also be incorporated for the remainder of the year.*

  Temporary noise generated from such sources as grubbing, earthwork, and construction during implementation of the proposed project could adversely and temporarily impact local wildlife potentially present within the adjacent MHPA. Such impacts could occur to the coastal California gnatcatcher and least Bell's vireo if the activities occurs within or adjacent to occupied habitat during the species' breeding season (which is defined by the City as March 1 to August 15 for gnatcatcher and March 15 through September 15 for vireo). To comply with the City's Land Use Adjacent Guidelines and avoid potential indirect impacts to these species in the MHPA, construction activities within or adjacent to the MHPA will be implemented outside of the gnatcatcher and vireo breeding seasons where possible.

  If construction activities adjacent to the MHPA are unable to be avoided the breeding season for coastal California gnatcatcher and least Bell's vireo, USFWS protocol surveys would be conducted in suitable habitat prior to the construction implementation to determine species presence/absence. If protocol surveys are not conducted, presence of the species would be assumed, and the implementation of noise attenuation and biological monitoring would be required during the gnatcatcher and vireo breeding seasons if construction would generate noise levels higher than 60dBA or ambient (whichever is higher).

Barriers

- *New development adjacent to the MHPA may be required to provide barriers (e.g., non-invasive vegetation, rocks/boulders, fences, walls, and/or signage) along MHPA boundaries to direct public access to appropriate locations and reduce domestic animal predation.*

  This guideline is not applicable as the project does not include any new development adjacent to the preserve. There are existing paths within the project area that are used occasionally by the public, but there was no evidence of intrusion into the MHPA beyond the existing paths. For existing access paths that are no longer needed, those areas will be revegetated and signage indicating 'Restoration in Progress' may be needed to redirect the public away from these closed access paths.

Invasive Species

- *No invasive non-native plant species shall be introduced into areas adjacent to the MHPA.*

  The project footprint currently supports many invasive plant species, including inside the existing MHPA boundary. Any equipment used on the project would be washed prior to entering the project site to prevent additional invasive species from being introduced into the preserve. In addition, any on-site habitat restoration or revegetation will have the plant pallets reviewed by a biologist to ensure that no invasive species are being introduced into the MHPA.

  The potential for the project to attract non-native rodents and bird species to the project site and adjacent MHPA areas was also considered. To avoid attracting nuisance animals, the project footprint will be maintained free of trash and food waste.

Brush Management

- *New residential development located adjacent to and topographically above the MHPA (e.g., along canyon edges) must be set back from slope edges to incorporate Zone 1 brush management areas on the development pad and outside of the MHPA. Zones 2 and 3 will be combined into one zone (Zone 2) and may be located in the MHPA upon granting of an easement to the City (or other acceptable agency) except where narrow wildlife corridors require it to be located outside of the MHPA.*

  This is not applicable as the project does not include any new residential development or brush management.

Grading/Land Development

- *Manufactured slopes associated with site development shall be included within the development footprint for projects within or adjacent to the MHPA.*

  Any manufactured slopes required for the trunk sewer improvements are included in the project footprint.

4.2 GENERAL MANAGEMENT DIRECTIVES – SECTION 1.5.2 OF THE MSCP

The following general management directives apply to the project, as outlined in Section 1.5.2 of the City's MSCP Subarea Plan (City 1997). The project will comply with these general management directives as outlined below:

Mitigation

- *Mitigation, when required as part of project approvals, shall be performed in accordance with the City's Environmentally Sensitive Lands Ordinance and Biology Guidelines.*

  Project impacts to riparian habitat and other sensitive vegetation communities will be mitigated in accordance with the ratios provided in Table 3 of the City's Biology Guidelines (City 2018a). Mitigation will consist of on-site restoration of temporarily disturbed sensitive vegetation communities and allocation of available mitigation credits at existing public utilities department (PUD) mitigation sites.

Restoration

- *Restoration or revegetation undertaken in the MHPA shall be performed in a manner acceptable to the City. Where covered species status identifies the need for reintroduction and/or increasing the population, the covered species will be included in restoration/revegetation plans, as appropriate. Restoration or revegetation proposals will be required to prepare a plan that includes elements addressing financial responsibility, site preparation, planting specifications, maintenance, monitoring and success criteria, and remediation and contingency measures. Wetland restoration/revegetation proposals are subject to permit authorization by federal and state agencies.*

  On-site restoration of temporarily disturbed riparian habitat and sensitive upland habitats will be completed in accordance with the *Restoration Plan for the Tecolote Canyon Trunk Sewer Improvement Project* prepared by HELIX Environmental Planning, Inc. (HELIX 2020) and included as Appendix D. The Restoration Plan has been prepared pursuant to the City's Biology Guidelines and includes installation of MSCP covered Nuttall's scrub oak within the on-site restoration areas.

4.3 GENERAL PLANNING POLICIES AND DESIGN GUIDELINES – SECTION 1.4.2 OF THE MSCP

The MSCP establishes specific guidelines that limit activities that occur within the MHPA. In general, activities occurring within the MHPA must conform to these guidelines and, wherever feasible, should be located in the least sensitive areas. Utility lines (e.g., sewer, water, etc.), limited water facilities, and other essential public facilities in compliance with policies found in Section 1.4.2 of the City's MSCP Subarea Plan are considered conditionally compatible with the biological objectives of the MSCP and are thus allowed within the City's MHPA.

The project's conformance with the applicable policies and guidelines from Section 1.4.2 of the MSCP are discussed below:

Roads and Utilities – Construction and Maintenance Policies

- *All proposed utility lines (e.g., sewer, water, etc.) should be designed to avoid or minimize intrusion into the MHPA. These facilities should be routed through developed or developing areas rather than the MHPA, where possible. If no other routing is feasible, then the lines should follow previously existing roads, easements, rights-of-way and disturbed areas, minimizing habitat fragmentation.*

  The proposed project involves improvements to an existing trunk sewer that was constructed prior to the Tecolote Canyon Natural Park being classified as MHPA lands. As such, alternative routing of the sewer line through non-MHPA lands was not feasible. However, the proposed project has been designed to avoid and minimize intrusion into the MHPA to the greatest extent feasible. Impacts associated with sewer access paths have been restricted to improvements along the existing access paths and roads rather than the creation of new access paths. Relocation of existing access paths out of the canyon bottom was considered and proposed, where feasible.

- *All new development for utilities and facilities within or crossing the MHPA shall be planned, designed, located, and constructed to minimize environmental impacts. All such activities must avoid disturbing the habitat of MSCP covered species, and wetlands. If avoidance is infeasible, mitigation will be required.*

  The project has been planned, designed, and located to avoid and minimize environmental impacts to the greatest extent practicable. Unavoidable impacts to wetlands, MSCP covered species, and sensitive biological resources will be mitigated in accordance with the City's MSCP Subarea Plan (City 1997) and City's Biology Guidelines (City 2018a) to reduce those impacts to a less than significant level (see Section 7.0). Construction activities will also be conducted in such a manner that minimizes environmental impacts through the incorporation of appropriate avoidance and minimization measures (see Section 6.0) to ensure consistency with the MSCP and City's Biology Guidelines.

- *Temporary construction areas and roads, staging areas, or permanent access roads must not disturb existing habitat unless determined to be unavoidable. All such activities must occur on existing agricultural lands or in other disturbed areas rather than in habitat. If temporary habitat disturbance is unavoidable, then restoration of, and/or mitigation for, the disturbed area after project completion will be required.*

  The project will utilize existing paths and roads to access the proposed work area. Unavoidable impacts to sensitive biological resource present within Tecolote Canyon shall be mitigated in accordance with the City's Biology Guidelines. Furthermore, all sensitive vegetation communities temporarily impacted by project construction shall be restored in accordance with the project's restoration plan (HELIX 2020; Appendix D).

- *Construction and maintenance activities in wildlife corridors must avoid significant disruption of corridor usage. Environmental documents and mitigation monitoring and reporting programs covering such development must clearly specify how this will be achieved, and construction plans must contain all the pertinent information and be readily available to crews in the field. Training of construction crews and field workers must be conducted to ensure that all conditions are met. A responsible party must be specified.*

The proposed project consists of an existing trunk sewer line present within Tecolote Canyon and the MHPA. Tecolote Canyon is located within an existing wildlife habitat linkage and movement corridor. The proposed project will occur during daylight and nighttime hours and will adhere to the MHPA LUAGs, as detailed in Section 4.1. Therefore, project activities would not result in a significant disruption of the Tecolote Canyon corridor usage. The project will incorporate several avoidance and minimization measures (refer to Section 6.0) to ensure consistency with the MSCP and City Biology Guidelines, including, but not limited to, implementation of a biological monitoring program, pre-construction meetings, and worker's education.

- *Roads in the MHPA will be limited to those identified in Community Plan Circulation Elements, collector streets essential for area circulation, and necessary maintenance/emergency access roads. Local streets should not cross the MHPA except where needed to access isolated development areas.*

  The proposed project does not propose construction of new roads within the MHPA. Project activities and improvements within the MHPA are restricted to existing access paths and roads minimizing intrusion and disturbance within the MHPA.

- *Development of roads in canyon bottoms should be avoided whenever feasible. If an alternative location outside the MHPA is not feasible, then the road must be designed to cross the shortest length possible of the MHPA in order to minimize impacts and fragmentation of sensitive species and habitat. If roads cross the MHPA, they should provide for fully-functional wildlife movement capability. Bridges are the preferred method of providing for movement, although culverts in selected locations may be acceptable. Fencing, grading and plant cover should be provided where needed to protect and shield animals, and guide them away from roads to appropriate crossings.*

  The proposed project does not propose construction of new roads within the MHPA. Project activities and improvements within the MHPA are restricted to existing access paths and roads minimizing intrusion and disturbance within the MHPA.

- *Where possible, roads within the MHPA should be narrowed from existing design standards to minimize habitat fragmentation and disruption of wildlife movement and breeding areas. Roads must be located in lower quality habitat or disturbed areas to the extent possible.*

  The proposed project does not propose construction of new roads within the MHPA. Project activities and improvements within the MHPA are restricted to existing access paths and roads minimizing intrusion and disturbance within the MHPA.

Fencing, Lighting, and Signage

- *Fencing or other barriers will be used where it is determined to be the best method to achieve conservation goals and adjacent to land uses incompatible with the MHPA. For example, use chain link or cattle wire to direct wildlife to appropriate corridor crossings, natural rocks/boulders or split rail fencing to direct public access to appropriate locations, and chain link to provide added protection of certain sensitive species or habitats (e.g., vernal pools).*

  No permanent fencing is proposed by the project. Temporary construction fencing, such as orange fencing or silt fencing, will be implemented during construction to help deter public from entering the work area and to prevent intrusion and disturbance to adjacent sensitive habitats.

- *Lighting shall be designed to avoid intrusion into the MHPA and effects on wildlife. Lighting in areas of wildlife crossings should be of low-sodium or similar lighting. Signage will be limited to access and litter control and educational purposes.*

  No new lighting resources would be installed as part of the project. Night work would occur, which requires lighting; however, it would be temporary and no permanent lighting would be installed as part of the project. Lighting would be directed towards the work area, and no light will be shined directly into the adjacent habitat. Installation of temporary signage will be limited and will primarily be aimed at discouraging public access into the project area during construction.

Materials Storage

- *Prohibit storage of materials (e.g., hazardous or toxic, chemicals, equipment, etc.) within the MHPA and ensure appropriate storage per applicable regulations in any areas that may impact the MHPA, especially due to potential leakage.*

  Long-term materials storage (e.g., hazardous or toxic, chemicals, equipment, etc.) will not occur within the MHPA. Storage may occur, if necessary, temporarily during construction, per applicable regulations and only within designated staging areas. Best management practices will be used, as needed, to protect habitat within the MHPA.

Flood Control

- *Flood control should generally be limited to existing agreements with resource agencies unless demonstrated to be needed based on a cost benefit analysis and pursuant to a restoration plan. Floodplains within the MHPA, and upstream from the MHPA if feasible, should remain in a natural condition and configuration in order to allow for the ecological, geological, hydrological, and other natural processes to remain or be restored.*

  The project would include the improvements to five existing stream crossings present within Tecolote Canyon. These stream crossings have been designed to minimize erosion, provide bank stabilization, minimize impacts to the Tecolote Creek and its tributaries, and provide improved access the trunk sewer alignment and associated facilities. Tecolote Creek and its tributaries will remain in a natural condition and maintain wildlife movement through the canyon.

- *No berming, channelization, or man-made constraints or barriers to creek, tributary, or river flows should be allowed in any floodplain within the MHPA unless reviewed by all appropriate agencies, and adequately mitigated. Review must include impacts to upstream and downstream habitats, flood flow volumes, velocities and configurations, water availability, and changes to the water table level.*

  The proposed stream crossings would not alter existing flood flow volumes, velocities and configurations, and water availability and would not result in a change to the water table. The City will obtain the appropriate regulatory permits with the appropriate agencies prior to commencement of project activities. Compensatory mitigation for impacts to waters and wetlands subject to jurisdiction or the Regulatory Agencies (USACE, RWQCB, and CDFW) will be completed in accordance with the appropriate permits and applicable requirements.

- *No riprap, concrete, or other unnatural material shall be used to stabilize river, creek, tributary, and channel banks within the MHPA. River, stream, and channel banks shall be natural, and stabilized where necessary with willows and other appropriate native plantings. Rock gabions may be used where necessary to dissipate flows and should incorporate design features to ensure wildlife movement.*

  The project does not propose stabilization of Tecolote Creek or its banks. The proposed stream crossings would provide long-term access throughout the canyon and would allow for stabilized crossings of the creek and its tributaries. The stream crossings shall consist of three engineered stream crossings (average 100-foot length; 12-foot width; three to 10-foot depth), the installation of a new bridge near MH 51, and replacement of an existing bridge near MH 268Z. The crossings would consist of span bridges footed outside the banks of Tecolote Creek and its tributaries, minimizing impacts to the creek and jurisdictional areas. Only the minimum amount of concrete necessary will be used for the proposed stream crossings.

4.4 CONDITIONS OF COVERAGE FOR SENSITIVE SPECIES

One MSCP-covered plant species was observed within the Tecolote Canyon Trunk Sewer Improvement study area: San Diego Barrel cactus (Appendix C). Three MSCP-covered animal species (CAGN, Cooper's hawk, and orange-throated whiptail), were observed on the project site and two additional species have high potential to occur, coast horned lizard and LBVI. The MSCP includes conditions for coverage for these species, which are discussed below.

Coastal California Gnatcatcher

The CAGN was determined to be conserved under the MSCP because of the acreage of habitat that would be conserved and linked together as part of the preserve system, including conservation of over 81 percent of the core areas where the species occurs and conservation of 65 percent of the known populations (City 1996). The MSCP's conditions for coverage include measures to reduce edge effects and minimize disturbance during the nesting season, avoid clearing of occupied habitat during the breeding season, 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. Furthermore, no clearing of occupied habitat may occur between March 1 and August 15.

The proposed project would comply with the conditions for coverage and management directives for this species. The project shall implement appropriate avoidance and minimization measures (refer to Section 6.0) to reduce the potential indirect noise impacts to a level below significance. Impacts to suitable gnatcatcher habitat shall be mitigated in accordance with the City's Biology Guidelines reducing potential direct impacts to occupied gnatcatcher habitat to a less than significant level (refer to Section 7.0)

Cooper's Hawk

Cooper's hawk was determined to be conserved under the MSCP because 59 percent of potential foraging and 52 percent of potential nesting habitat would be conserved, including conservation of over 92 percent of the known populations (City 1996). The MSCP's conditions for coverage include 300-foot-wide impact avoidance areas around active nests, and minimization of disturbance in oak woodlands and oak riparian forests.

The proposed project would comply with the conditions for coverage for this species and incorporates appropriate avoidance and minimization measures to reduce potential impacts the species to a level below significance (see Section 6.0).

Orange-Throated Whiptail

The orange-throated whiptail was determined to be conserved under the MSCP because 59 percent of the potential habitat and 62 percent of the known point occurrences would be conserved, and habitat linkages between large blocks of protected lands would also be conserved in a functional manner (City 1996). The MSCP's conditions for coverage include measures to address edge effects.

The proposed project would comply with the conditions for coverage for this species and incorporates appropriate avoidance and minimization measures to reduce potential edge effects and direct impacts the species to a level below significance (see Section 6.0).

San Diego Barrel Cactus

There were 25 individuals of San Diego barrel cactus observed within Diegan coastal sage scrub in the study area. The species was determined to be conserved under the MSCP because 81 percent of major populations will be conserved, with the major populations being in Carmel Mountain, East Elliot, Marron Valley, Mission Trails Regional Park, Otay Mesa, Otay River Valley, Sweetwater Reservoir, and Sycamore Canyon-Fanita Ranch (City 1996). The MSCP's conditions for coverage call include measures to protect this species from edge effects, unauthorized collection, and include appropriate fire management/control practices to protect against a too frequent fire cycle.

The proposed project would comply with the conditions for coverage for this species and incorporates appropriate avoidance and minimization measures to reduce edge effects and direct impacts the species to a level below significance (see Section 6.0).

Least Bell's Vireo

The LBVI was determined to be conserved under the MSCP because 81 percent of potential habitat for this species would be conserved, and the no net loss policy for wetlands will help to ensure habitat is replaced (City 1996). The MSCP's conditions for coverage include measures for surveys for the species, clearing of occupied habitat outside of the nesting season (March 15 through September 15), providing appropriate successional habitat as mitigation, providing upland buffers for known populations, monitoring and control of brown-headed cowbirds (*Molothrus ater*) for new developments adjacent to preserves that would attract cowbirds, and measures to protect against detrimental edge effects.

The proposed project would comply with the conditions for coverage and management directives for this species. The project shall implement appropriate avoidance and minimization measures (refer to Section 6.0) to reduce the potential indirect noise impacts to a level below significance. Impacts to suitable vireo habitat shall be mitigated in accordance with the City's Biology Guidelines reducing potential direct impacts to occupied vireo habitat to a less than significant level (refer to Section 7.0). The project would not create conditions attractive to brown-headed cowbird, a nest parasite to LBVI, (i.e., open areas that attract abundant insect prey, especially pastures with horses or cattle), and the project would not be required to include cowbird control measures. The project provides adequate buffers and adjacent upland foraging habitat. The project will be kept free of trash and debris to reduce the potential for non-native species to be introduced to the site and adjacent MHPA. Any night lighting

used during construction would be directed towards the work area and would not be directed into the adjacent habitat.

Coast Horned Lizard

The coast horned lizard was determined to be conserved under the MSCP because 60 percent of the potential habitat and 63 percent of the known point occurrences would be conserved, and habitat linkages between large blocks of protected lands would also be conserved in a functional manner (City 1996). The MSCP's conditions for coverage include measures to maintain native ant species, discourage Argentine ants, and protect against detrimental edge effects.

The proposed project would comply with the conditions for coverage for this species and incorporates appropriate avoidance and minimization measures to reduce edge effects and direct impacts the species to a level below significance (see Section 6.0). Additionally, as part of the restoration project container stock will be inspected for Argentinian ants.

4.5 VERNAL POOL HABITAT CONSERVATION PLAN CONSISTENCY

In October 2009, the USFWS and City entered into a Planning Agreement for the development of the City's VPHCP (City 2020) covering vernal pool habitats and associated species in the City. This plan allows for the incidental take of the following seven threatened and endangered species (VPHCP covered species) that do not have federal coverage under the City's MSCP Subarea Plan:

- San Diego fairy shrimp
- San Diego button-celery
- San Diego Mesa mint
- Spreading navarretia (*Navarretia fossalis*)
- California Orcutt grass (*Orcuttia californica*)
- Otay Mesa mint (*Pogogyne nudiuscula*)
- Riverside fairy shrimp (*Streptocephalus woottoni*)

The VPHCP is compatible with the MSCP and expands upon the City's existing MHPA with the conservation of additional lands that support vernal pools and vernal pool covered species. The City's Vernal Pool Management and Monitoring Plan (City 2017) outlines the VPHCP management and monitoring strategy and how it will be implemented by the City. It provides a framework plan that outlines site-specific management and monitoring actions for the vernal pool complexes that will be managed as part of the MHPA to achieve the VPHCP objectives.

The proposed project is located outside of the VPHCP Preserve. No vernal pools or VPHCP covered species occur within the project's study area. Soils mapped within the project's study area, Riverwash and Gravel Pit, are unsuitable for the formation of vernal pools and seasonal ponds. The proposed project would not result in any impacts to vernal pools, VPHCP covered species, or VPHCP preserve areas.

4.6 VPHCP AVOIDANCE AND MINIMIZATION MEASURES

The City's VPHCP (City 2020) includes measures to avoid or minimize impacts to conserved vernal pools adjacent to development in Section 5.2.1, *Avoidance and Minimization Measures*. These measures provide requirements for land uses adjacent to the habitat preserve (VPHCP Hardline and MHPA) in order to minimize indirect impacts to the VPHCP covered species contained therein. The proposed project does occur within or adjacent to VPHCP preserve areas or vernal pool resources; therefore, these measures are not applicable to the project.

5.0 PROJECT IMPACT ANALYSIS

This section presents an impact analysis for the Tecolote Canyon Trunk Sewer Improvement project. Direct and indirect impacts, project alternatives, MHPA adjacency issues, and a significance determination in accordance with City criteria are analyzed in the following section.

5.1 CRITERIA FOR DETERMINING IMPACT SIGNIFICANCE

In accordance with Significance Determination Guidelines (City 2018a), a project would result in a significant or potentially significant biological resources impact if the following were to occur:

(1) A substantial adverse impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in the MSCP, VPHCP, or other local or regional plans, policies or regulations, or by the CDFW or USFWS.

(2) A substantial adverse impact on any Tier I Habitats, Tier II Habitats, Tier IIIA Habitats, or Tier IIIB Habitats as identified in the Biology Guidelines of the Land Development manual or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.

(3) A substantial adverse impact on wetlands (including, but not limited to, marsh, vernal pool, riparian, etc.) through direct removal, filling, hydrological interruption, or other means.

(4) Interfering substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, including linkages identified in the MSCP Plan, VPHCP, or impeding the use of native wildlife nursery sites.

(5) A conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan, either within the MSCP or VPHCP plan area or in the surrounding region.

(6) Introducing land use within an area adjacent to the MHPA that would result in adverse edge effects.

(7) A conflict with any local policies or ordinances protecting biological resources.

(8) An introduction of invasive species of plants into a natural open space area.

5.2 PHYSICAL AND BIOLOGICAL FEATURES USED BY FLORA AND FAUNA

Tecolote Canyon is a large area of undeveloped land in a highly developed landscape, and provides habitat for predominately common, and some sensitive, species. One of the most important biological features on the Tecolote Canyon Trunk Sewer Improvement project site is Tecolote Creek, which generally parallels the project alignment along the majority of the 4.7-mile project study area. The creek is surrounded by an extensive area of oak riparian forest, with pockets of southern willow scrub, coast live oak woodland, southern riparian forest, and mule fat scrub. This area provides foraging and breeding habitat for native riparian animal species, as well as a local, north-south movement corridor through the western San Diego neighborhoods of Clairemont and Linda Vista. The variety of riparian habitats on-site provide suitable habitat for many native plant species.

The upland habitat within the project site includes maritime succulent scrub, coast live oak woodland, Diegan coastal sage scrub (including disturbed phase), southern mixed chaparral (including disturbed phase), poison oak chaparral, eucalyptus woodland, disturbed land, non-native vegetation/ornamental, and non-native grassland. These upland communities provide valuable habitat for nesting birds and foraging habitat for many species. Diegan coastal sage scrub provides habitat for the federally and state listed CAGN. This species has been documented in stands of Diegan coastal sage scrub throughout Tecolote Canyon.

Most habitat types present within the study area include a disturbed phase. Most disturbed land is located at the southern end of the project site. The disturbed wetland habitat is at the south end of the project site, within the golf course. Vegetation in this area is heavily invaded by non-native species. Disturbed vegetation communities provide low-quality foraging and dispersal habitat for native species. Disturbed phases of habitat generally do not provide sufficient habitat for breeding or long-term residence.

Three special status plant species were observed within the study area, San Diego barrel cactus, San Diego sagewort, and Nuttall's scrub oak. San Diego barrel cactus occurs in Diegan coastal sage scrub and maritime succulent scrub. San Diego sagewort occurs primarily in coast live oak woodland, oak riparian forest, and southern riparian forest. Nuttall's scrub oak was observed along access paths at the edges of riparian habitat and Diegan coastal sage scrub, and in southern mixed chaparral.

5.3 RELATIONSHIPS TO SURROUNDING HABITATS

As discussed above, the wetland and upland habitat in the Tecolote Canyon Trunk Sewer Improvement project site contains a large area of open space within a highly developed area. However, on a larger landscape scale, Tecolote Canyon is generally isolated and does not connect with other open space areas. For this reason, Tecolote Canyon does not act as a regional wildlife corridor or connection point to other large areas of native habitat. However, it does provide a local movement corridor for wildlife moving throughout Tecolote Canyon. Hydrologically, Tecolote Creek connects to Mission Bay, and eventually, to the Pacific Ocean to the west.

5.4 IMPACTS TO VEGETATION COMMUNITIES

The proposed Tecolote Canyon Trunk Sewer Improvement project would result in direct impacts to 9.13 acres of habitat, including 0.97 acre of permanent impacts and 8.16 acres of temporary impacts (Figures 11-1 through 11-9, *Vegetation/Impacts*; Table 8, *Proposed Impacts to Vegetation Communities*). These include permanent impacts to 0.28 acre of wetlands, and 0.56 acre of Tier I, II, IIIA, and IIIB sensitive uplands. The remaining 0.13 acre of permanent impacts would be to non-sensitive Tier IV uplands and non-native vegetation or developed land.

The proposed project has been designed to avoid impacts to existing mitigation sites within Tecolote Canyon to the greatest extent feasible. The project would result in a total of 0.23 acre of impacts to existing mitigation sites associated with Central Tecolote Canyon Mitigation Project comprised of 0.02 acre of permanent impacts and 0.21 acre of temporary impacts. Permanent impacts include 0.02 acre of Diegan coastal sage scrub restoration and 0.001 acre of southern riparian forest enhancement. Temporary impacts include 0.15 acre of Diegan coastal sage scrub restoration, 0.03 acre of southern riparian forest enhancement and 0.03 acre of native grassland restoration. Project impacts to existing mitigation sites are being excluded from the final mitigation credit associated with the Central Tecolote Canyon Mitigation Project (HELIX 2017). Impacts to restored areas within the Central Tecolote Canyon mitigation site, which will not be allocated for mitigation, will be assessed for significance based on the type of habitat currently present. These impacts are included in Table 8 under their associated habitat type.

Temporary impacts would result from staging, construction work areas for tunneling, temporary widening of access paths for construction, and trenching. Permanent impacts would result from access path improvements and stream crossing improvements. All impacts to existing access paths were calculated as impacts to disturbed or developed land at an eight-foot width and did not include overhanging vegetation (i.e., tree canopy) as impacted. As shown in Figure 5, all project impacts to native habitats are located within the MHPA and all mitigation will be accomplished within the MHPA using credits available at existing PUD mitigation sites.

Table 8
PROPOSED IMPACTS TO VEGETATION COMMUNITIES[1] (acre)

Vegetation Community	Tier	Existing	Impacts		
			Permanent	Temporary	Total
Wetlands					
Oak riparian forest - including disturbed phase	Wetland	5.98	0.25	0.30	0.55
Mule fat scrub	Wetland	0.17	--	0.03	0.03
Southern riparian forest - including disturbed phase[2]	Wetland	1.52	<0.01	0.18	0.18
Southern willow scrub – including disturbed phase	Wetland	0.67	0.03	0.16	0.19
	Subtotal	**8.34**	**0.28**	**0.67**	**0.95**
Sensitive Uplands					
Coast live oak woodland	I	1.14	0.10	0.12	0.22
Maritime succulent scrub	I	1.32	0.02	0.26	0.28
Native grassland[2]	I	0.13	--	--	--
Diegan coastal sage scrub – including disturbed phase[2]	II	8.81	0.19	2.09	2.28
Southern mixed chaparral – including disturbed phase	IIIA	0.95	0.03	0.10	0.13
Poison oak chaparral[3]	IIIA	0.31	<0.01	0.08	0.08
Non-native grassland – including disturbed phase	IIIB	5.49	0.22	1.12	1.34
	Subtotal	**18.15**	**0.56**	**3.77**	**4.33**
Non-Sensitive Uplands					
Eucalyptus woodland	IV	0.11	--	0.03	0.03
Disturbed Land	IV	5.23	0.13	0.70	0.83
Non-native vegetation/Ornamental	--	1.17	<0.01	0.38	0.38
Developed	--	7.60	<0.01	2.61	2.61
	Subtotal	**14.11**	**0.13**	**3.72**	**3.85**
	TOTAL	**40.60**	**0.97**	**8.16**	**9.13**

[1] Within MHPA.
[2] Includes restored habitat areas.
[3] Although poison oak chaparral is not listed as a vegetation community in Oberbauer (2008), it is classified as Tier IIIA because it is a chaparral community that is composed of native species, dominated by one species (poison oak).

5.5 DETERMINATION OF SIGNIFICANCE

This section includes analysis of potential project impacts under each of the criteria listed in Section 5.1. An avoidance and minimization measure is provided in Section 6.1 to reduce potential impacts. Mitigation measures for significant potential impacts are provided in Section 7.0.

5.5.1 Impacts to Special Status Species

Would the proposed project result in a substantial adverse impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in the MSCP, VPHCP, or other local or regional plans, policies or regulations, or by the CDFW or USFWS?

Status: No Significant Impact after Mitigation.

Special Status Species

The proposed project would potentially result in direct or indirect adverse impacts to three special-status animal species that occur within the study area (CAGN, Cooper's hawk, and orange-throated

whiptail) and three considered to have high potential to occur in the study area (LBVI, coast horned lizard, and yellow warbler). Additionally, three special-status plant species were observed in the study area and may be impacted by the project: San Diego barrel cactus, Nuttall's scrub oak, and San Diego sagewort. Potential impacts to each of these species are discussed below.

Coastal California Gnatcatcher (Federally Threatened, MSCP Covered)

Coastal California gnatcatcher has been documented throughout Tecolote Canyon and was observed during HELIX's general biological survey of the project study area in 2016, in addition to numerous sightings in 2003 and 2004 (HELIX 2006). The project would impact a total of 2.56 acres of suitable coastal California gnatcatcher habitat. Permanent direct impacts to gnatcatcher habitat include 0.19 acre of Diegan coastal sage scrub and 0.02 acre of maritime succulent scrub. Temporary direct impacts to gnatcatcher habitat include 2.09 acres of Diegan coastal sage scrub and 0.26 acre of maritime succulent scrub. Direct impacts to suitable gnatcatcher habitat would be significant. Implementation of avoidance and minimization measure **AM-BIO-1** and mitigation measure **AM-BIO-2** would ensure that no significant and adverse direct impacts on coastal California gnatcatcher occur. Implementation of mitigation measure **MM-BIO-1** would reduce impacts to suitable coastal California gnatcatcher habitat to a less than significant level.

Additionally, construction-generated noise levels exceeding 60 decibels (dBA) hourly average (L_{EQ}), or exceeding ambient noise levels if greater than 60 dBA, could cause a significant indirect impact on coastal California gnatcatcher in the MHPA if construction activities were to occur during the gnatcatcher breeding season (March 1 and August 15). Noise levels adjacent to occupied and potential CAGN habitat within the MHPA are anticipated to exceed 60 dBA LEQ as project construction will require the use of heavy construction equipment (such as a dozer, loader, and dump truck) adjacent to occupied and potential gnatcatcher habitat. Implementation of mitigation measure **AM-BIO-2** would reduce indirect noise impacts on coastal California gnatcatcher within the MHPA to a less than significant level.

Cooper's Hawk (CDFW WL)

Cooper's hawk has been documented throughout Tecolote Canyon (HELIX 2006) and was observed during HELIX's general biological survey of the project study area in 2016. The proposed project would result in direct impacts to 0.22 acre of coast live oak woodland, 0.55 acre of oak riparian forest (including disturbed phased), 0.18 acre of southern riparian forest (including disturbed habitat), and 0.19 acre of southern willow scrub. Direct impacts to nesting individuals, and/or indirect impacts to Cooper's hawk nesting within 300 feet of construction areas, would be considered significant. Implementation of mitigation measure **MM-BIO-5** would reduce impacts on Cooper's hawk to a less than significant level.

Orange-throated Whiptail (CDFW WL, MSCP Covered)

Orange-throated whiptail was observed during HELIX's biological surveys in 2004 and 2017 and has high potential to occur within the project's study area in suitable sage scrub, chaparral, and non-native grassland habitats due to the species' high mobility and wide distribution. The project would result in removal of habitat suitable for orange-throated whiptail and could result in take of individuals due to heavy equipment use in suitable habitat for the species. However, potential impacts on orange-throated whiptail are considered less than significant as adequate conservation of on-site suitable habitat for this species would occur and extensive habitat for the species is already preserved throughout the region

and locally within the Tecolote Canyon. Permanent impacts to suitable scrub, chaparral, and grassland habitat for the species would be minimal, 0.46 acre, compared to the large amount of habitat to be avoided, 17.01 acres, within the project's study area. This species is known to occur in numerous locations across San Diego and, therefore, limited impacts to suitable habitat for the species in Tecolote Canyon are not considered significant to the population as a whole.

Least Bell's Vireo (Federal Endangered, State Endangered, MSCP Covered)

Least Bell's vireo has been documented west of the study area near the southern portion of the site according to the NRMP and CNDDB database (Figure 11-7). The project would impact a total of 0.95 acre of suitable least Bell's vireo habitat including 0.28 acre of permanent impacts and 0.67 acre of temporary impacts. Direct impacts to suitable vireo habitat would be significant. Implementation of avoidance and minimization measure **AM-BIO-1** and mitigation measure **MM-BIO-4** would ensure that no significant and adverse direct impacts occur on breeding least Bell's vireo. Implementation of mitigation measure **MM-BIO-2** would reduce direct impacts to suitable least Bell's vireo habitat to a less than significant level.

Additionally, noise generated from construction activities occurring during the LBVI breeding season (March 15 through September 15) could result in significant adverse impacts to nesting vireos if noise levels exceeded 60 dBA LEQ, or the ambient noise if above 60 dBA LEQ. Construction noise levels at locations adjacent to potential LBVI habitat are anticipated to exceed 60 dBA LEQ due the need to operate heavy equipment (such as a dozer, loader, and dump truck) in areas adjacent to potential vireo habitat. Implementation of mitigation measure **MM-BIO-4** reduce indirect noise impacts on least Bell's vireo to a less than significant level.

Coast Horned Lizard (CDFW SSC, MSCP Covered)

The coast horned lizard was previously documented within Tecolote Canyon in 2004 (HELIX 2006) and has a high potential to occur in suitable scrub and chaparral habitat within and adjacent to the project site. The project would result in removal of suitable habitat for the species and could result in direct impacts to individuals from the operation of heavy equipment in suitable habitat areas. This species could also be impacted by the introduction of non-native Argentinian ants. However, potential impacts on coast horned lizard are considered less than significant as permanent impacts to suitable scrub and chaparral habitat for the species would be minimal (0.24 acre) and all temporary impact areas will be restored. Furthermore, adequate conservation of on-site suitable habitat for this species would occur and extensive habitat for the species is already preserved throughout the region and locally within the Tecolote Canyon. Lastly, all plants to be used as part of the habitat restoration efforts for the project will be inspected to be free of Argentinian ants (HELIX 2020).

Yellow Warbler (SSC)

The yellow warbler was previously documented within Tecolote Canyon in 2004 (HELIX 2006) and has high potential to occur within and adjacent to the project site. The project would impact a total of 0.95 acre of suitable habitat for the species including 0.28 acre of permanent impacts and 0.67 acre of temporary impacts. Direct impacts to nesting individuals would be considered significant. Implementation of mitigation measure **MM-BIO-5** would reduce impacts on yellow warbler to a less than significant level. Impacts to suitable habitat for the species are considered less than significant as the project would impact a relatively small amount of suitable habitat, and extensive habitat for this species is already preserved throughout San Diego County and locally within Tecolote Canyon.

Furthermore, the habitat-based mitigation related to impacts to sensitive wetland and riparian habitat will occur in accordance with the City's Biology Guidelines (City 2018a) and mitigation measure **MM-BIO-2**.

San Diego Barrel Cactus

Approximately 25 individuals of San Diego barrel cactus were observed within the project study area in Diegan coastal sage scrub. The proposed trenchless construction at the north end of the trunk sewer avoiding ground disturbance activities and removal sensitive habitat and special status plant species present within those areas (Figure 4-1). Therefore, no significant impact to San Diego barrel cactus is anticipated as part of this project. Implementation of avoidance and minimization measure **AM-BIO-1** (Section 6.0) would require flagging of any sensitive plant species, should they occur within the project footprint, prior to initiation of construction activities ensuring any San Diego barrel cactus potentially present would be avoided.

San Diego Sagewort

The proposed project result in impacts to approximately 247 of the 1,393 individuals of San Diego sagewort mapped during the 2017 rare plant survey. These individuals were located primarily in coast live oak woodland, oak riparian forest (including disturbed phase), and southern riparian forest (including disturbed phase and restored site). The species has a low level of sensitivity (California Rare Plant Rank 4.2) and has been assigned to a watch list for plants of reported limited distribution and moderate degree and immediacy of threat by the CNPS. CRPR 4 species are relatively widespread and impacts to such species would not substantially reduce their populations in the region and are not typically significant. The San Diego sagewort individuals that will be impacted as part of the proposed project are not part of a population at the periphery of the species' range, located in an area where the taxon is especially uncommon, or occurring on unusual substrates. There are numerous documented occurrences of the species within the project site, Tecolote Canyon, and throughout the surrounding area indicating that the project site does not represent a geographically significant population. Furthermore, this species will be seeded within the temporary impact areas as part of the on-site restoration (Appendix D) in quantities that are expected to replace the number of individuals that would be impacted by the project. Therefore, impacts to San Diego sagewort are less than significant and no mitigation is required.

Nuttall's Scrub Oak

Two individuals of Nuttall's scrub oak were observed along the access path within the project's study area. Access path improvements and temporary widening during construction have the potential to directly impact those individuals growing within the project footprint. Impacts to two individuals of Nuttall's scrub oak would not result in a substantial adverse impact to the species because Nuttall's scrub oak within the study area is part of a larger population that occurs within the surrounding area and does not represent a geographically isolated or significant population. Tecolote Canyon supports approximately 37.4 acres of scrub oak chaparral (HELIX 2006), which is dominated by Nuttall's scrub oak. Project impacts to two individual Nuttall's scrub oak shrubs would not jeopardize the continued viability of scrub oak within the region as the species would continue to persist within Tecolote Canyon. Additionally, Nuttall's scrub oak will be included in the restoration plant palette for the project which will compensate for any losses caused by the project (Appendix D). Therefore, impacts to Nuttall's scrub oak are less than significant and no mitigation is required.

Nesting Birds

The proposed project includes removal of native vegetation and construction in areas adjacent to native vegetation that provides potential nesting habitat for birds and raptors protected by the MBTA (16 U.S. Code 703-712) and California Fish and Game (CFG) Code 3503. Significant impacts could occur to nesting birds and raptors if suitable nesting habitat is removed during the general bird breeding season (February 15 to August 31). As a regulatory requirement, the project must comply with the regulations and guidelines of the MBTA and CFG Code. Implementation of mitigation measure **MM-BIO-5** would ensure that no significant impacts occur to nesting birds and raptors and would facilitate project compliance with the MBTA and CFG Code 3503.

Oak Trees

Though the project will result in impacts to 0.22 acre of coast live oak woodland, impacts to individual oak trees (*Quercus* spp.) will be avoided. Mitigation measure **MM-BIO-1** will require habitat-based mitigation for impacts to all sensitive vegetation communities, including oak woodland, in accordance with the City's Biology Guidelines (City 2018a).

In addition, trimming of individual oak trees that occur outside of coast live oak woodland (e.g., oak trees located adjacent to the previously established access paths) may be required to allow construction equipment to pass. Biological monitoring will occur during construction (**AM-BIO-1**) to ensure that trimming would be implemented to the extent needed for access and to avoid impacts to the individual oak trees. Trimming would not result in a significant impact on individual oak trees as the trimming would be a temporary occurrence during construction that would only affect individual tree limbs and implemented only as needed to allow construction crews and equipment to access the work area. No trees would be removed, no ground disturbance would occur, and trimmed vegetation would be expected to grow back. Canopies of oak trees located outside the project footprint that may hang over into the project area will be avoided to the greatest extent feasible. Parking of vehicles under oak trees shall also be avoided to protect tree root systems. The project will also adhere to guidelines pertaining to protection of oak trees during construction contained within the NRMP (HELIX 2006).

5.5.2 Impacts to Riparian Habitat and Sensitive Natural Communities

Would the proposed project result in a substantial adverse impact on any Tier I Habitats, Tier II Habitats, Tier IIIA Habitats, or Tier IIIB Habitats as identified in the Biology Guidelines of the Land Development manual or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS?

Status: No Significant Impact after Mitigation.

The Tecolote Canyon Trunk Sewer Improvement project would result in direct impacts to riparian habitat and other sensitive natural communities (Table 8). A total of 4.33 acres of sensitive upland habitats (Tier I, II, IIIA, and IIIB) would be impacted by the project consisting of 0.56 acre of permanent impacts and 3.77 acres of temporary impacts (Table 9, *Mitigation for Impacts to Sensitive Upland Habitats*). Impacts to sensitive uplands include 0.28 acre of maritime succulent scrub, 0.22 acre of coast live oak woodland, 2.28 acres of Diegan coastal sage scrub (including disturbed phase), 0.13 acre southern mixed chaparral (including disturbed phase), 0.08 acre of poison oak chaparral, and 1.34 acres of non-native grassland (including disturbed phase). Impacts to sensitive upland habitats would be considered significant and would require mitigation at ratios pursuant to those contained in the City's

Biology Guidelines (City 2018a). Implementation of mitigation measure **MM-BIO-1** will require habitat-based mitigation for impacts to all sensitive upland habitats in accordance with the City's Biology Guidelines and on-site restoration of all temporary impact areas reducing project impacts to a less than significant level. A total of 3.77 acres of on-site restoration of upland habitats (Table 8) would occur in accordance with the *Restoration Plan for the Tecolote Canyon Trunk Sewer Improvement Project* (HELIX 2020) and included as Appendix D. The remaining required mitigation shall be provided through the allocation of available mitigation credits from existing PUD mitigation sites (Table 9; Appendix E). Additionally, avoidance and minimization measure **AM-BIO-1** would ensure that inadvertent impacts to sensitive habitats located immediately adjacent to construction work areas are avoided.

Table 9
MITIGATION FOR IMPACTS TO SENSITIVE UPLAND HABITATS (acre)

Habitat	Tier	Impacts Permanent/ Temporary (Total)	Mitigation Ratio[1]	Required Mitigation	On-Site Restoration of Temporary Impacts[2]	Mitigation Credits[3]
Tier I						
Coast live oak woodland	I	0.10/0.12 (0.22)	2:1	0.44	0.12	0.32
Maritime succulent scrub	I	0.02/0.26 (0.28)	2:1	0.56	0.26	0.30
			Tier I Total	***1.00***	***0.38***	***0.62***
Tier II						
Diegan coastal sage scrub – including disturbed phase	II	0.19/2.09 (2.28)	1:1	2.28	2.09	0.19
			Tier II Total	***2.28***	***2.09***	***0.19***
Tier IIIA						
Southern mixed chaparral – including disturbed phase	IIIA	0.03/0.10 (0.13)	1:1	0.13	0.10	0.03
Poison oak chaparral	IIIA	0.001/0.08 (0.08)	1:1	0.08	0.08	0.001
			Tier IIIA Total	***0.21***	***0.18***	***0.03***
Tier IIIB						
Non-native grassland – including disturbed phase	IIIB	0.22/1.12 (1.34)	1:1	1.34	1.12[4]	0.22
			Tier IIIB Total	***1.34***	***1.12***	***0.22***
	TOTAL	**4.33**	**--**	**4.83**	**3.77**	**1.06**

1 Ratios presume mitigation will occur within MHPA boundaries.

2 On-site mitigation shall be provided through on-site restoration of temporary disturbed areas in accordance with the project's restoration plan (HELIX 2020).

3 The remaining mitigation not met through on-site restoration shall be provided through the allocation of available mitigation credits as follows: Central Tecolote Mitigation Site and Otay Mesa Upland Mitigation Bank for Tier I habitats; and Central Tecolote Mitigation Site, Otay Mesa Upland Mitigation Bank, and Canyon View Upland Restoration Mitigation Site for Tier II, IIIA, and IIIB habitats.

4 1.12 acres of temporarily impacted non-native grassland areas will be restored as Diegan coastal sage scrub and native grassland as described in the project's restoration plan (HELIX 2020).

A total of 0.95 acre of riparian habitat would be impacted by the proposed project consisting of 0.28 acre of permanent impacts and 0.67 acre of temporary impacts (Table 10, *Mitigation for Impacts to Riparian Habitat*). Impacts to riparian habitat include 0.55 acre of oak riparian forest (including disturbed), 0.03 acre of mule fat scrub, 0.18 acre of southern riparian forest (including disturbed), and 0.19 acre of southern willow scrub (including disturbed). Impacts to riparian would be considered significant and would require mitigation at ratios pursuant to those contained in the City's Biology Guidelines (City 2018a). Implementation of mitigation measure **MM-BIO-2** will require habitat-based mitigation for impacts to all wetland and riparian habitats in accordance with the City's Biology Guidelines and on-site restoration of all temporary impact areas reducing project impacts to a less than significant level. A total of 0.69 acre of on-site restoration of riparian habitats (Table 9) would occur in accordance with the with the *Restoration Plan for the Tecolote Canyon Trunk Sewer Improvement Project* (HELIX 2020) and included as Appendix D. The remaining required mitigation shall be provided through the allocation of available mitigation credits from the Central Tecolote Canyon Mitigation site (Table 10; Appendix E). Additionally, avoidance and minimization measure **AM-BIO-1** would ensure that inadvertent impacts to sensitive riparian habitats located immediately adjacent to construction work areas are avoided.

Table 10
MITIGATION FOR IMPACTS TO RIPARIAN HABITATS (acre)

Habitat	Impact	Mitigation Ratio[1]	Required Mitigation	On-Site Mitigation[2]	Mitigation Credits[3]
Oak riparian forest - including disturbed phase	0.55	3:1	1.65	0.30	1.35
Southern riparian forest – disturbed	0.18	3:1	0.54	0.21[4]	0.33
Southern willow scrub – including disturbed phase	0.19	2:1	0.38	0.15	0.23
Mule fat scrub	0.03	2:1	0.06	0.03	0.03
TOTAL	**0.95**	**--**	**2.63**	**0.69**	**1.94**

1 Proposed ratios are in accordance with the City Biology Guidelines (2018) and presume mitigation will occur within MHPA boundaries.

2 On-site mitigation shall be provided through on-site revegetation of temporary disturbed areas in accordance with the project's restoration plan (HELIX 2020).

3 The remaining mitigation not met through on-site restoration shall be provided through the allocation of available mitigation credits creation credit at the Tecolote Canyon Mitigation site.

4 Southern riparian forest restoration includes a 0.3-acre portion of the Central Tecolote Canyon Mitigation site that was impacted by the project.

5.5.3 Impacts to Jurisdictional Wetlands and Waterways

Would the proposed project result in a substantial adverse impact on wetlands (including, but not limited to, marsh, vernal pool, riparian, etc.) through direct removal, filling, hydrological interruption, or other means?

Status: No Significant Impact after Mitigation.

The project will result in permanent and temporary impacts to jurisdictional wetlands and riparian habitat as defined by the USACE, RWQCB, CDFW, and City. Permanent impacts to wetlands would occur due to stream crossing improvements and access path improvements. Temporary impacts to wetlands

would occur due to staging, construction work areas for tunneling, temporary widening of access paths for construction, and trenching.

Impacts include temporary impacts to 0.01 acre of wetland and 0.007 acre of non-wetlands under the jurisdiction of the USACE. Permanent impacts to 0.02 acre of non-wetland waters of the State, temporary impacts to 0.01 acre of wetland waters of the State, and temporary impacts to 0.049 acre to non-wetland waters of the State are subject to RWQCB jurisdiction (Table 10, *Mitigation for Impacts to Jurisdictional Areas and City Wetlands*). Impacts to wetland and non-wetland waters of the U.S./State would be significant and require mitigation. Additionally, a 404 Nationwide Permit would be required for impacts to 0.018 acre of USACE jurisdictional waters and wetlands pursuant to Section 404 of the Clean Water Act and Section 401 Water Quality Certification would be required for 0.079 acre of impacts to RWQCB jurisdictional waters and wetlands.

A total of 1.03 acres of CDFW jurisdictional riparian habitat and streambed comprised of 0.32 acre of permanent impacts and 0.71 acre of temporary impacts (Table 10). Permanent impacts include 0.25 acre of oak riparian forest (including disturbed), 0.03 acre of coast live oak woodland, 0.001 acre of disturbed southern riparian forest, 0.03 acre of southern willow scrub (including disturbed phase), and 0.01 acre of unvegetated streambed. Temporary impacts include 0.30 acre of oak riparian forest (including disturbed phase), 0.02 acre of coast live oak woodland, 0.03 acre of mule fat scrub, 0.18 acre of disturbed southern riparian forest, and 0.16 acre of southern willow scrub (including disturbed phase), and 0.02 acre of unvegetated streambed. Impacts to CDFW jurisdictional riparian habitat and streambed would be significant and require mitigation. Additionally, a Streambed Alteration Agreement would be required for impacts to 1.03 acres of CDFW jurisdictional habitats pursuant to Section 1600 et seq. of the California Fish and Game Code.

Impacts to jurisdictional areas would be considered significant and require permitting through the appropriate regulatory agencies, as discussed above. Mitigation measure **MM-BIO-3** will require mitigation for impacts to jurisdictional areas and proposes mitigation ratios consistent with those required by the regulatory agencies (Table 11). However, mitigation ratios for impacts to USACE, RWQCB, and CDFW jurisdictional areas will be negotiated with the agencies and final approved mitigation ratios will supersede those proposed here and will not be in addition to mitigation required by the City. Final mitigation requirements would be determined through consultation with the USACE, RWQCB, and CDFW, and would reduce impacts to less than significant. Additionally, avoidance and minimization measure **AM-BIO-1** would ensure that inadvertent impacts to jurisdictional waters and wetlands located immediately adjacent to construction work areas are avoided.

Table 11
MITIGATION FOR IMPACTS TO JURISDICTIONAL AREAS AND CITY WETLANDS

Vegetation Community	Impacts (acre)			Mitigation Ratio[1,2]	Required Mitigation	Total Mitigation (acres)	
	Permanent	Temporary	Total			On-Site Mitigation[3]	Mitigation Credits[4]
USACE Jurisdiction							
Non-wetland/wetland waters of the U.S.	0.00	0.018	0.018	1:1	0.018	--	0.018
Total USACE	--	0.018	0.018		0.018		0.018
RWQCB Jurisdiction							
Non-wetland/wetland waters of the State	0.019	0.060	0.079	1:1	0.079	--	0.079
Total RWQCB	**0.019**	**0.060**	**0.079**	**--**	**0.07**	**0**	**0.097**
CDFW Jurisdiction							
Coast live oak woodland	0.03	0.02	0.05	2:1	0.10	0.12	--
Oak riparian forest – including disturbed phase	0.25	0.30	0.55	3:1	1.65	0.30	1.35
Southern riparian forest- disturbed	0.001	0.18	0.18	3:1	0.54	0.21[5]	0.33
Southern willow scrub – including disturbed phase	0.03	0.16	0.19	2:1	0.38	0.15	0.23
Mule fat scrub	--	0.03	0.03	2:1	0.06	0.03	0.03
Streambed	0.01	0.02	0.03	1:1	0.03	--	0.03
Total CDFW	**0.32**	**0.71**	**1.03**	**--**	**2.76**	**0.81**	**1.97**
City ESL Wetlands							
Oak riparian forest including disturbed	0.25	0.30	0.55	3:1	1.65	0.30	1.35
Mule fat scrub	-	0.03	0.03	3:1	0.54	0.21[5]	0.33
Southern riparian forest - disturbed	0.001	0.18	0.18	2:1	0.38	0.15	0.23
Southern willow scrub -including disturbed	0.03	0.16	0.19	2:1	0.06	0.03	0.03
Total City	**0.28**	**0.67**	**0.95**	**--**	**2.63**	**0.69**	**1.94**

[1] Mitigation ratios for impacts to USACE, RWQCB, and CDFW jurisdictional areas will be negotiated with the agencies and final approved mitigation ratios will supersede those proposed here and will not be in addition to mitigation required by the City. Proposed ratios are in accordance with the City Biology Guidelines (2018) and presume mitigation will occur within MHPA boundaries.

[2] Mitigation required by the USACE/RWQCB includes 1:1 establishment for permanent impacts; the remaining mitigation may be with be establishment, rehabilitation, and/or enhancement. City mitigation requirements for wetland impacts include a 1:1 minimum creation or restoration component.

[3] On-site mitigation shall be provided through on-site revegetation of temporary disturbed areas in accordance with the project's restoration plan (HELIX 2020).

[4] The remaining mitigation not met through on-site restoration shall be provided through the allocation of available mitigation credits creation credit at the Tecolote Canyon Mitigation site.

[5] Southern riparian forest restoration includes a 0.03-acre portion of the Central Tecolote Canyon Mitigation site that was impacted by the project.

Deviations from Wetland Regulations

The MSCP Subarea Plan (City 1997) and City Biology Guidelines (City 2018a) require that impacts to wetlands be avoided, and that a sufficient wetland buffer be maintained to protect the functions and values of wetland resources. Wetland deviations outside the Coastal Overlay Zone may be granted only if the proposed project qualifies under one of the following three options: (1) Essential Public Projects (EPP), (2) Economic Viability, or (3) Biologically Superior Option. The proposed project qualifies for a deviation from wetland regulations under the EPP option.

Deviations from wetland requirements in Environmentally Sensitive Lands will be considered under the EPP Option when a proposed project(s) meets all the following criteria:

(1) The project must be an EPP (i.e., circulation element road, trunk sewer, water main) that will service the community at large and not just a single development project or property. The project must meet the definition of an EPP as identified in Section IV and must be essential in both location and need. If the City has options on the location of an EPP, the City should not knowingly acquire property for an EPP that would impact wetlands.

(2) The proposed project and all biological alternatives, both practicable and impracticable, shall be fully described and analyzed in an appropriate CEQA document. Alternatives to the proposed project shall be comprehensively included in the CEQA document (e.g., Mitigated Negative Declaration) and/or the biological technical report for the CEQA document. Alternatives must include the following: (1) a no project alternative; (2) a wetlands avoidance alternative, including an analysis of alternative sites irrespective of ownership; and (3) an appropriate range of substantive wetland impact minimization alternatives. Public review of the environmental document must occur pursuant to the provisions of CEQA. Projects proposing to utilize this deviation section of the Environmentally Sensitive Lands after initial CEQA public review must include the new information and recirculate the CEQA document.

(3) The potential impacts to wetland resources shall be minimized to the maximum extent practicable and the project shall be the least environmentally damaging practicable biological alternative considering all the technical constraints of the project (e.g., roadway geometry, slope stability, geotechnical hazards, etc.). Recognizing the wetland resources involved, minimization to the maximum extent practicable may include, but is not limited to, adequate buffers and/or designs that maintain full hydrologic function and wildlife movement (e.g., pipeline tunneling, bridging, Arizona crossings, arch culverts). The project applicant will solicit input from the USFWS and the CDFW (e.g., Wildlife Agencies) prior to the first public hearing.

(4) All impacts shall be mitigated according to the requirements of the City's Biology Guidelines and the project shall not have a significant adverse impact to the MSCP.

The following analysis of the proposed project, the no project alternative, and the wetlands avoidance alternative demonstrates that the proposed project would be considered an EPP option.

Proposed Project

The proposed project alternative set forth in this BTR is both essential in need and location. Prior to designing the proposed project, the trunk sewer was assessed, and it was determined that improvements were required. Computer modeling indicated the sewer would reach capacity in

2017-2020 and that improved capacity was required due to rainfall inflow and infiltration during the rainy season. Closed circuit television investigation of the pipe revealed deteriorated conditions and damages in the upper portion of the alignment. The assessment established the need for this project.

Analysis was performed to determine the feasibility of removing the sewer from Tecolote Canyon and replacing the trunk sewer in a less environmentally sensitive location (HELIX 2006). However, it was determined that it is not economically feasible to remove the sewer from Tecolote Canyon.

Impacts resulting from completing the project in its current location were reduced to the extent feasible during the planning process. The project design includes both open trenching and trenchless construction methods to minimize impacts to City Environmentally Sensitive Lands. The new canyon sewer access path will utilize existing paths to the maximum extent possible. Improvements will consist predominantly of clearing vegetation from each side of the path to reestablish the original width of the path for proper maintenance vehicle access. Temporary impacts to sensitive vegetation communities will be revegetated following completion of construction. Temporary impacts to non-sensitive upland communities will be stabilized with an erosion control mix. Additionally, the project design has been revised since 2017 to reduce the number of stream crossings to five, only three of which are engineered (there will be no improvements at Stream Crossing 9). Finally, repairs to the sewer main will include access improvements to minimize damage associated with future emergency repairs.

No Project Alternative/No Development Alternative

Under the no project alternative/no development alternative, the proposed project would not be constructed, and the Tecolote Canyon trunk sewer would not be repaired and would continue to deteriorate. Analysis of the Tecolote Canyon Trunk sewer has been conducted and it was determined to be in poor condition and nearing capacity. If not repaired, the Tecolote Canyon Trunk Sewer would likely break, leak, and/or fail in the future, which could potentially result in far greater significant impacts to special status species, sensitive habitats, and water quality in Tecolote Canyon. A sewage spill would also put human health and safety at risk.

Wetlands Avoidance Alternative

The wetlands avoidance alternative would avoid all City-defined wetlands as shown on Figures 10-1 through 10-9. The current location of the Tecolote Canyon trunk sewer occurs predominantly within habitat mapped as City wetlands. One method for avoiding all impacts to wetlands would be to abandon the trunk sewer in place and build it in an alternative location. The City did a feasibility study of this option and found it to be cost prohibitive. City Council policy dictates that after completing a cost benefit analysis, when the cost of redirecting sewer flow is less than 35 percent higher than the cost of leaving the flow in place, redirection should be undertaken (HELIX 2006). The cost to relocate the Tecolote Canyon Trunk Sewer was greater than 35 percent higher than the Improvement project.

Several sections of the trunk sewer may be replaced without impacting wetland habitat. Under the wetlands avoidance alternative, portions of the trunk sewer could be replaced in areas where there are no wetland habitat present. This would still leave sections of the trunk sewer, predominantly those located in wetland habitat, in a degraded condition, and under capacity. Repairing only those sections of the trunk sewer in upland locations would not meet the goals of the project. Leaving hundreds of linear feet of the trunk sewer in a degraded condition, with limited capacity, would leave the trunk sewer susceptible to failure in the future and undermine any improvements made in upland areas.

Replacing sections of pipe located in wetland areas, remotely, from staging areas located in upland areas, is not feasible for the entire length of the trunk sewer with current technology and budgetary constraints.

The existing trunk sewer crosses Tecolote Creek in several locations. To replace the trunk sewer in these locations, engineered creek crossings must be installed to safeguard the trunk sewer and Tecolote Creek, habitats, and human health and safety.

5.5.4 Impacts to Wildlife Movement and Nursery Sites

Would the proposed project result in a substantial adverse impact by interfering substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, including linkages identified in the MSCP Plan, VPHCP, or impede the use of native wildlife nursery sites?

Status: No Significant Impact.

The Tecolote Canyon Trunk Sewer Improvement project is a linear project. To the east and west of the narrow, linear project footprint there is a buffer area of native habitat between the project and residential areas. These areas can be used for wildlife movement through Tecolote Canyon during the construction of the project. Project construction activities may temporarily disrupt local wildlife in the area, but wildlife would be expected to move back into the area once construction activities have ceased. Therefore, the project would not constrain wildlife movement within the canyon and would not result in significant impact to wildlife corridors or movement.

5.5.5 Impacts to Regional Conservation Plans

Does the proposed project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan, either within the MSCP or VPHCP plan area or in the surrounding region?

Status: No Significant Impact after Mitigation.

As stated above, the project could result in potential significant indirect impacts to special status species and inadvertent construction impacts could impact sensitive vegetation communities located immediately adjacent the project footprint. Implementation of avoidance and minimization measure **AM-BIO-1** and mitigation measures **MM-BIO-1** through **MM-BIO-5** would ensure project consistency with the adopted City MSCP Subarea Plan and Land Development Manual Biology Guidelines.

The project will conform to the general planning policies and design guidelines and general management directives detailed in Sections 1.4.2 and 1.5.2, respectively, of the City's MSCP Subarea Plan as summarized in Section 4.0.

The project consists of the replacement and rehabilitation of an existing trunk sewer and water main (i.e., utility line) that is located within and adjacent the MHPA. A total of 26.7 acres of the study area are located within the MHPA. Since the trunk sewer is located within the canyon, many of the areas included in the project footprint have already been impacted or disturbed due to operation and maintenance of the trunk sewer. Permanent impacts to the MHPA have been reduced to the greatest extent possible during the project design phase. The proposed project activity (utility line) is considered

a compatible land use within the MHPA as detailed in Section 5.0. As such, project impacts within the MHPA do not require an MHPA boundary line adjustment and would not represent a significant impact as the project would mitigate for all impacts to sensitive vegetation communities in accordance with the City's Biology Guidelines (City 2018a) as detailed in mitigation measures **MM-BIO-1** and **MM-BIO-2**. Additionally, all temporary impacts within the MHPA will be revegetated on-site in accordance with the project's restoration plan (HELIX 2020; Appendix D).

No other adopted HCP, RMP, Special Area Management Plan, Watershed Plan, or other regional planning efforts are applicable to the project.

5.5.6 Multi-Habitat Planning Area Land Use Adjacency

Does the proposed project introduce a land use within an area adjacent to the MHPA that would result in adverse edge effects?

Status: No Significant Impact.

The City's MSCP Subarea Plan (City 1997) addresses the impacts to preserve areas from adjacent development in Section 1.4.3, Land Use Adjacency Guidelines. The LUAGs provide requirements for land uses adjacent to the habitat preserve in order to minimize indirect impacts to the sensitive resources contained therein. The project would not introduce new land uses within the MHPA that would result in adverse edge effects. The area currently contains sewer manholes, access paths, and streambed crossings. Implementation of the project would move the access path and manholes further from wetlands and biological sensitive areas and would result in fewer streambed crossings. Overall land use in the canyon would not change.

As detailed in Section 4.0, the proposed project would conform to the LUAG, and the LUAG would become a condition of the Site Development Permit. Implementation of avoidance and minimization measure **AM-BIO-1** would ensure inadvertent impacts to the MHPA located adjacent to construction work areas are avoided, implementation of avoidance and minimization measure **AM-BIO-2** would ensure that no significant indirect noise impacts would occur on breeding coastal California gnatcatcher, and implementation of mitigation measure **MM-BIO-4** would ensure that no significant and adverse indirect noise impacts on breeding least Bell's vireo would occur.

5.5.7 Impacts to Local Policies and Ordinances

Does the proposed project conflict with any local policies or ordinances protecting biological resources?

Status: No Significant Impact.

The City has adopted the Tecolote Canyon Natural Park NRMP (HELIX 2006) to provide guidance for the management, maintenance, utilization, and development of the park while, at the same time, preserving natural resources within the park. The goal of the plan was to recognize the resources within the park and merge those with certain approved anthropogenic uses.

In January 2002, the City council policy 400-13 identified the need to provide maintenance access to all existing sewer lines to reduce the potential for sewer spills with environmental impacts from these paths minimized to the extent possible through a variety of methods (HELIX 2006).

The proposed project meets the goals and objectives of the City and the Tecolote Canyon Natural Park. The City Biology Guidelines (City 2018a) dictate that unavoidable impacts to City wetlands should be minimized to the maximum extent practicable. Examples of unavoidable impacts to wetlands include EPPs where no feasible alternative exists. As described in Section 5.5.3 above, the proposed project meets the definition of an EPP. Unavoidable impacts to wetlands will occur as part of this project due to the nature and extent of the improvements. However, extensive efforts were made by the design team and City to minimize impacts to wetlands. Therefore, the project would not conflict with any local policies or ordinances.

5.5.8 Invasive Species

Would the proposed project result in introduction of invasive species of plants into a natural open space area?

Status: No Significant Impact.

The project would not result in the introduction of invasive species of plants into a natural open space area. The project area is surrounded by urban development and invasive and non-native plant species are present and occur throughout the study area and Tecolote Canyon. A total of 22 Cal-IPC highly, moderately, or limited (only limited species also noted in the NRMP were included) invasive species were noted on the project site. Temporary disturbance areas within the project footprint will be revegetated in accordance with the project's restoration plan (HELIX 2020; Appendix D). No invasive species included on the California Invasive Plan Council's (Cal-IPC) California Invasive Plant Inventory Database (California Invasive Plan Council [Cal-IPC] 2017) will be included within the restoration plan's plant or seed palettes. Furthermore, non-native and invasive plant species shall be removed from the revegetated areas during the restoration effort's five-year maintenance and monitoring. Therefore, no significant impact would occur and no mitigation is required.

5.6 CUMULATIVE IMPACTS

Adverse cumulative impacts are not expected from implementation of the proposed project. Projects which adhere to the City's MSCP Subarea Plan (City 1997) are not expected to have significant cumulative impacts to resources regulated and covered by these plans. The project would comply with the City's MSCP Subarea Plan (as detailed in Section 4.0), the MHPA LUAG requirements (as detailed in Section 4.0), and the City of San Diego Biology Guidelines (City 2018a) and ESL Regulations.

6.0 AVOIDANCE AND MINIMIZATION MEAURES

The following avoidance and minimization measure (AM) shall be implemented to ensure compliance with the City's Biology Guidelines (City 2018a) and MSCP Subarea Plan (City 1997), and to prevent inadvertent impacts to sensitive biological resources adjacent to the project footprint.

6.1 BIOLOGICAL RESOURCE PROTECTION DURING CONSTRUCTION

The project shall implement avoidance and minimization measure **AM-BIO-1** to prevent inadvertent impacts to adjacent wetland and riparian habitats, sensitive upland habitats, and jurisdictional wetlands and waterways adjacent to the project's impact area.

AM-BIO-1 **Biological Monitoring.** Prior to the issuance of any grading permit, the City Manager (or appointed designee) shall verify that the following project requirements are shown on the construction plans:

I. **Prior to Construction**

A. **Biologist Verification** – The owner/permittee shall provide a letter to the City's Mitigation Monitoring Coordination (MMC) section stating that a Project Biologist (Qualified Biologist), as defined in the City Biological Guidelines (2018), has been retained to implement the project's biological monitoring program. The letter shall include the names and contact information of all persons involved in the biological monitoring of the project.

B. **Pre-construction Meeting** – The Qualified Biologist shall attend the pre-construction meeting, discuss the project's biological monitoring program, and arrange to perform any follow up mitigation measures and reporting including site-specific monitoring, restoration or revegetation, and additional fauna/flora surveys/salvage.

C. **Biological Documents** –The Qualified Biologist shall submit all required documentation to MMC verifying that any special mitigation reports, including but not limited to, maps, plans, surveys, survey timelines, or buffers, are completed or scheduled per City Biology Guidelines, Multiple Species Conservation Program (MSCP), Environmentally Sensitive Lands Ordinance (ESL), project permit conditions, California Environmental Quality Act (CEQA), endangered species acts (ESAs), and/or other local, state or federal requirements.

D. **Biological Construction Monitoring Exhibit** – The Qualified Biologist shall present a Biological Construction Mitigation/Monitoring Exhibit (BCME) which includes the biological documents in C above. In addition, the submittal will include: restoration/revegetation plans, plant salvage/relocation requirements (e.g., coastal cactus wren plant salvage, burrowing owl exclusions, etc.), avian or other wildlife surveys/survey schedules (including general avian nesting and USFWS protocol), timing of surveys, wetland buffers, avian construction avoidance areas/noise buffers/ barriers, other impact avoidance areas, and any subsequent requirements determined by the Qualified Biologist and the City ADD/MMC. The BCME shall include a site plan, written and graphic depiction of the project's biological mitigation/monitoring program, and a schedule. The BCME shall be approved by MMC and referenced in the construction documents.

E. **Resource Delineation** – Prior to construction activities, the Qualified Biologist shall supervise the placement of orange construction fencing or equivalent along the limits of disturbance adjacent to sensitive biological habitats and verify compliance with any other project conditions as shown on the BCME. This phase shall include flagging plant specimens and delimiting buffers to protect sensitive biological resources (e.g., habitats/flora and fauna species, including

nesting birds) during construction. Appropriate steps/care should be taken to minimize attraction of nest predators to the site.

F. **Pre-impact assessment** – Prior to commencement of construction activities, the Qualified Biologist shall conduct a pre-impact assessment of all sensitive upland habitat areas that will be temporarily impacted. The assessment will consist of photo documentation and visually estimating native and non-native plant cover and prior to impacts. Photos will be taken from 26 photo documentation locations representing the areas to be temporarily impacted. These photo locations will be mapped using a Global Positioning System (GPS) with sub-meter accuracy. The plant cover estimates for each area will serve as the reference site data for native cover criteria during restoration (see Mitigation Measure BIO-1) of the temporarily impacted areas.

G. **Education** – Prior to commencement of construction activities, the Qualified Biologist shall meet with the owner/permittee or designee and the construction crew and conduct an on-site educational session regarding the need to avoid impacts outside of the approved construction area and to protect sensitive flora and fauna (e.g., explain the avian and wetland buffers, flag system for removal of invasive species or retention of sensitive plants, and clarify acceptable access routes/methods and staging areas, etc.).

II. **During Construction**

A. **Monitoring** – All construction (including access/staging areas) shall be restricted to areas previously identified, proposed for development/ staging, or previously disturbed as shown on the BCME. The Qualified Biologist shall monitor construction activities as needed to ensure that construction activities do not encroach into biologically sensitive areas, or cause other similar damage, and that the work plan has been amended to accommodate any sensitive species located during the pre-construction surveys. In addition, the Qualified Biologist shall document field activity via the Consultant Site Visit Record (CSVR). The CSVR shall be e-mailed to MMC on the first day of monitoring, the first week of each month, the last day of monitoring, and immediately in the case of any undocumented condition or discovery.

B. **Subsequent Resource Identification** – The Qualified Biologist shall note/act to prevent any new disturbances to habitat, flora, and/or fauna on-site (e.g., flag plant specimens for avoidance during access, etc.). If active nests or other previously unknown sensitive resources are detected, all project activities that directly impact the resource shall be delayed until species specific local, state, or federal regulations have been determined and applied by the Qualified Biologist.

III. **Post Construction Measures**

A. In the event that impacts exceed previously allowed amounts, additional impacts shall be mitigated in accordance with City Biology Guidelines, ESL and MSCP, State CEQA, and other applicable local, state, and federal law. The

Qualified Biologist shall submit a final BCME/report to the satisfaction of the City ADD/MMC within 30 days of construction completion.

Implementation of avoidance and minimization measure **AM-BIO-2** would reduce potential direct and indirect impacts to coastal California gnatcatcher to below the level of significance. **AM-BIO-2** would become a condition of the Site Development Permit.

AM-BIO-2 No clearing, grubbing, or other construction activity shall occur within 500 feet of coastal sage scrub during the coastal California gnatcatcher breeding season (March 1 through August 15) until the following requirements have been met to the satisfaction of the City Manager:

A. A qualified biologist (possessing a valid Endangered Species Act Section 10(a)(1)(A) Recovery Permit) shall survey those habitat areas within the MHPA that would be subject to construction noise levels exceeding 60 decibels (dBA) hourly average, or exceeding ambient noise levels if greater than 60 dBA, for the presence of the coastal California gnatcatcher. Surveys for the coastal California gnatcatcher shall be conducted pursuant to the protocol survey guidelines established by the U.S. Fish and Wildlife Service within the breeding season prior to the commencement of any construction. If gnatcatchers are present, then Condition I and either II or III must be met:

   I. Between March 1 and August 15, no clearing, grubbing, or grading of occupied gnatcatcher habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; AND

   II. Between March 1 and August 15, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dBA hourly average or ambient, whichever is higher, at the edge of occupied gnatcatcher habitat. An analysis showing that noise generated by construction activities would not exceed 60 dBA hourly average or ambient (whichever is higher) at the edge of occupied habitat must be completed by a qualified acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the City Manager at least two weeks prior to the commencement of construction activities. Prior to the commencement of construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; OR

   III. At least two weeks prior to the commencement of construction activities, under the direction of a qualified acoustician, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dBA hourly average or ambient (whichever is higher) at the edge of habitat occupied by the coastal California gnatcatcher. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring* shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dBA or ambient (whichever is higher) hourly average. If the

noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (August 16).

**Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.*

B. If coastal California gnatcatchers are not detected during the protocol survey, the Qualified Biologist shall submit substantial evidence to the City Manager and applicable Resource Agencies that demonstrates whether or not mitigation measures, such as noise walls, are necessary between March 1 and August 15 as follows:

   I. If this evidence indicates the potential is high for coastal California gnatcatcher to be present based on historical records or site conditions, then Condition A.III shall be adhered to as specified above.

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

Implementation of mitigation measure **MM-BIO-4** would reduce potential direct and indirect impacts to least Bell's vireo to below the level of significance.

7.0 MITIGATION MEASURES

The following mitigation measures (MM) shall become conditions of the Site Development Permit and shall be implemented to reduce potential impacts resulting from implementation of the Tecolote Canyon Trunk Sewer Improvement project to below the level of significance.

7.1 MITIGATION FOR IMPACTS TO SENSITIVE UPLAND HABITATS

Implementation of mitigation measure **MM-BIO-1** would reduce the impacts to sensitive Tier I, II, IIIA, and IIIB habitats, and impacts to suitable coastal California gnatcatcher and least Bell's vireo habitat (Table 9, *Mitigation for Impacts to Sensitive Upland Habitats*) to below the level of significance.

MM-BIO-1 Mitigation for impacts to 0.22 acre of coast live oak woodland Tier I habitat, 0.28 acre of maritime succulent scrub Tier I habitat, 2.28 acres of Diegan coastal sage scrub Tier II habitat, 0.21 acre of southern mixed chaparral/poison oak chaparral Tier IIIA habitat, and 1.34 acres of non-native grassland Tier IIIB habitat shall occur in accordance with the ratios provided in Table 3 of the City's Biology Guidelines (City 2018), for an anticipated combined mitigation obligation of 4.83 acres. Mitigation shall consist of on-

site restoration of 3.77 acres of temporarily impacted sensitive upland habitat areas and allocation of 1.06 acres of available mitigation credits at existing PUD mitigation sites (Appendix E). On-site restoration shall be completed in accordance with the *Restoration Plan for the Tecolote Canyon Trunk Sewer Improvement Project* prepared by HELIX Environmental Planning, Inc. (HELIX 2020). The remaining 1.06 acres of mitigation required will be allocated from available mitigation credits as follows: 0.61 acre of Tier I credits at either the Central Tecolote Mitigation Site and Otay Mesa Upland Mitigation Bank; and 0.19 acre of Tier II credits, 0.04 acre of Tier IIIA credits, and 0.22 acre of Tier IIIB credits at either the Central Tecolote Mitigation Site, Otay Mesa Upland Mitigation Bank, and Canyon View Upland Restoration Mitigation Site.

7.2 MITIGATION FOR IMPACTS TO WETLAND HABITATS

Implementation of mitigation measure **MM-BIO-2** would reduce the impacts to City ESL wetland and riparian habitats, and impacts to suitable least Bell's vireo habitat (Table 10, *Mitigation for Impacts to Riparian Habitats*), to below the level of significance.

MM-BIO-2 Mitigation for impacts to City ESL wetlands will be provided at a 3:1 ratio in accordance with the ratios provided in Table 3 of the City's Biology Guidelines. Impacts to 0.55 acre of oak riparian forest (including disturbed phase) and 0.18 acre of southern riparian forest (including disturbed phase) will be provided at a 3:1 ratio, and impacts to 0.19 acre of southern willow scrub (including disturbed phase) and 0.03 acre of mule fat scrub will be provided at a 2:1 ratio, for an anticipated combined mitigation obligation of 2.63 acres. Mitigation shall consist of on-site restoration of 0.69 acre of temporarily impacted riparian habitat areas and allocation of 1.94 acres of available mitigation credits at existing PUD mitigation sites. On-site restoration shall be completed in accordance with the *Restoration Plan for the Tecolote Canyon Trunk Sewer Improvement Project* prepared by HELIX Environmental Planning, Inc. (HELIX 2020). The remaining 1.94 acres of mitigation required will be allocated from available mitigation credits at the Central Tecolote Mitigation Site.

Implementation of mitigation measure **MM-BIO-3** would reduce the impacts to USACE, RWQCB, and CDFW jurisdictional areas (Table 11, *Mitigation for Impacts to Jurisdictional Areas and City Wetlands*) to below the level of significance.

MM-BIO-3 Impacts to 0.02 acre of USACE wetland and non-wetland waters of the U.S. and 0.07 acre of RWQCB wetland and non-wetland waters of the State shall be mitigated at a minimum 1:1 ratio through the allocation of available mitigation credits at the Central Tecolote Mitigation Site, or other location deemed acceptable by the USACE. Impacts to waters of the U.S. and State would require issuance of a Section 404 CWA permit from the USACE and Section 401 Water Quality Certification from the RWQCB prior to impacts. Impacts to 0.55 acre of oak riparian forest and 0.18 acre of southern cottonwood-willow riparian forest of CDFW jurisdictional riparian habitat shall be mitigated at a 3:1 ratio. Impacts to 0.05 acre of coast live oak woodland, 0.19 acre of southern willow scrub, and 0.03 acre of mule fast scrub of CDFW jurisdictional riparian habitat shall be mitigation at a 2:1 ratio. Impacts to 0.03 acre of CDFW unvegetated streambed shall be mitigated at a 1:1 ratio. Combined mitigation for CDFW riparian habitat and streambed totals 2.76 acres. Mitigation for CDFW jurisdictional areas shall

consist of on-site restoration of 0.81 acre of temporarily impacted riparian habitat and streambed areas and allocation of 1.97 acres of available mitigation credits at existing PUD mitigation sites. On-site restoration shall be completed in accordance with the *Restoration Plan for the Tecolote Canyon Trunk Sewer Improvement Project* prepared by HELIX Environmental Planning, Inc. (HELIX 2020). The remaining 1.97 acres of wetland mitigation required for this project will be allocated from available mitigation credits at the Central Tecolote Canyon Mitigation Site. The required 1:1 wetland creation/restoration component will be satisfied through on-site restoration of temporary impacts and the allocation of creation credit at the Tecolote Canyon Mitigation site. Impacts to CDFW jurisdictional habitat would require issuance of a CFG Code Section 1602 Streambed Authorization Agreement from the CDFW prior to impacts. Final mitigation requirements to offset impacts on federal and state jurisdictional waters will be determined as part of the permitting process with the USACE, RWQCB, and CDFW and will depend on mitigation type (creation, restoration, etc.), mitigation location, and quality of mitigation proposed; a 1:1 to 3:1 mitigation ratio is a reasonable estimate for planning purposes.

7.3 MITIGATION FOR IMPACTS TO AVIAN SPECIES

MM-BIO-4 Least Bell's Vireo Avoidance. No clearing, grubbing, grading, or other construction activities shall occur within 500 feet of riparian habitat during the least Bell's vireo breeding season (March 15 through September 15) until the following requirements have been met to the satisfaction of the City Manager:

A. A qualified biologist shall survey those habitat areas that would be subject to construction noise levels exceeding 60 decibels [dB(a)] hourly average for the presence of the least Bell's vireo. Surveys for this species shall be conducted pursuant to the protocol survey guidelines established by the USFWS within the breeding season prior to the commencement of construction. If vireos are present, then Condition I and either II or III must be met:

   I. Between March 15 and September 15, no clearing, grubbing, or grading of occupied vireo habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist; AND

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

III. At least two weeks prior to the commencement of construction activities, under the direction of a qualified acoustician, noise attenuation measures described in avoidance and minimization measure **BIO-1** shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dB(a) hourly average at the edge of occupied vireo habitat.

B. If least Bell's vireos are not detected during the protocol survey, the qualified biologist shall submit substantial evidence to the City Manager and applicable Resource Agencies that demonstrates whether or not mitigation measures such as noise walls are necessary between March 15 and September 15 as follows:

I. If this evidence indicates the potential is high for least Bell's vireo to be present based on historical records or site conditions, then Condition A.III shall be adhered to as specified above.

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

Implementation of mitigation measure **MM-BIO-5** would reduce potential direct and indirect impacts to special status avian species, including Cooper's hawk and yellow warbler, to below the level of significance.

MM-BIO-5 To avoid any direct impacts to avian species identified as a listed, candidate, sensitive, or special status species in the MSCP, such as Cooper's hawk, removal of habitat that supports active nests in the proposed area of disturbance should occur outside of the breeding season for these species (February 1 to September 15). If removal of habitat in the proposed area of disturbance must occur during the breeding season, the Qualified Biologist shall conduct a pre-construction survey to determine the presence or absence of nesting sensitive birds on the proposed area of disturbance. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). The applicant shall submit the results of the pre-construction survey to City Development Services Department for review and approval prior to initiating any construction activities. If nesting birds are detected, a letter report or mitigation plan in conformance with the City's Biology Guidelines (i.e., appropriate follow up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report or mitigation plan shall be submitted to the City for review and approval and implemented to the satisfaction of the City. The City's MMC Section and Biologist shall verify and approve that all measures identified in the report or mitigation plan are in place prior to and/or during construction.

7.4 MANAGEMENT ELEMENT

Mitigation for impacts to City ESL wetlands and sensitive upland habitats resulting from implementation of the proposed Tecolote Canyon Trunk Sewer Improvement project will be provided through the on-site restoration of 3.77 acres of temporarily impacted areas and allocation of available mitigation

credits from the existing PUD mitigation sites (Table 12, *On-Site Habitat Restoration for Temporary Impacts*).

Table 12
ON-SITE HABITAT RESTORATION FOR TEMPORARY IMPACTS

Restored Habitats	Tier	Total Acres
Wetlands		
Riparian forest	Wetland	0.51
Riparian scrub	Wetland	0.18
	Wetlands Subtotal	***0.69***
Sensitive Uplands		
Coast live oak woodland understory	I	0.12
Maritime succulent scrub	I	0.24
Native grassland	I	0.03
Diegan coastal sage scrub	II	3.21
Chaparral	IIIA	0.17
	Sensitive Uplands Subtotal	***3.77***
	TOTAL	**4.46**

Mitigation for impacts to wetland habitats will be provided through the on-site restoration of temporarily impacted areas and allocation of available mitigation credits from the existing Central Tecolote Mitigation Site (Table 12). The City's Parks and Recreation Department currently manages the Tecolote Canyon Natural Park and will continue to manage the mitigation sites and surrounding open space within the Natural Park.

8.0 ACKNOWLEDGEMENTS

The following people contributed to fieldwork and/or the preparation of this report:

Jasmine Bakker[1,2]	B.S., Ecology and Systematic Biology, with an emphasis in Botany, California Polytechnic State University, San Luis Obispo, 2001
Laura Moreton[1, 2]	M.S., Biodiversity Survey, University of Sussex, England, 2007 B.S., Biology, San Diego State University, 2006 A.S., Biology, Southwestern Community College, 2004
Linda Garcia[5]	M.A., English, National University, San Diego, 2012 B.A., Literatures in English, University of California, San Diego, 2003
Nicholas Goates[4]	Post-grad GIS certificate, University of Denver, 2011 B.A., Sociology, University of Colorado, Boulder, 2009
Erica Harris[1,2]	B.S., Biology, emphasis in Zoology, San Diego State University, 2009
Shelby Howard[3]	M.S., Biology, San Diego State University, 2004 B.S., Biology, University of Texas, El Paso, 1999
Rebecca Kress[4]	B.A., Geography, State University of New York, Geneseo, 1999
Camille Lill[4]	M.S., Spatial Information Science, University of Adelaide, Australia, 2003 B.A., Geography, Emphasis in Techniques, University of Oregon, 2000
Hannah Lo[2]	M.S., Biology, San Diego State University, 2015 B.S., Environmental Science, Georgia College and State University, 2012
Amy Mattson[2]	M.S., Marine Biology, Scripps Institution of Oceanography, 1999 B.S., Biology, with a Marine Biology concentration, University of California, Los Angeles, 1994
Vince Rivas[2]	B.A., Environmental Studies and Biology, University of California Santa Cruz, 2014
Larry Sward[2]	M.S., Biology, with an emphasis in Botany, San Diego State University, 1979 B.S., Biology, with an emphasis in Ecology, San Diego State University, 1975
Sally Trnka[2]	M.S., Biology, emphasis Ecology, San Diego State University, 1998 B.S., Biological Sciences, University of California-Davis, 1992
Elizabeth Venz[4]	M.B.A., Business, Geographic Information Systems, University of Redlands, 2006 B.A., Geography, Methods of Analysis, San Diego State University, 2000

[1]Primary Author(s); [2]Biologist; [3]Principal in Charge; [4]GIS Specialist; [5]Technical Editor

9.0 REFERENCES

American Ornithologists' Union. 2016. Fifty-seventh supplement to the American Ornithologists' Union check-list of North American Birds. Available from: http://americanornithologypubs.org/doi/pdf/10.1642/AUK-16-77.1?code=coop-site

Baker, R.J., L.C. Bradley, R.D. Bradley, J.W. Dragoo, M.D. Engstrom, R.S. Hoffmann, C.A. Jones, F. Reid, D.W. Rice, and C. Jones. 2003. Revised checklist of North American mammals north of Mexico. Occasional Papers of the Museum, Texas Tech University 223.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken (eds.). 2012. The Jepson manual: vascular plants of California, second edition. Berkeley, CA: University of California Press.

Beauchamp, R. M. 1986. A flora of San Diego County. Sweetwater River Press, 241 pp.

Calflora. Accessed May 30, 2017. Available from: http://www.Calflora.org.

California Association of Resource Conservation Districts. 2002. Guide to watershed project permitting for the State of California. Available from: http://www.carcd.org/permitting/pguide.pdf.

California Department of Fish and Wildlife (CDFW). 2017a. State and federally listed endangered and threatened animals of California. April.

2017b. California natural diversity data base (CNDDB). RareFind 5. Available from: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data

California Invasive Plant Council (Cal-IPC). 2017. California invasive plant inventory database. Available from: http://www.cal-ipc.org/paf/.Accessed June 7.

California Native Plant Society. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.38). Rare Plant Program. Available from: http://www.rareplants.cnps.org

Collins, J.T. and T.W. Taggart. 2002. Standard common and current scientific names for North American amphibians, turtles, reptiles, and crocodilians. 5th Ed. Publication of The Center for North American Herpetology, Lawrence, Kansas. iv + 44 pp.

Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. with Appendices.

HELIX Environmental Planning, Inc. 2020. Restoration Plan for the Tecolote Sewer Improvements Project. September 30.

2017. Central Tecolote Canyon Mitigation Project. Year 5 Monitoring Report. January 6.

2006. Tecolote Canyon Natural Park Natural Resource Management Plan. March.

Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency, 156 pp.

Jackson, L. 1985. Ecological origins of California's Mediterranean grasses. Journal of Biogeography 12: 349-361.

Keeley, J. and S. Keeley. 1988. Chaparral. In M. Barbour and W. Billings (eds). North American Vegetation. Cambridge University Press. pp.165-207.

Kollmorgen Instruments Corporation (Kollmorgen). 1994. Munsell Soil Color Charts, Revised Edition. Baltimore, Md.

Lichvar, R., D. Banks, W. Kirchner, and N. Melvin. 2016. The national wetland plant list: update of wetland ratings. Phytoneuron 2016-30: 1 – 17. Available from: http://wetland-plants.usace.army.mil/. April 28.

Lichvar, R.W. and S.M. McColley. 2008. A field guide to the identification of the ordinary high water mark (OHWM) in the arid west region of the western United States. ERDC/CRREL TR-08-12. Hanover, NH. U.S. Army Engineer Research and Development Center. August.

Oberbauer, T. 2008. Terrestrial vegetation communities in San Diego County based on Holland's descriptions. Revised from 1996 and 2005. July.

Rebman, J. And M. Simpson. 2014. Checklist of the vascular plants of San Diego County. 5th Ed. San Diego Natural History Museum and San Diego State University. 129 Pp.

Riley, D.T. 2005. Ordinary high water mark identification. RGL No. 05-05. December 5. 4 pp.

San Diego, City of. 2018a. City of San Diego Municipal Code, Land Development Code, Biology Guidelines. Amended. February 1 by Resolution No. R-311507. Retrieved from: https://www.sandiego.gov/sites/default/files/amendment_to_the_land_development_manual_biology_guidelines_february_2018_-_clean.pdf

2018b. Storm Water Standards. October. Retrieved from: https://www.sandiego.gov/sites/default/files/storm_water_standards_manual_oct_2018.pdf

1997. Multiple Species Conservation Program. City of San Diego MSCP Subarea Plan. March.

U.S. Army Corps of Engineers. 2008. Regional supplement to the Corps of Engineers wetland delineation manual: Arid west region (Version 2.0). Eds. J.S. Wakely, R.W. Lichvar, and C.V. NRNT-01oble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center. September.

--- And Environmental Protection Agency. 2015. Clean Water Rule: Definition of "Waters of the United States". Federal Register Vol. 80, No. 124: 37054 – 30127. June 29.

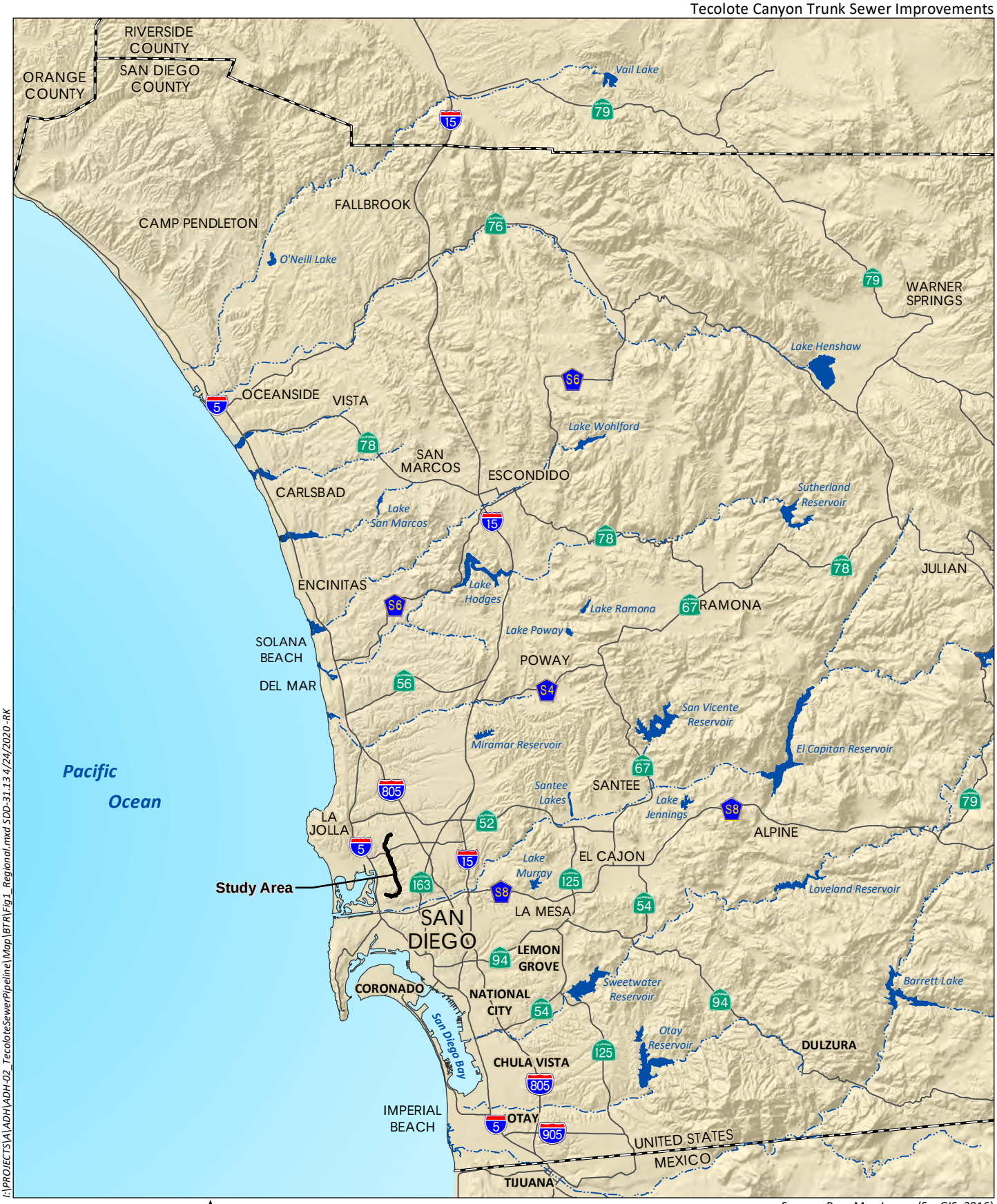
U.S. Department of Agriculture. 2014. Web soil survey. Natural Resources Conservation Service. Available from: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

U.S. Fish and Wildlife Service. 2017a. Critical habitat mapper. Available from: https://ecos.fws.gov/ecp/report/table/critical-habitat.html. Accessed May 19.

2017b. National Wetlands Inventory. May 30. Available at: http://www.fws.gov/Wetlands/Index.Html.

Vyverberg, K. 2010. A Review of Stream K Processes and Forms in Dryland Watersheds. CDFG. Sacramento. December. 32 Pp.

Figures



I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig1_Regional.mxd SDD-31.13 4/24/2020 -RK

0 8 Miles

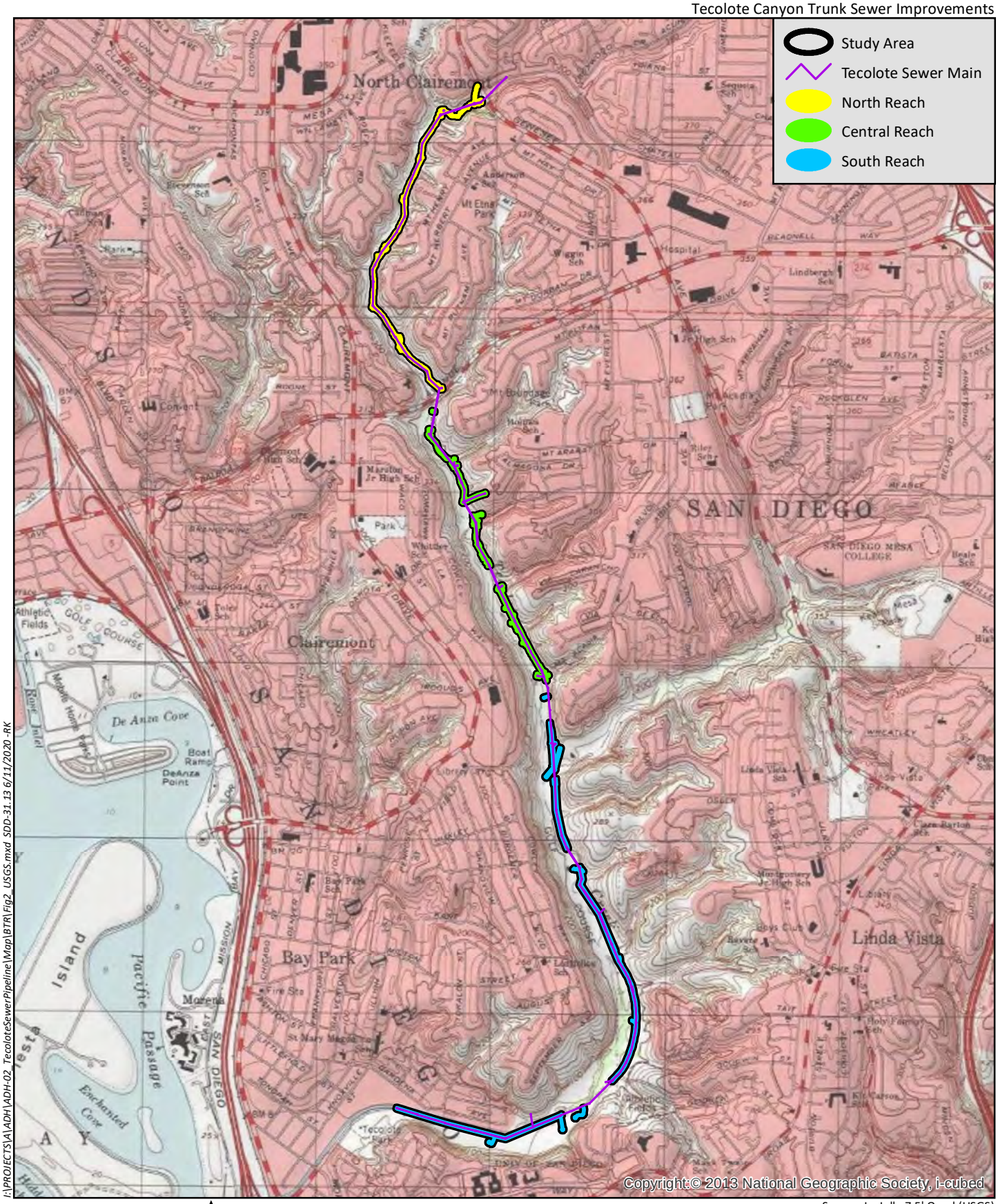
Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

Regional Location

Figure 1

Tecolote Canyon Trunk Sewer Improvements



I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig2_USGS.mxd SDD-31.13 6/11/2020 -RK

0 2,500 Feet

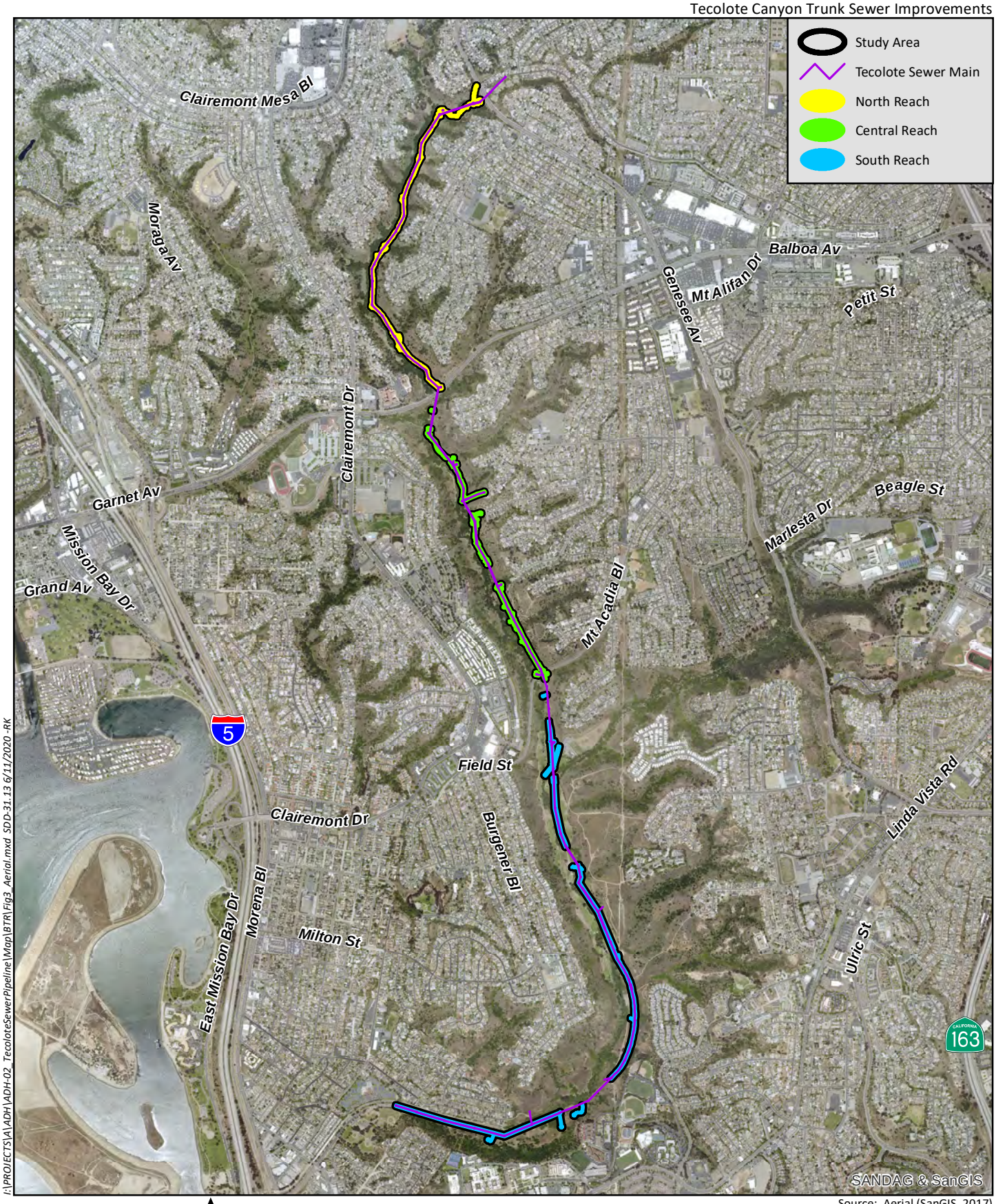
Source: La Jolla 7.5' Quad (USGS)

HELIX Environmental Planning

Project Vicinity Map (USGS Topography)

Figure 2

Tecolote Canyon Trunk Sewer Improvements



I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig3_Aerial.mxd SDD-31.13 6/11/2020 - RK

0 2,500 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Project Vicinity Map (Aerial Photograph)

Figure 3

Study Area

Wetlands

- Oak Riparian Forest

Tier I

- Coast Live Oak Woodland

Tier II

- Diegan Coastal Sage Scrub
- Diegan Coastal Sage Scrub - Disturbed

Tier IIIB

- Non-native Grassland

Tier IV

- Non-native Vegetation/Ornamental
- Disturbed Land
- Developed (includes golf course)
- Eucalyptus Woodland

Sensitive Animal Species

- OTWH — Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)

Sensitive Plant Species

- Qd — Nuttall's Scrub Oak (*Quercus dumosa*)
- Fv — San Diego Barrel Cactus (*Ferocactus viridescens*)

Chickasaw Court
Acoma Avenue
Shoshoni Avenue
Winnebago Avenue
Genesee Avenue
Chateau Drive
Chinook Court
Kiefeld Avenue
OTWH (2004)
Fv (3)
Fv (8)
Fv (3)
Fv (1)
Fv (10)
Qd
Mt Frissell Drive
Mt Gaywas Drive
Mt Lindsey Place
Mt Lindsey Avenue
Mt King Drive
Mt Henry Avenue
Mt King Drive
Mt Etna Drive

North Reach
Central Reach
South Reach
1
2
3
4
5
6
7
8
9

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig4_Vegetation.mxd SDD-31.13 6/12/2020 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation

Figure 4-1

Tecolote Canyon Trunk Sewer Improvements

Study Area

Wetlands

Oak Riparian Forest

Tier I

Coast Live Oak Woodland

Tier II

Diegan Coastal Sage Scrub

Tier IIIB

Non-native Grassland

Tier IV

Non-native Vegetation/Ornamental

Disturbed Land

Rolfe Road
Donald Avenue
Bert Court
Donald Court
Mt Henry Place
Mt Herbert Avenue
Mt Laudo Drive
Mt Henry Avenue
Mt Henry Way
Mt Hukee Avenue
Mt Hubbard Avenue
Mt Forde Avenue
Mt Voss Drive

North Reach
Central Reach
South Reach

I:\PROJECTS\A\ADH\ADH-02 TecoloteSewerPipeline\Map\BTR\Fig4_Vegetation.mxd SDD-31.13 6/12/2020 -RK

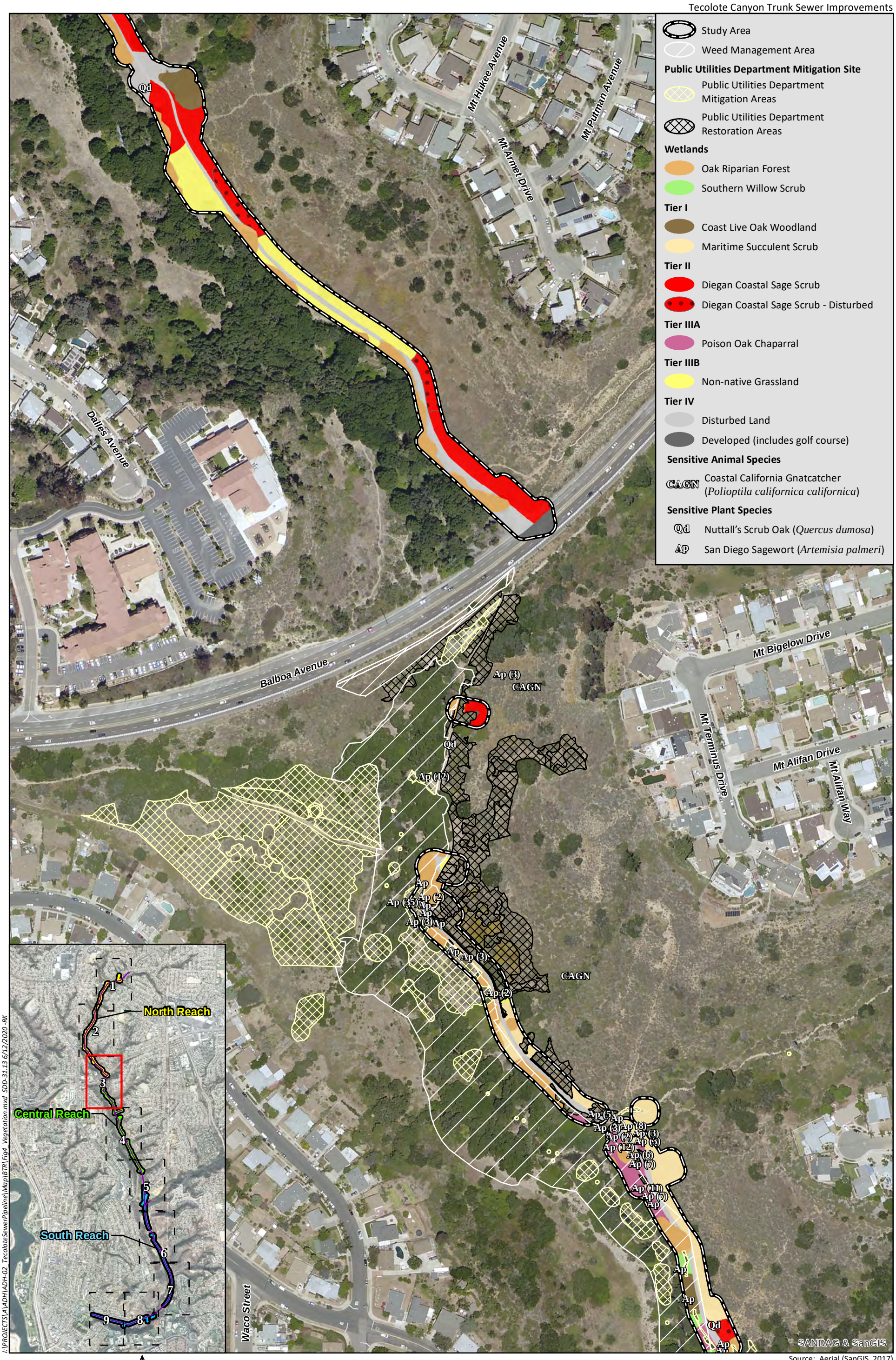
0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation

Figure 4-2



I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig4_Vegetation.mxd SDD-31.13 6/12/2020 -RK

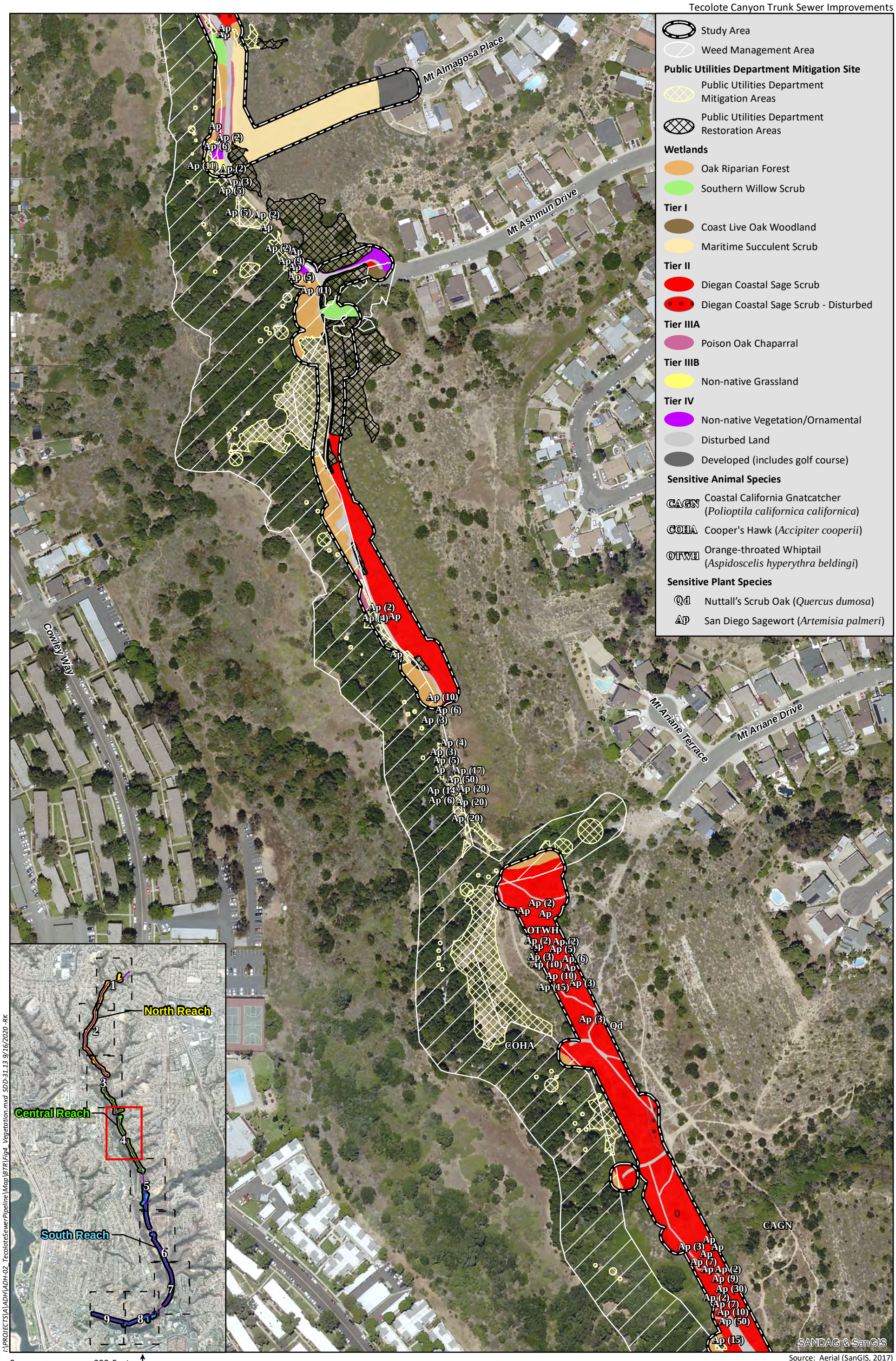
0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation

Figure 4-3



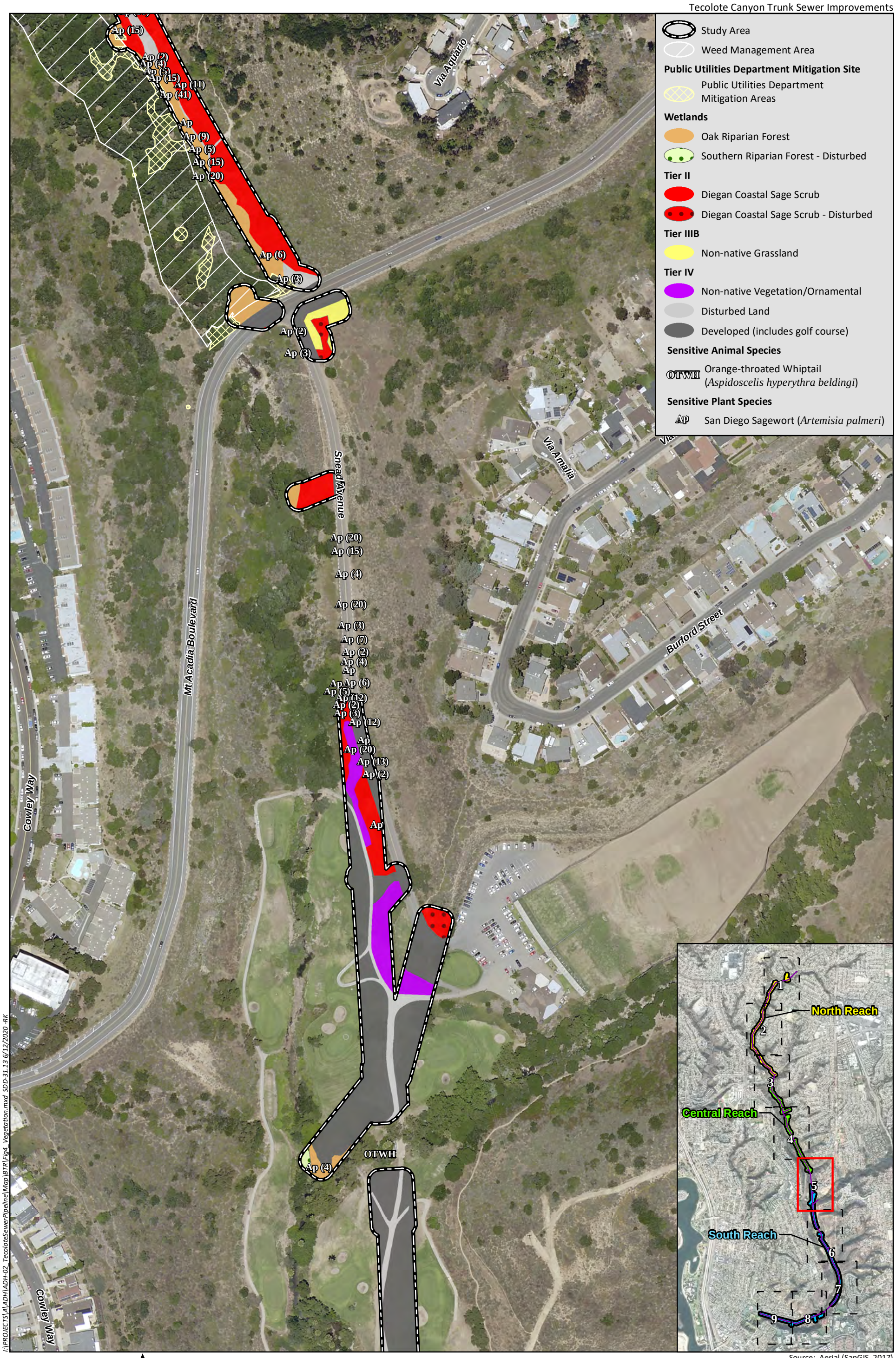
Source: Aerial (SanGIS, 2017)

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig4_Vegetation.mxd SDD-31.13 9/16/2020 -RK

HELIX Environmental Planning

Vegetation

Figure 4-4



I:\PROJECTS\A\ADH\ADH-02 TecoloteSewerPipeline\Map\BTR\Fig4_Vegetation.mxd SDD-31.13 6/12/2020 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation

Figure 4-5

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig4_Vegetation.mxd SDD-31.13 6/12/2020 -RK

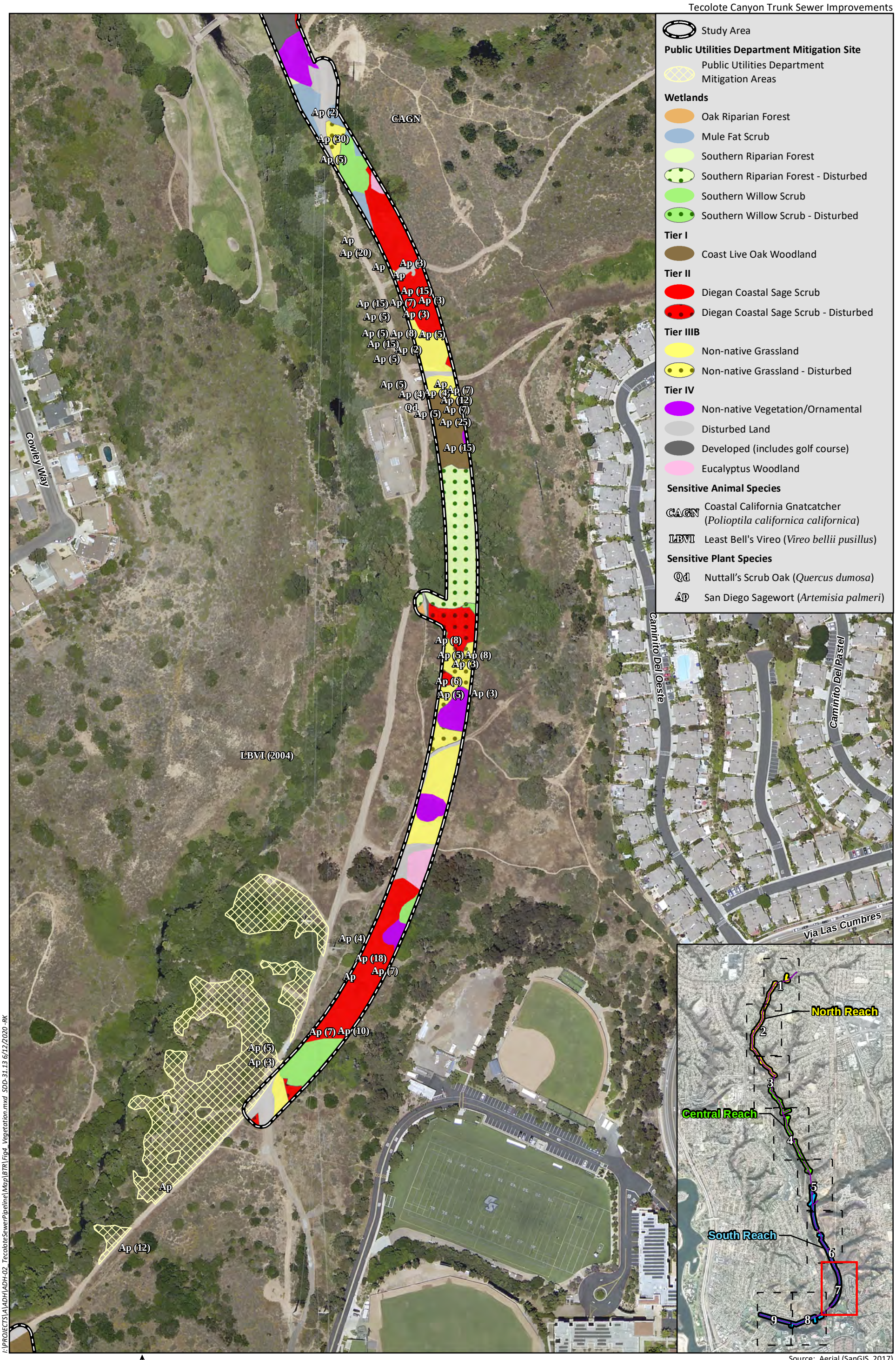
0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation

Figure 4-6



I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig4_Vegetation.mxd SDD-31.13 6/12/2020 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation

Figure 4-7

Study Area

Public Utilities Department Mitigation Site

Public Utilities Department Mitigation Areas

Wetlands

Oak Riparian Forest

Oak Riparian Forest - Disturbed

Southern Willow Scrub

Tier I

Coast Live Oak Woodland

Tier II

Diegan Coastal Sage Scrub

Diegan Coastal Sage Scrub - Disturbed

Tier III

Southern Mixed Chaparral

Southern Mixed Chaparral - Disturbed

Tier IIIB

Non-native Grassland

Non-native Grassland - Disturbed

Tier IV

Non-native Vegetation/Ornamental

Disturbed Land

Sensitive Plant Species

Qd Nuttall's Scrub Oak (*Quercus dumosa*)

Ap San Diego Sagewort (*Artemisia palmeri*)

February Street
September Street
March Place
Gross Street
Gardena Avenue
Santa Anita Drive

Ap (2)
Ap (6) Ap (8)
Ap (6) Qd Ap (12)
Ap (10)
Ap (2)
Ap (3) Ap (2)
Ap (3) Ap (2)
Ap (10)
Ap (10)
Ap (2)
Ap (4)
Ap (8)

North Reach
Central Reach
South Reach
1
2
3
4
5
6
7
8
9

0 200 Feet

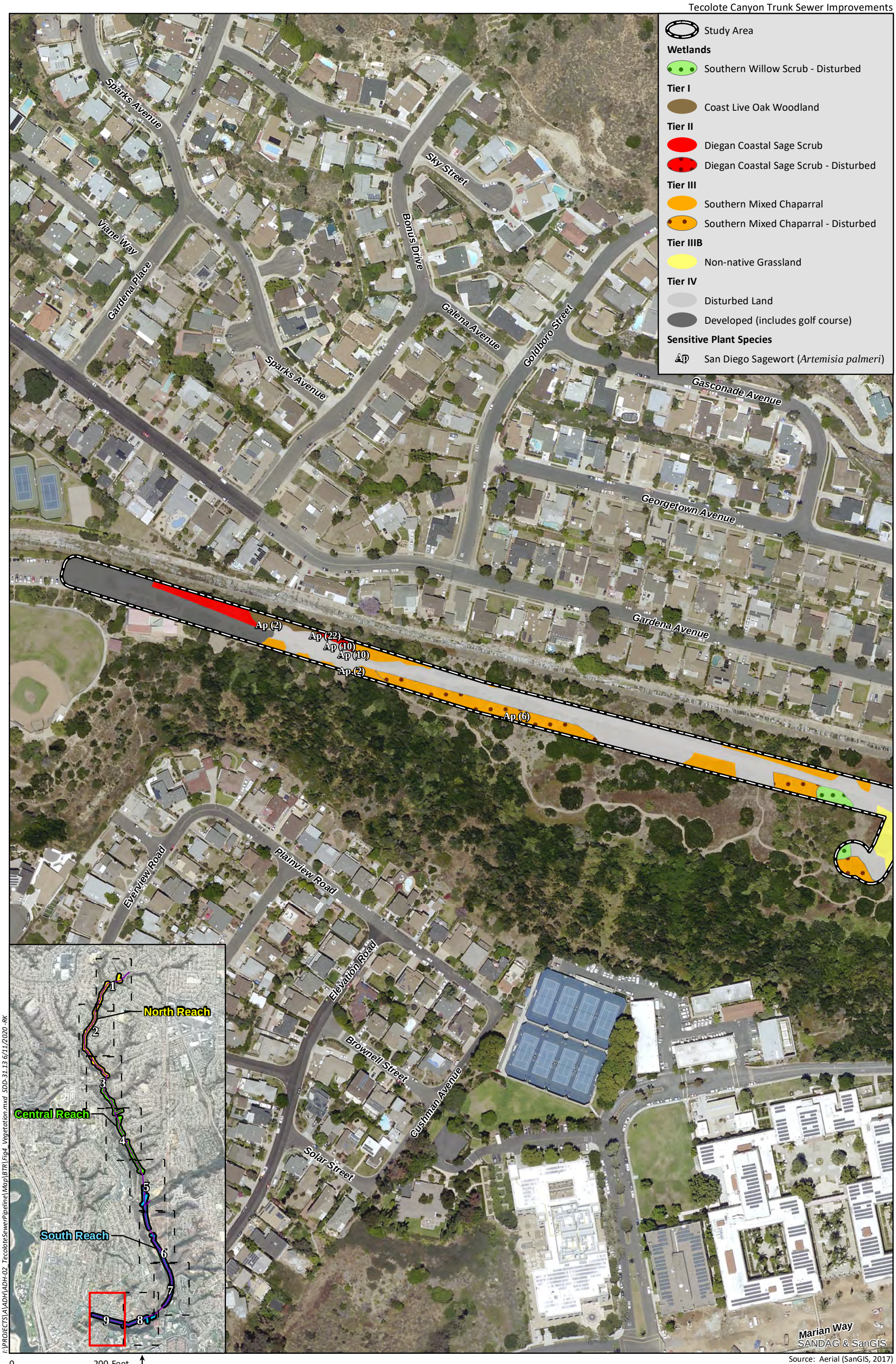
Source: Aerial (SanGIS, 2017)

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig4_Vegetation.mxd SDD-31.13 6/12/2020 -RK

HELIX Environmental Planning

Vegetation

Figure 4-8



I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig4_Vegetation.mxd SDD-31.13 6/11/2020 -RK

0 200 Feet

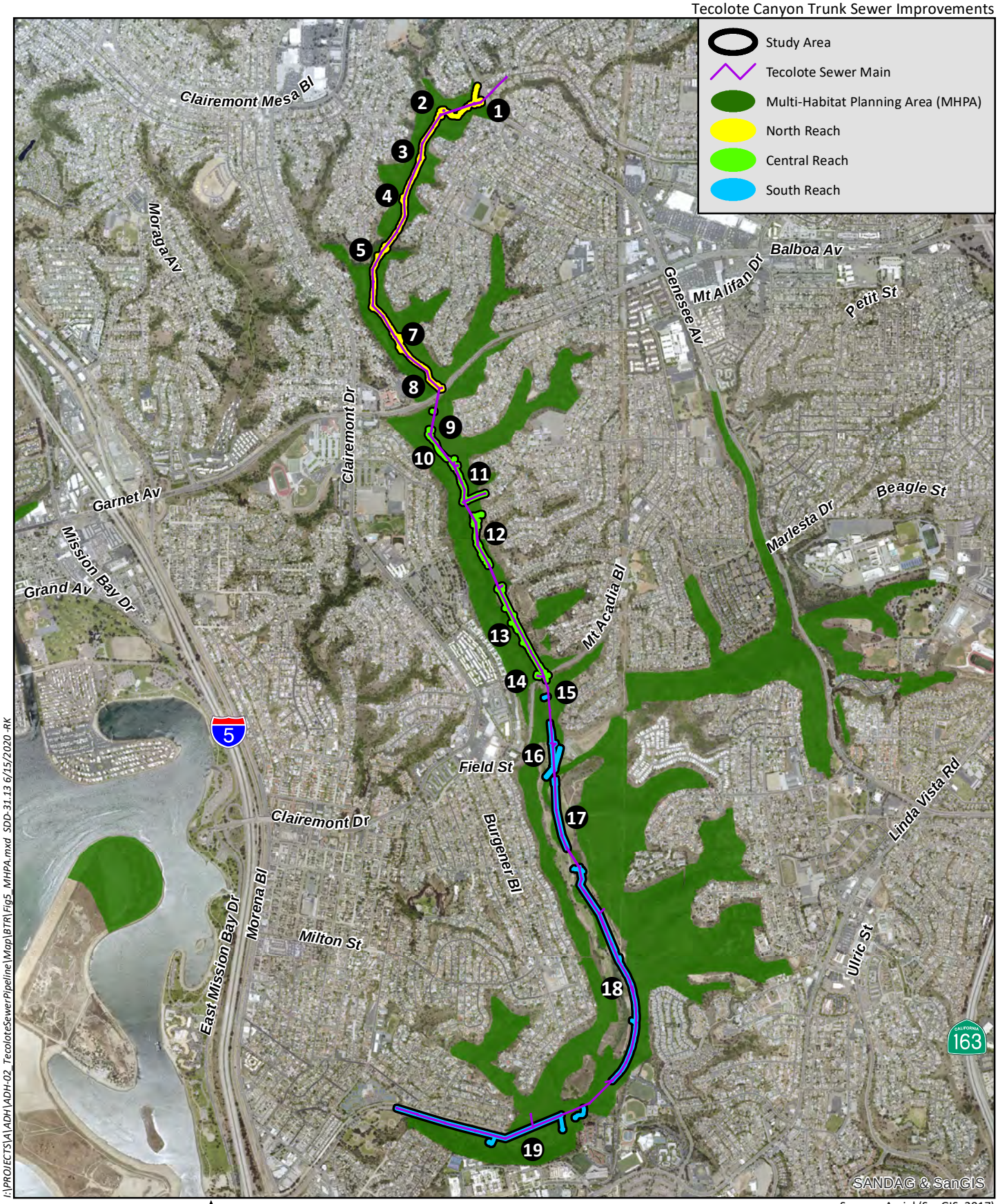
Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation

Figure 4-9

Tecolote Canyon Trunk Sewer Improvements



I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig5_MHPA.mxd SDD-31.13 6/15/2020 -RK

0 2,500 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

MHPA Boundary

Figure 5

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Proposed Sewer Manhole
Tecolote Sewer Main
Existing Access Path

Kleefeld Avenue
Genesee Avenue
Chateau Drive
275
269B
Trenchless Construction (tunneling areas)
80
79
74
75
Tunneling Pit
Rolfe Road
76
77
Staging Area 1
Stream Crossing Improvements No. 4
52
Mt Lindsey Avenue
Mt King Drive
Mt Gaywas Drive
Mt Frissell Drive
Mt Etna Drive
Trenchless Construction (tunneling areas)
51
Staging Area 2
50
Donald Avenue
344
Mt Henry Avenue
Mt Herbert Avenue
345
Mt Laudo Drive
Stream Crossing Improvements No. 5
Staging Area 3
347
307B
306B
Clairemont Drive
305
Mt Voss Drive
304
Mt Hukee Avenue
Staging Area 4
71
Mt Putman Avenue
Stream Crossing Improvements No. 6
70
Staging Area 5
Mt Armet Drive
66
Balboa Avenue
Dalles Avenue
Chippewa Court
49
48
47B
Tunneling Pit
Mt Bigelow Drive
Trenchless Construction (tunneling areas)
46
Mt Alifan Drive
Tunneling Pit
271
Trenchless Construction (tunneling areas)

North Reach
Central Reach
South Reach

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig6_SitePlan.mxd SDD-31.13 7/9/2020 - RK

0 500 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Site Plan

Figure 6-1

Tecolote Canyon Trunk Sewer Improvements

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Proposed Sewer Manhole
Tecolote Sewer Main
Existing Access Path

Trenchless Construction (tunneling areas)
Tunneling Pit
Stream Crossing Improvements No. 7
Stream Crossing Improvements No. 8
Stream Crossing Improvements No. 9 (no improvements)
Staging Area 6
Staging Area 7
Staging Area 8

270
269A
159
268Z
174
328
329
330
178
88
89
90
92
93
97
139
195
196
197
169
170B
256
257
258
259
260
394

Ute Drive
Mt Almagosa Drive
Mt Ashmun Drive
Mt Everest Boulevard
Mt Armour Drive
Mt Ariane Drive
Tomahawk Lane
Cowley Way
Dakota Drive
Via Carancho
Via Bello
Via Aquario
Via Arcilla
Calle Neil
Clairemont Drive
Mt Acadia Boulevard
Iroquois Avenue
Via Alcazar
Burford Street
Field Street
Burgener Boulevard
Huxley Street

North Reach
Central Reach
South Reach

SANDAG & SanGIS

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig6_SitePlan.mxd SDD-31.13 8/13/2020 - RK

0 500 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Site Plan

Figure 6-2

North Reach
Central Reach
South Reach
Huxley Street
Jellett Street
Burgener Boulevard
Grandview Street
Deerpark Drive
Lister Street
Cowley Way
394
Tunneling Pit
Trenchless Construction (tunneling areas)
306A
Tunneling Pit
307A
375
378
62
58
47A
476
166
Milton Street
August Street
Tokalon Street
February Street
September Street
March Place
Sky Street
Gardena Place
Sparks Avenue
Goldboro Street
Gasconade Avenue
Existing Bridge Replacement
Existing Sewer to Remain
Georgetown Avenue
Gardena Avenue
Tecolote Road
266
268A
272
211
207
203
179
184
182
187
170A
Everview Road
Plainview Road
Monitor Road
Solar Street
Marian Way
Linda Vista Road

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Proposed Sewer Manhole
Tecolote Sewer Main
Existing Access Path

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig6_SitePlan.mxd SDD-31.13 8/13/2020 -RK

0 500 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Site Plan

Figure 6-3

- Study Area
- USACE Review Area
- OHWM Data Point (DP) Form
- Photo Location
- Permanent Impacts
- Temporary Impacts
- Tecolote Sewer Main
- Sewer Manholes
- Proposed Sewer Manhole

Waters Excluded under the Navigable Waters Protection Rule

- Ephemeral Stream Channel

Non-wetland Waters of the U.S.

- Stream Channel
- Stream Channel

Chickasaw Court
Acoma Avenue
Genesee Avenue
Shoshoni Avenue
Winnebago Avenue
Chinook Court
Kiefeld Avenue
Chateau Drive
275
Tunneling Pit
269B
Trenchless Construction (tunneling areas)
20'
79
80
NWW 1
1
74
75
Tecolote Creek
76
DP A-2
DP A-1
0.049 acre
Mt Gaywas Drive
77
Mt Lindsey Place
Mt Lindsey Avenue
Staging Area 1
52
Stream Crossing Improvements No. 4
Trenchless Construction (tunneling areas)
NWW 2
51
2
DP B-1
6"
0.011 acre
Mt Etna Drive
North Reach
Central Reach
South Reach
1
2
3
4
5
6
7
8
9

0 200 Feet

Source: Aerial (SanGIS, 2017)

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig7-1_USACE.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

Waters of the US Impacts

Figure 7-1

Study Area
USACE Review Area
OHWM Data Point (DP) Form
Photo Location
Permanent Impacts
Temporary Impacts
Tecolote Sewer Main
Sewer Manholes

Waters Excluded under the Navigable Waters Protection Rule

Ephemeral Stream Channel

NWW 2
NWW 3
Staging Area 2
Staging Area 3
Staging Area 4
Stream Crossing Improvements No. 5
DP C-1
5'
0.010 acre
North Reach
Central Reach
South Reach
Rolfe Road
Donald Avenue
Donald Court
Bert Court
Mt King Drive
Mt Henry Avenue
Mt Highpine Place
Mt Henry Place
Mt Henry Way
Mt Laudo Drive
Mt Herbert Avenue
Mt Hubbard Avenue
Mt Hukee Avenue
Mt Voss Drive
Tecolote Creek
50
51
344
345
346
347
307B
306B
305
304
71

I:\PROJECTS\AIADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig7-2_USACE.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the US Impacts

Figure 7-2

Tecolote Canyon Trunk Sewer Improvement Project

Study Area
USACE Review Area
OHWM Data Point (DP) Form
Photo Location
Permanent Impacts
Temporary Impacts
Tecolote Sewer Main
Sewer Manholes
Proposed Sewer Manhole
Waters Excluded under the Navigable Waters Protection Rule
Ephemeral Stream Channel

NWW 4
Stream Crossing Improvements No. 6
Staging Area 5
Tecolote Creek
Mt Hukee Avenue
Mt Armet Drive
Balboa Avenue
Tunneling Pit
Trenchless Construction (tunneling areas)
Mt Bigelow Drive
Mt Terminus Drive
Mt Alifan Drive
Mt Alifan Way
Tunneling Pit
Trenchless Construction (tunneling areas)
Trenchless Construction (tunneling areas)
Stream Crossing Improvements No. 7
Tunneling Pit
NWW 5
Tunneling Pit
NWW 6
Waco Street
DP D-1
0.006 acre
DP E-1
0.025 acre
North Reach
Central Reach
South Reach
70
66
49
48
47B
46
271
270
269A
159
268Z
174

0 200 Feet

Source: Aerial (SanGIS, 2017)

I:\PROJECTS\AIADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig7-3_USACE.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

Waters of the US Impacts

Figure 7-3

NWW 6
2'
7
328
329
330
Tunneling Pit
Trenchless Construction (tunneling areas)
Stream Crossing Improvements No. 8
178
8'
NWW 7
8
88
Tunneling Pit
Trenchless Construction (tunneling areas)
Tunneling Pit
89
Staging Area 6
Tunneling Pit
90
Trenchless Construction (tunneling areas)
Tunneling Pit
92
93
97
Staging Area 7
Stream Crossing Improvements No. 9 (no improvements)
NWW 8
3'
Staging Area 8
139
Cowley Way
Mt Ariane Terrace
Mt Ariane Drive
Tecolote Creek
North Reach
Central Reach
South Reach
1
2
3
4
5
6
7
8
9
DP F-1
0.004 acre
DP G-1
0.020 acre
DP H-2
DP H-1
0.008 acre
9
10

Waters Excluded under the Navigable

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig7-4_USACE.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

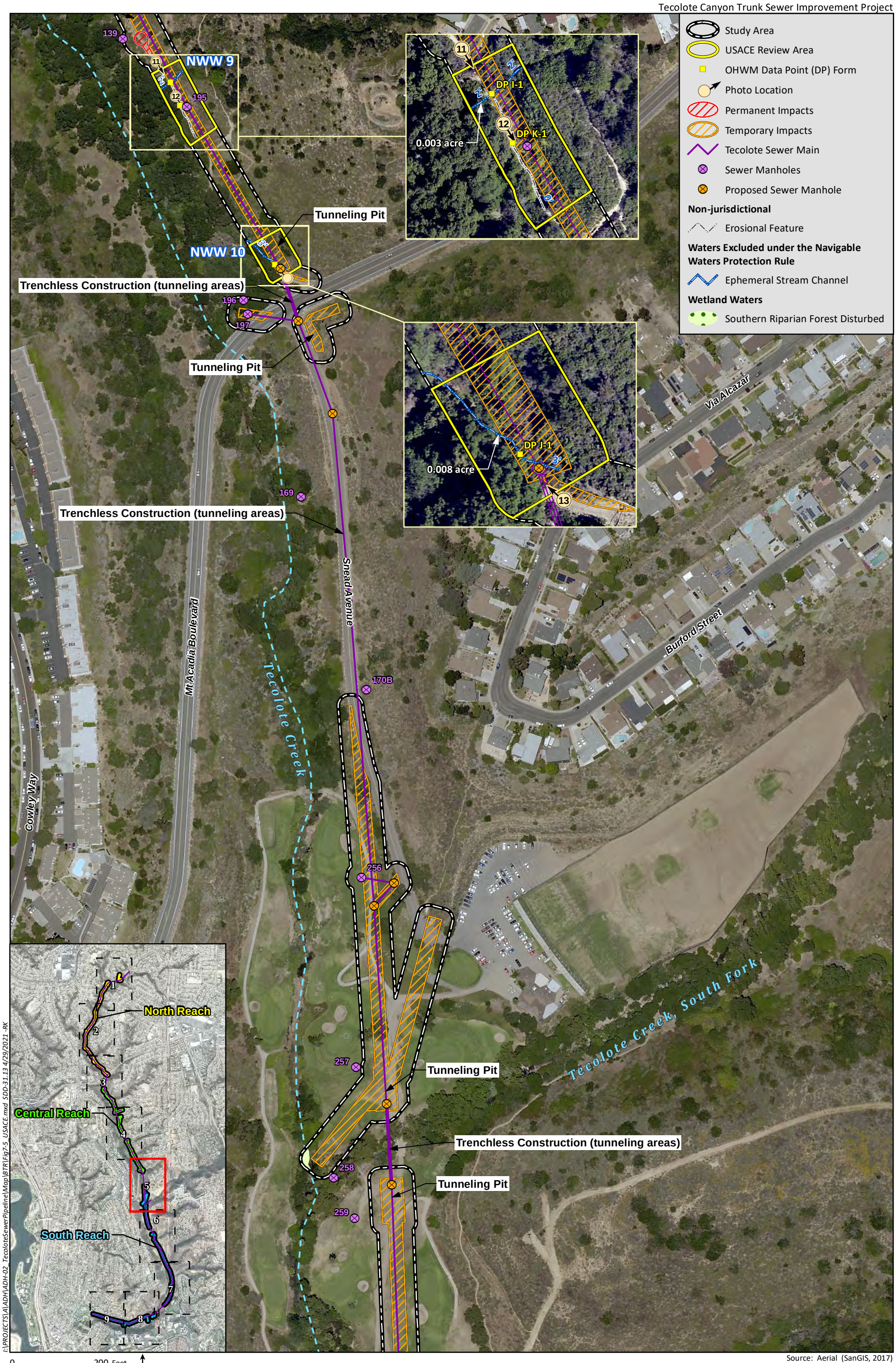
Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the US Impacts

Figure 7-4

Tecolote Canyon Trunk Sewer Improvement Project



I:\PROJECTS\AIADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig7-5_USACE.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the US Impacts

Figure 7-5

Tecolote Canyon Trunk Sewer Improvement Project

Study Area
USACE Review Area
OHWM Data Point (DP) Form
Photo Location
Temporary Impacts
Tecolote Sewer Main
Sewer Manholes
Proposed Sewer Manhole
Non-wetland Waters of the U.S.
Stream Channel

Tecolote Creek
260
394
Tunneling Pit
Trenchless Construction (tunneling areas)
306A
NWW 11
15
14
Tunneling Pit
307A
0.020 acre
DP L-2
DP L-1
0.005 acre
Cowley Way
Opalo Way
Sendero Way
375
378
North Reach
Central Reach
South Reach
1
2
3
4
5
6
7
8
9

I:\PROJECTS\AIADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig7-6_USACE.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the US Impacts

Figure 7-6

Study Area
USACE Review Area
OHWM Data Point (DP) Form
Photo Location
Permanent Impacts
Temporary Impacts
Tecolote Sewer Main
Sewer Manholes
Sampling Point
Sheet Flow

Waters Excluded under the Navigable Waters Protection Rule

Ephemeral Stream Channel

Non-wetland Waters of the U.S.

Stream Channel

Wetland Waters

Southern Willow Scrub

DP M-1
NWW 12
DP N-1
0.005 acre
NWW 13
SP 3
DP O-1
0.006 acre
SP 1
SP 2
0.037 acre
WET 1
Tecolote Creek
Cowley Way
Via Las Cumbres
North Reach
Central Reach
South Reach

0 200 Feet

Source: Aerial (SanGIS, 2017)

I:\PROJECTS\AIADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig7-7_USACE.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

Waters of the US Impacts

Figure 7-7

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the US Impacts

Figure 7-8

Study Area
Permanent Impacts
Temporary Impacts
Tecolote Sewer Main
Sewer Manholes

Sky Street
Bonus Drive
Viane Way
Gardena Place
Galena Avenue
Goldboro Street
Sparks Avenue
Gasconade Avenue
Georgetown Avenue
Gardena Avenue
Tecolote Creek
266
268A
272
211
207
Everview Road
Plainview Road
Elevation Road
Onstad Street
Monitor Road
Brownell Street
Cushman Avenue
Solar Street
Crown Street

North Reach
Central Reach
South Reach
1
2
3
4
5
6
7
8
9

I:\PROJECTS\AIADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig7-8_9_USACE.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the US Impacts

Figure 7-9

Study Area
RWQCB Review Area
OHWM Data Point (DP) Form
Photo Location
Permanent Impacts
Temporary Impacts
Tecolote Sewer Main
Sewer Manholes
Proposed Sewer Manhole

Non-wetland Waters of the State

Stream Channel
Stream Channel

Chickasaw Court
Acoma Avenue
Genesee Avenue
Shoshoni Avenue
Winnebago Avenue
Chinook Court
Kiefeld Avenue
Chateau Drive
Mt Gaywas Drive
Mt Lindsey Place
Mt Lindsey Avenue
Mt Etna Drive
Tecolote Creek

Tunneling Pit
Trenchless Construction (tunneling areas)
Staging Area 1
Stream Crossing Improvements No. 4
Trenchless Construction (tunneling areas)

NWW 1
NWW 2

DP A-1
DP A-2
0.057 acre
DP B-1
0.015 acre

North Reach
Central Reach
South Reach

275
269B
20
79
80
74
75
76
77
52
51

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig8-1_RWQCB.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the State Impacts

Figure 8-1

Study Area
RWQCB Review Area
OHWM Data Point (DP) Form
Photo Location
Permanent Impacts
Temporary Impacts
Tecolote Sewer Main
Sewer Manholes
Non-wetland Waters of the State
Stream Channel

NWW 2
Staging Area 2
Stream Crossing Improvements No. 5
NWW 3
Staging Area 3
Staging Area 4
Tecolote Creek
DP C-1
8"
0.018 acre
North Reach
Central Reach
South Reach
Mt King Drive
Mt Henry Avenue
Mt Highpine Place
Rolfe Road
Donald Avenue
Bert Court
Mt Henry Place
Mt Laudo Drive
Herbert Avenue
Donald Court
Mt Henry Way
Mt Hukee Avenue
Mt Hubbard Avenue
Mt Voss Drive
51
50
344
345
346
347
307B
306B
305
304
71

I:\PROJECTS\AIADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig8-2_RWQCB.mxd SDD-31.13 4/29/2021 - RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the State Impacts

Figure 8-2

Tecolote Canyon Trunk Sewer Improvement Project

Study Area
RWQCB Review Area
OHWM Data Point (DP) Form
Photo Location
Permanent Impacts
Temporary Impacts
Tecolote Sewer Main
Sewer Manholes
Proposed Sewer Manhole
Non-wetland Waters of the State
Stream Channel

NWW 4
Stream Crossing Improvements No. 6
Staging Area 5
Mt Hukee Avenue
Mt Armet Drive
Mt Putman Avenue
Tecolote Creek
DP D-1
0.006 acre
Tunneling Pit
Balboa Avenue
Trenchless Construction (tunneling areas)
Mt Bigelow Drive
Mt Terminus Drive
Mt Alifan Drive
Mt Alifan Way
Tunneling Pit
Trenchless Construction (tunneling areas)
North Reach
Central Reach
South Reach
Trenchless Construction (tunneling areas)
DP E-1
0.034 acre
Stream Crossing Improvements No. 7
NWW 5
Tunneling Pit
Waco Street
Tunneling Pit
NWW 6

70 4 66 49 48 47B 46 271 270 269A 159 6 5 268Z 174

0 200 Feet

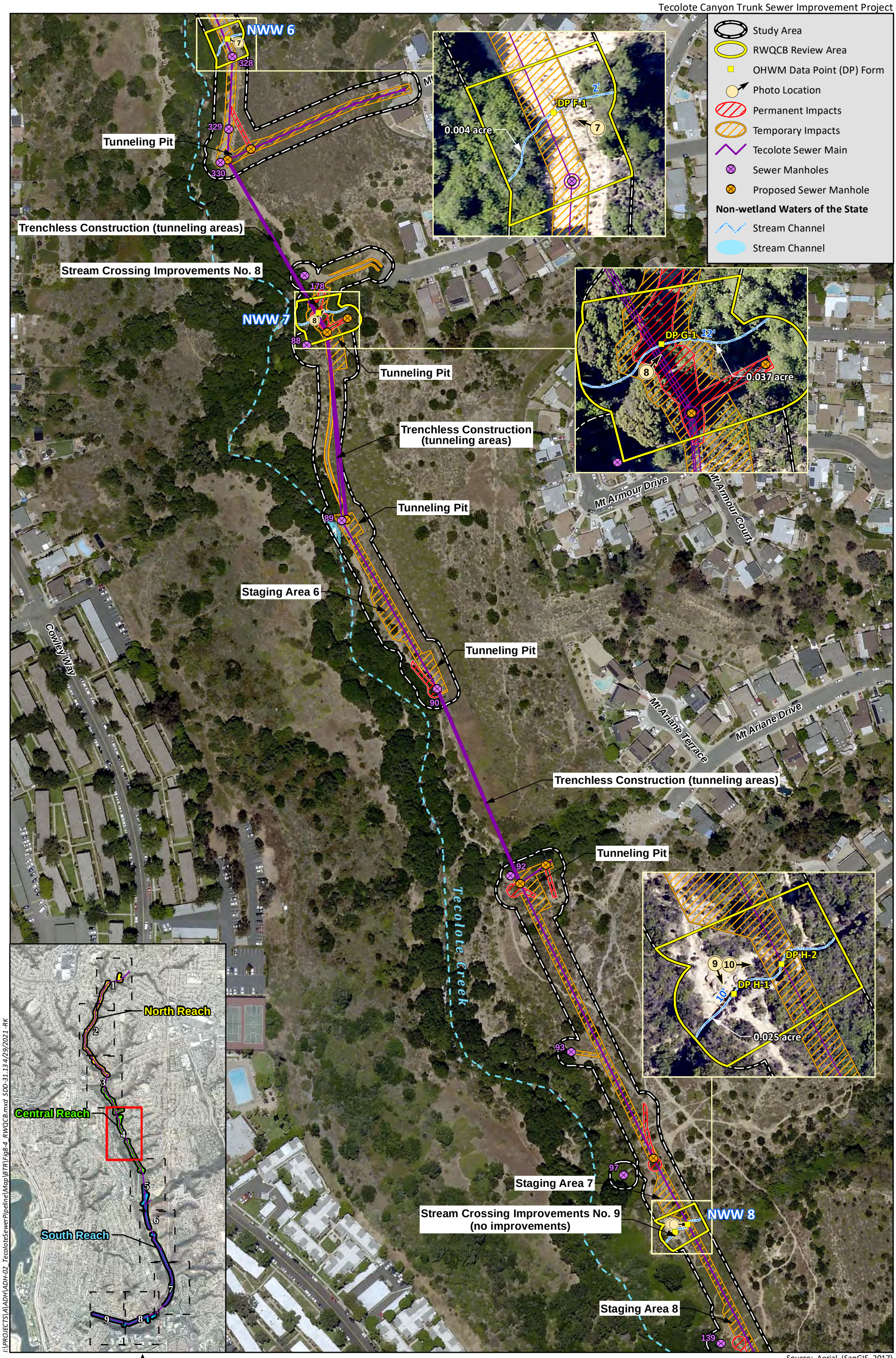
Source: Aerial (SanGIS, 2017)

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig8-3_RWQCB.mxd SDD-31.13 4/29/2021 - RK

HELIX Environmental Planning

Waters of the State Impacts

Figure 8-3



I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig8-4_RWQCB.mxd SDD-31.13 4/29/2021 -RK

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the State Impacts

Figure 8-4

Tecolote Canyon Trunk Sewer Improvement Project

Study Area
RWQCB Review Area
OHWM Data Point (DP) Form
Photo Location
Permanent Impacts
Temporary Impacts
Tecolote Sewer Main
Sewer Manholes
Proposed Sewer Manhole
Non-jurisdictional
Erosional Feature
Non-wetland Waters of the State
Stream Channel
Stream Channel
Wetland Waters
Southern Riparian Forest Disturbed

NWW 9
NWW 10
DP I-1
DP K-1
0.005 acre
DP J-1
0.011 acre
Tunneling Pit
Tunneling Pit
Tunneling Pit
Trenchless Construction (tunneling areas)
Trenchless Construction (tunneling areas)
139
195
196
197
169
170B
256
257
258
259
Via Alcazar
Burford Street
Snead Avenue
Mt Acadia Boulevard
Cowley Way
Tecolote Creek
Tecolote Creek, South Fork
North Reach
Central Reach
South Reach

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig8-5_RWQCB.mxd SDD-31.13 4/29/2021 - RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the State Impacts

Figure 8-5

Tecolote Canyon Trunk Sewer Improvement Project

Study Area
RWQCB Review Area
OHWM Data Point (DP) Form
Photo Location
Temporary Impacts
Tecolote Sewer Main
Sewer Manholes
Proposed Sewer Manhole

Non-wetland Waters of the State

Stream Channel

Wetland Waters

Southern Riparian Forest Disturbed

Tecolote Creek
260
394
Tunneling Pit
Trenchless Construction (tunneling areas)
306A
NWW 11
Tunneling Pit
15
14
307A
0.045 acre
DP L-2
DP L-1
Sendero Way
Opalo Way
Cowley Way
375
378
North Reach
Central Reach
South Reach
1
2
3
4
5
6
7
8
9

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig8-6_RWQCB.mxd SDD-31.13 4/29/2021 - RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the State Impacts

Figure 8-6

Study Area
RWQCB Review Area
OHWM Data Point (DP) Form
Photo Location
Permanent Impacts
Temporary Impacts
Tecolote Sewer Main
Sewer Manholes
Sampling Point
Sheet Flow

Non-wetland Waters of the State

Stream Channel

Wetland Waters

Southern Willow Scrub

62
16
DP M-1
58
17
NWW 12
DP N-1
6'
0.010 acre
SP 3
21
18
NWW 13
47A
DP O-1
5'
0.009 acre
Tecolote Creek
19
SP 1
SP 2
20
0.037 acre
476
166
170A
WET 1
Cowley Way
Via Las Cumbres
North Reach
Central Reach
South Reach
1
2
3
4
5
6
7
8
9

0 200 Feet

Source: Aerial (SanGIS, 2017)

I:\PROJECTS\AIADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig8-7_RWQCB.mxd SDD-31.13 4/29/2021 - RK

HELIX Environmental Planning

Waters of the State Impacts

Figure 8-7

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the State Impacts

Figure 8-8

Study Area
Permanent Impacts
Temporary Impacts
Tecolote Sewer Main
Sewer Manholes

Sky Street
Bonus Drive
Viane Way
Gardena Place
Galena Avenue
Goldboro Street
Sparks Avenue
Gasconade Avenue
Georgetown Avenue
Gardena Avenue
Tecolote Creek
266
268A
272
211
207
Everview Road
Plainview Road
Elevation Road
Onstad Street
Monitor Road
Brownell Street
Cushman Avenue
Solar Street
Crown Street

North Reach
Central Reach
South Reach
1
2
3
4
5
6
7
8
9

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig8-8_9_RWQCB.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Waters of the State Impacts

Figure 8-9

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Proposed Sewer Manhole
Tecolote Sewer Main
Stream Channel

CDFW Habitats

Coast Live Oak Woodland
Oak Riparian Forest

Chickasaw Court
Acoma Avenue
Shoshoni Avenue
Winnebago Avenue
Genesee Avenue
Chateau Drive
Mt Frissell Drive
Mt Gaywas Drive
Mt Lindsey Place
Mt Lindsey Avenue
Mt King Drive
Mt Henry Avenue
Mt Etna Drive

275
269B
80
79
74
75
76
77
52
51

Trenchless Construction (tunneling areas)
Tunneling Pit
20'
Staging Area 1
Stream Crossing Improvements No. 4
Trenchless Construction (tunneling areas)

North Reach
Central Reach
South Reach

I:\PROJECTS\A\ADH\ADH-02 TecoloteSewerPipeline\Map\BTR\Fig9_CDFW.mxd SDD-31.13 4/29/2021 -RK

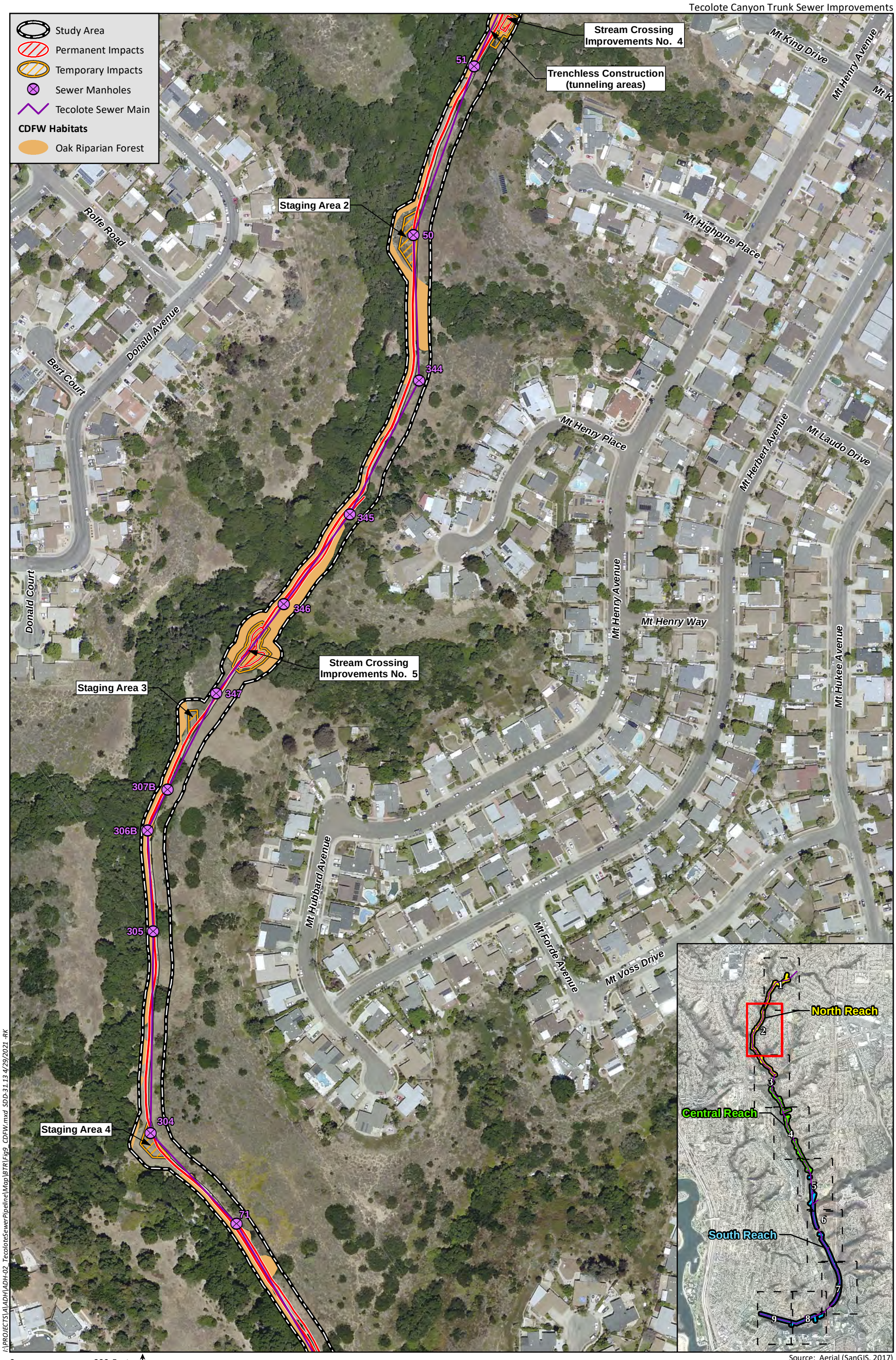
0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

CDFW Jurisdictional Habitats Impacts

Figure 9-1



I:\PROJECTS\A\ADH\ADH-02 TecoloteSewerPipeline\Map\BTR\Fig9_CDFW.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

CDFW Jurisdictional Habitats Impacts

Figure 9-2

Tecolote Canyon Trunk Sewer Improvements

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Proposed Sewer Manhole
Tecolote Sewer Main
Stream Channel

CDFW Habitats

Coast Live Oak Woodland
Oak Riparian Forest
Southern Willow Scrub

Stream Crossing Improvements No. 6
Staging Area 5
Tunneling Pit
Trenchless Construction (tunneling areas)
Tunneling Pit
Trenchless Construction (tunneling areas)
Trenchless Construction (tunneling areas)
Tunneling Pit
Stream Crossing Improvements No. 7
Tunneling Pit

Mt Hukee Avenue
Mt Putman Avenue
Mt Arnet Drive
Dalles Avenue
Balboa Avenue
Mt Bigelow Drive
Mt Terminus Drive
Mt Alifan Drive
Waco Street

70
2
66
49
48
47B
46
271
270
269A
159
268Z
174

North Reach
Central Reach
South Reach

SANDAG & SanGIS

0 200 Feet

Source: Aerial (SanGIS, 2017)

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig9_CDFW.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

CDFW Jurisdictional Habitats Impacts

Figure 9-3

Tecolote Canyon Trunk Sewer Improvements

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Proposed Sewer Manhole
Tecolote Sewer Main
Stream Channel

CDFW Habitats

Oak Riparian Forest
Southern Willow Scrub

Mt Almagosa Place
Mt Ashmun Drive
Mt Everest Boulevard
Mt Armour Drive
Mt Ariane Drive
Cowley Way

2'
328
329
330
Tunneling Pit
Trenchless Construction (tunneling areas)
178
Stream Crossing Improvements No. 8
88
Tunneling Pit
Trenchless Construction (tunneling areas)
89
Tunneling Pit
Staging Area 6
Tunneling Pit
90
Trenchless Construction (tunneling areas)
92
Tunneling Pit
93
97
Staging Area 7
Stream Crossing Improvements No. 9 (no improvements)
10'
Staging Area 8
139

North Reach
Central Reach
South Reach

SANDAG & SanGIS

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig9_CDFW.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

CDFW Jurisdictional Habitats Impacts

Figure 9-4

Tecolote Canyon Trunk Sewer Improvements

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Proposed Sewer Manhole
Tecolote Sewer Main
Erosional Feature
Stream Channel

CDFW Habitats

Oak Riparian Forest
Southern Riparian Forest - Disturbed

139
3'
195
Via Aquario
Tunneling Pit
Trenchless Construction (tunneling areas)
196
197
Tunneling Pit
Via Amata
Via Alcazar
Via Amalia
169
Open-cut
Snead Avenue
Mt Acadia Boulevard
Cowley Way
Burford Street
170B
256
257
Tunneling Pit
Trenchless Construction (tunneling areas)
258
259
Tunneling Pit
Cowley Way

North Reach
Central Reach
South Reach
1
2
3
4
5
6
7
8
9

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig9_CDFW.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

CDFW Jurisdictional Habitats Impacts

Figure 9-5

Tecolote Canyon Trunk Sewer Improvements

Study Area
Temporary Impacts
Sewer Manholes
Proposed Sewer Manhole
Tecolote Sewer Main

CDFW Habitats

Oak Riparian Forest
Oak Riparian Forest - Disturbed
Southern Riparian Forest
Southern Riparian Forest - Disturbed

260
394
Tunneling Pit
Trenchless Construction (tunneling areas)
306A
Tunneling Pit
307A
375
378
Sendero Way
Opalo Way
Cowley Way
North Reach
Central Reach
South Reach
SANDAG & SanGIS

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig9_CDFW.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

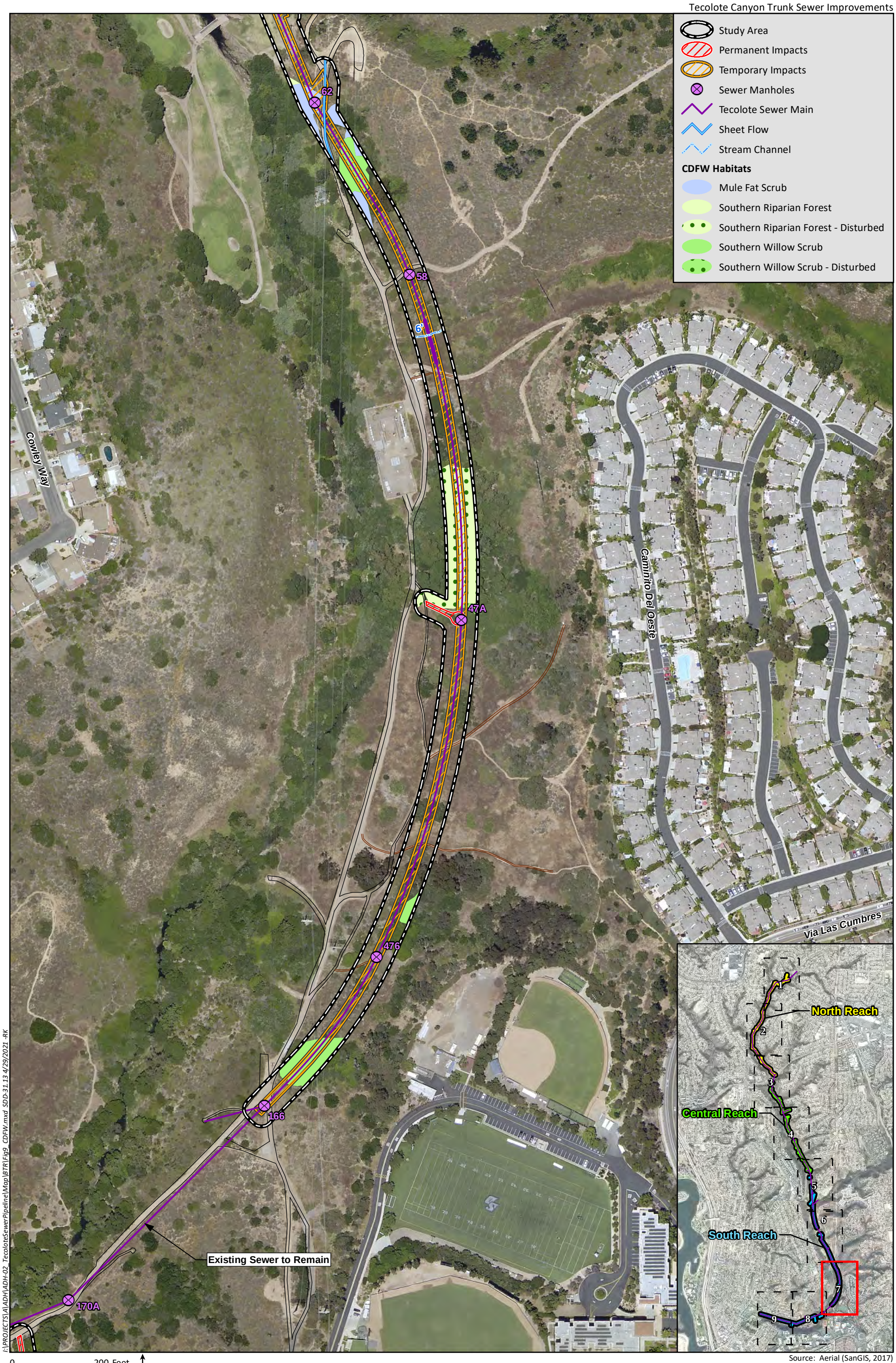
Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

CDFW Jurisdictional Habitats Impacts

Figure 9-6

Tecolote Canyon Trunk Sewer Improvements



I:\PROJECTS\AI\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig9_CDFW.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

CDFW Jurisdictional Habitats Impacts

Figure 9-7

0 200 Feet

Source: Aerial (SanGIS, 2017)

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig9_CDFW.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

CDFW Jurisdictional Habitats Impacts

Figure 9-8

Tecolote Canyon Trunk Sewer Improvements

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Tecolote Sewer Main

CDFW Habitats

Southern Willow Scrub - Disturbed

Sparks Avenue
Viane Way
Gardena Place
Sky Street
Bonus Drive
Galena Avenue
Goldboro Street
Sparks Avenue
Gasconade Avenue
Georgetown Avenue
Gardena Avenue
266
268A
272
211
207
Everview Road
Plainview Road
Elevation Road
Brownell Street
Cushman Avenue
Solar Street
North Reach
Central Reach
South Reach
1
2
3
4
5
6
7
8
9
SANDAG & SanGIS

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig9_CDFW.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

CDFW Jurisdictional Habitats Impacts

Figure 9-9

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Proposed Sewer Manhole
Tecolote Sewer Main
City of San Diego Wetlands
Oak Riparian Forest

Chickasaw Court
Acoma Avenue
Shoshoni Avenue
Winnebago Avenue
Genesee Avenue
Chateau Drive
Mt Frissell Drive
Mt Gaywas Drive
Mt Lindsey Place
Mt Lindsey Avenue
Mt King Drive
Mt Henry Avenue
Mt Etna Drive

275
269B
80
79
74
75
76
77
52
51

Trenchless Construction (tunneling areas)
Tunneling Pit
Staging Area 1
Stream Crossing Improvements No. 4
Trenchless Construction (tunneling areas)

North Reach
Central Reach
South Reach

I:\PROJECTS\A\ADH\ADH-02 TecoloteSewerPipeline\Map\BTR\Fig10_CityWetlands.mxd SDD-31.13 4/29/2021 - RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

City of San Diego Wetlands Impacts

Figure 10-1

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Tecolote Sewer Main
City of San Diego Wetlands
Oak Riparian Forest

Stream Crossing Improvements No. 4
Trenchless Construction (tunneling areas)
Staging Area 2
Stream Crossing Improvements No. 5
Staging Area 3
Staging Area 4

51
50
344
345
346
347
307B
306B
305
304
71

Rolfe Road
Donald Avenue
Bert Court
Donald Court
Mt King Drive
Mt Henry Avenue
Mt Highpine Place
Mt Henry Place
Mt Henry Way
Mt Hubbard Avenue
Mt Herbert Avenue
Mt Laudo Drive
Mt Hukee Avenue
Mt Forde Avenue
Mt Voss Drive

North Reach
Central Reach
South Reach

0 200 Feet

Source: Aerial (SanGIS, 2017)

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig10_CityWetlands.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

City of San Diego Wetlands Impacts

Figure 10-2

Tecolote Canyon Trunk Sewer Improvements

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Proposed Sewer Manhole
Tecolote Sewer Main
City of San Diego Wetlands
Oak Riparian Forest
Southern Willow Scrub

Stream Crossing Improvements No. 6
Staging Area 5
Tunneling Pit
Trenchless Construction (tunneling areas)
Tunneling Pit
Trenchless Construction (tunneling areas)
Trenchless Construction (tunneling areas)
Tunneling Pit
Stream Crossing Improvements No. 7
Tunneling Pit

70
66
49
48
47B
46
271
270
269A
159
268Z
174

Mt Hukee Avenue
Mt Putman Avenue
Mt Arnet Drive
Dalles Avenue
Balboa Avenue
Mt Bigelow Drive
Mt Terminus Drive
Mt Alifan Drive
Waco Street

North Reach
Central Reach
South Reach

SANDAG & SanGIS

Source: Aerial (SanGIS, 2017)

0 200 Feet

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig10_CityWetlands.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

City of San Diego Wetlands Impacts

Figure 10-3

Tecolote Canyon Trunk Sewer Improvements

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Proposed Sewer Manhole
Tecolote Sewer Main
City of San Diego Wetlands
Oak Riparian Forest
Southern Willow Scrub

328
329
330
Tunneling Pit
Trenchless Construction (tunneling areas)
Mt Almagosa Place
Mt Ashmun Drive
178
Stream Crossing Improvements No. 8
88
Tunneling Pit
Mt Everest Boulevard
Trenchless Construction (tunneling areas)
Mt Armour Drive
89
Tunneling Pit
Staging Area 6
Cowley Way
Tunneling Pit
90
Mt Ariane Drive
Trenchless Construction (tunneling areas)
92
Tunneling Pit
93
97
Staging Area 7
Stream Crossing Improvements No. 9 (no improvements)
Staging Area 8
139
SANDAG & SanGIS

North Reach
Central Reach
South Reach
1
2
3
4
5
6
7
8
9

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig10_CityWetlands.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

City of San Diego Wetlands Impacts

Figure 10-4

Tecolote Canyon Trunk Sewer Improvements

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Proposed Sewer Manhole
Tecolote Sewer Main

City of San Diego Wetlands

Oak Riparian Forest
Southern Riparian Forest - Disturbed

139
195
196
197
169
170B
256
257
258
259

Tunneling Pit
Trenchless Construction (tunneling areas)
Tunneling Pit
Open-cut
Tunneling Pit
Trenchless Construction (tunneling areas)
Tunneling Pit

Via Aquario
Via Amata
Via Alcazar
Via Amalia
Burford Street
Snead Avenue
Mt Acadia Boulevard
Cowley Way
Cowley Way

North Reach
Central Reach
South Reach

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig10_CityWetlands.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

City of San Diego Wetlands Impacts

Figure 10-5

Tecolote Canyon Trunk Sewer Improvements

Study Area
Temporary Impacts
Sewer Manholes
Proposed Sewer Manhole
Tecolote Sewer Main

City of San Diego Wetlands

Oak Riparian Forest
Oak Riparian Forest - Disturbed
Southern Riparian Forest
Southern Riparian Forest - Disturbed

260
394
Tunneling Pit
Trenchless Construction (tunneling areas)
306A
Tunneling Pit
307A
375
378
Sendero Way
Opalo Way
Cowley Way
North Reach
Central Reach
South Reach
SANDAG & SanGIS

0 200 Feet

Source: Aerial (SanGIS, 2017)

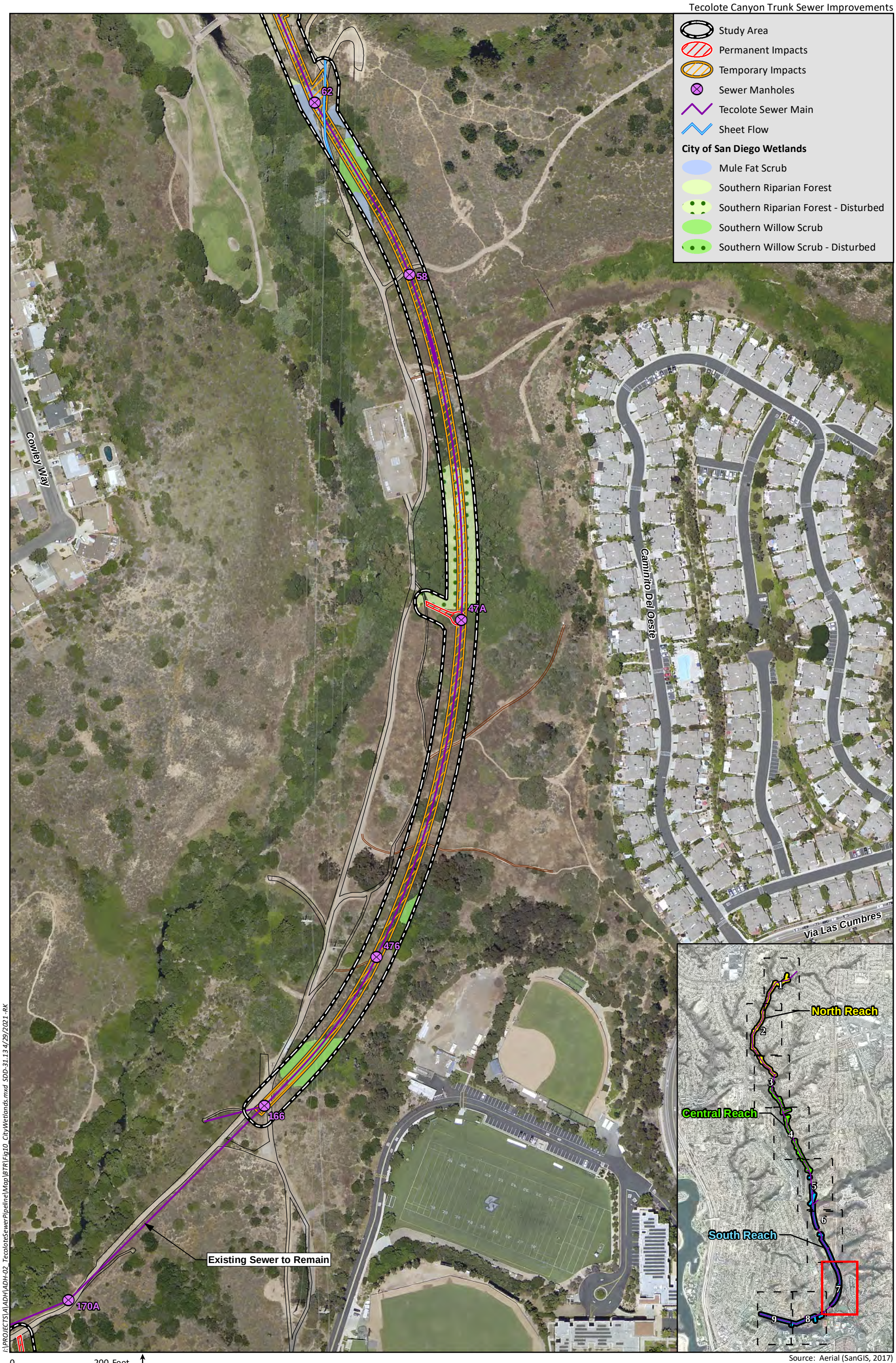
I:\PROJECTS\AIADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig10_CityWetlands.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

City of San Diego Wetlands Impacts

Figure 10-6

Tecolote Canyon Trunk Sewer Improvements



I:\PROJECTS\AI\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig10_CityWetlands.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

City of San Diego Wetlands Impacts

Figure 10-7

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig10_CityWetlands.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

City of San Diego Wetlands Impacts

Figure 10-8

Tecolote Canyon Trunk Sewer Improvements

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Tecolote Sewer Main

City of San Diego Wetlands

Southern Willow Scrub - Disturbed

Sparks Avenue
Viane Way
Gardena Place
Sky Street
Bonus Drive
Galena Avenue
Goldboro Street
Sparks Avenue
Gasconade Avenue
Georgetown Avenue
Gardena Avenue
Everview Road
Plainview Road
Elevation Road
Brownell Street
Cushman Avenue
Solar Street

266
268A
272
211
207

North Reach
Central Reach
South Reach

SANDAG & SanGIS

0 200 Feet

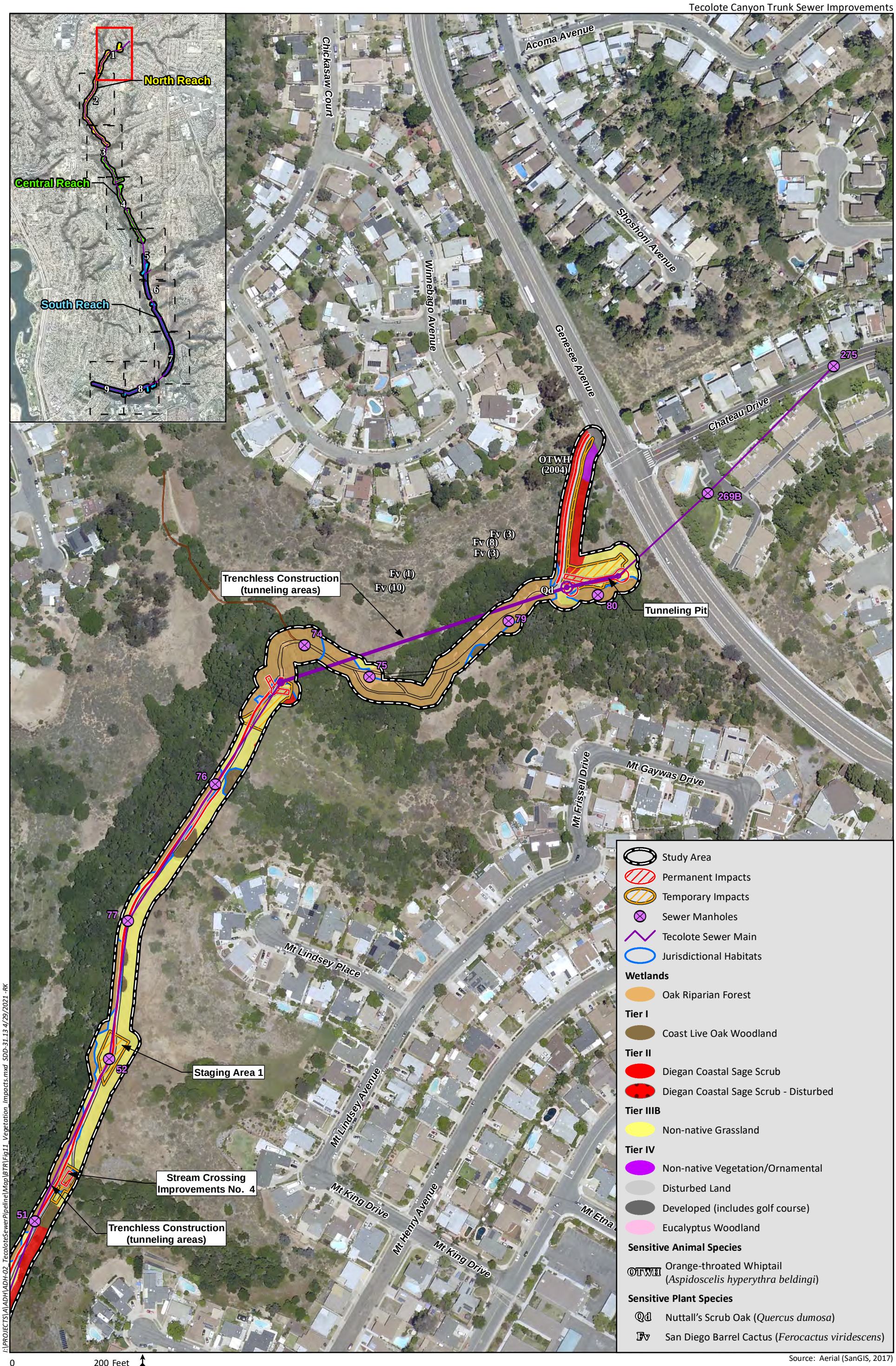
Source: Aerial (SanGIS, 2017)

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig10_CityWetlands.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

City of San Diego Wetlands Impacts

Figure 10-9



I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig11_Vegetation_Impacts.mxd SDD-31.13 4/29/2021 -RK

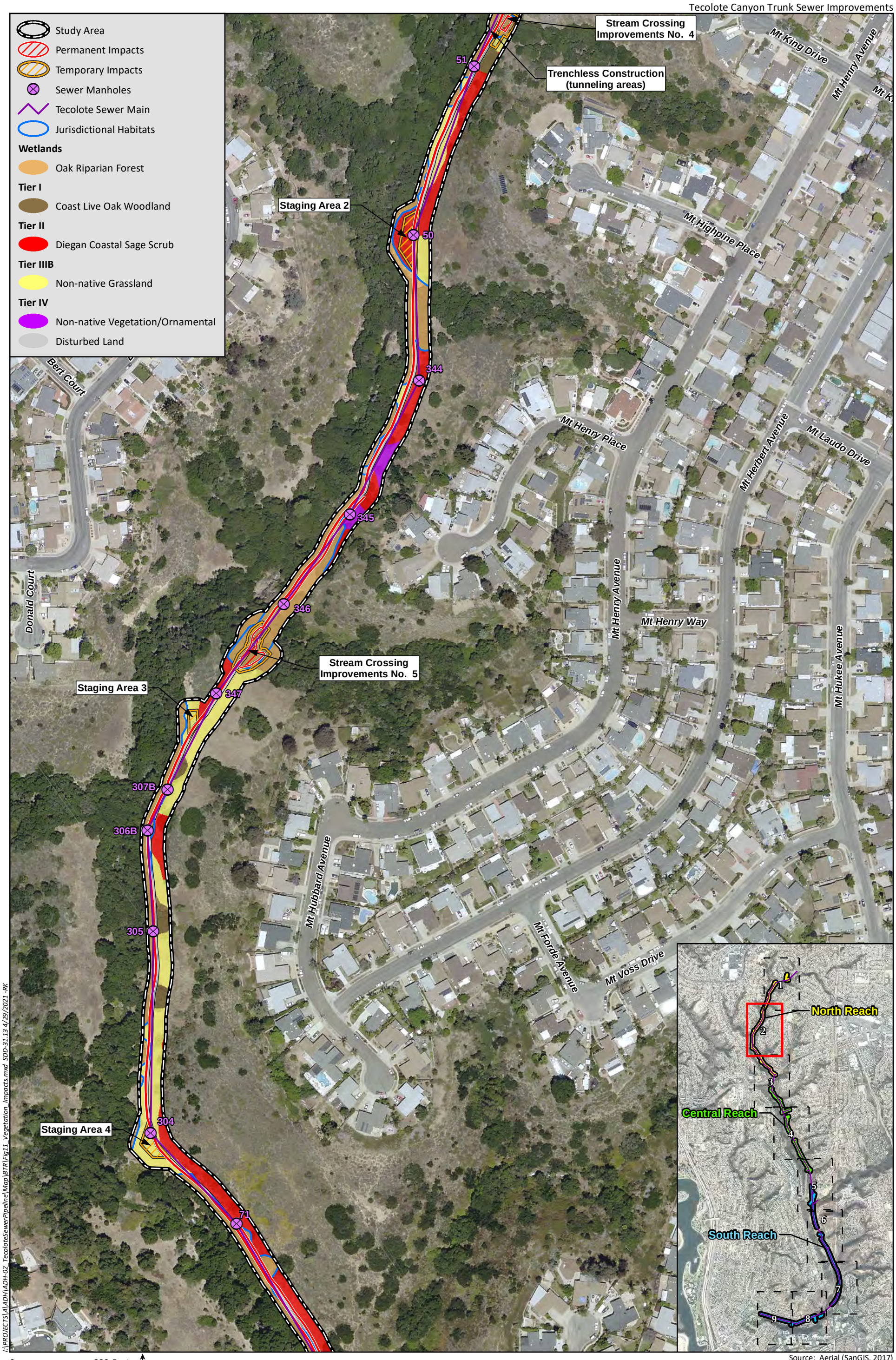
0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation/Impacts

Figure 11-1



Source: Aerial (SanGIS, 2017)

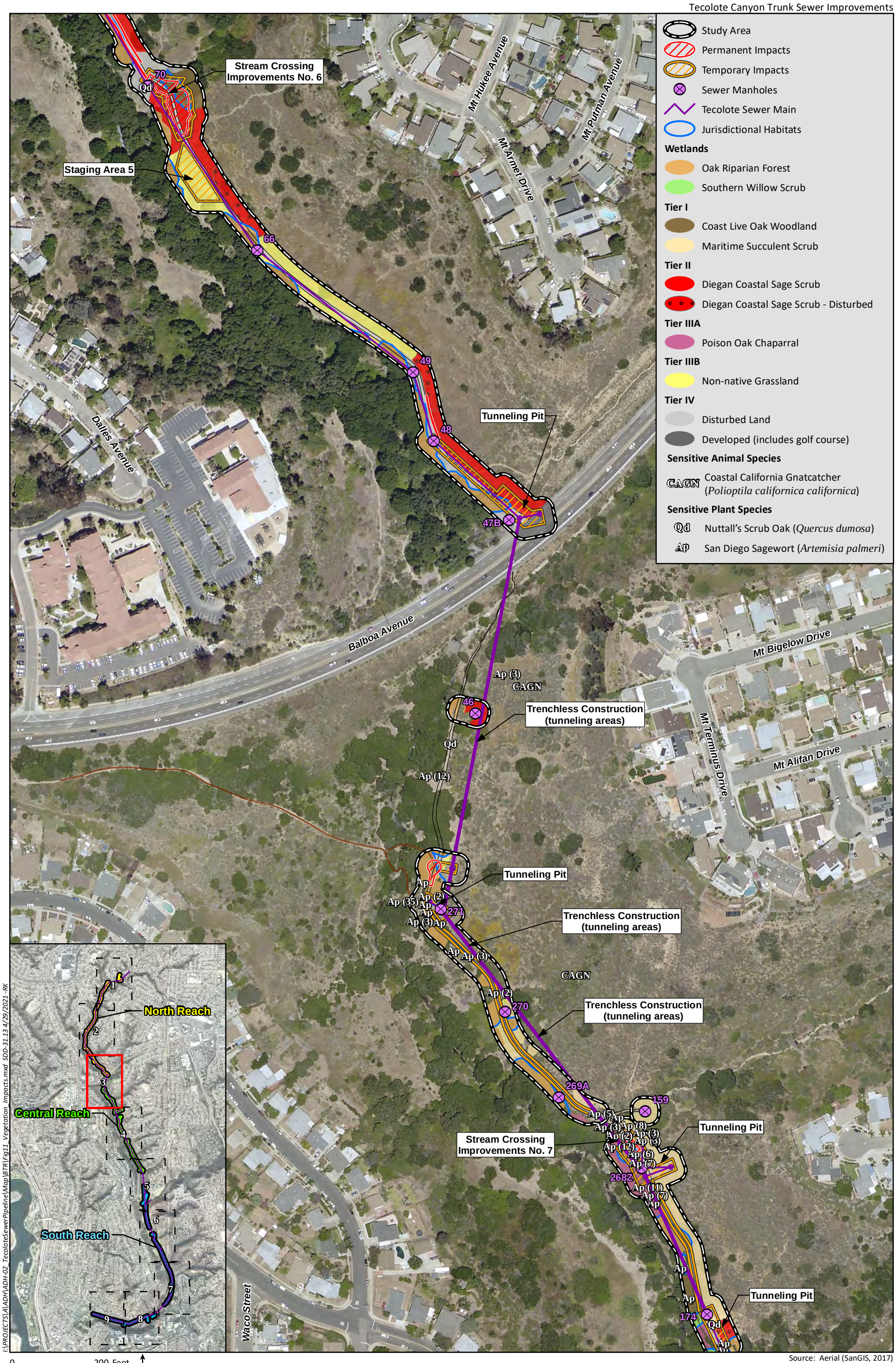
I:\PROJECTS\A\ADH\ADH-02 TecoloteSewerPipeline\Map\BTR\Fig11 Vegetation Impacts.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

Vegetation/Impacts

Figure 11-2

Tecolote Canyon Trunk Sewer Improvements



I:\PROJECTS\AI\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig11_Vegetation_Impacts.mxd SDD-31.13 4/29/2021 -RK

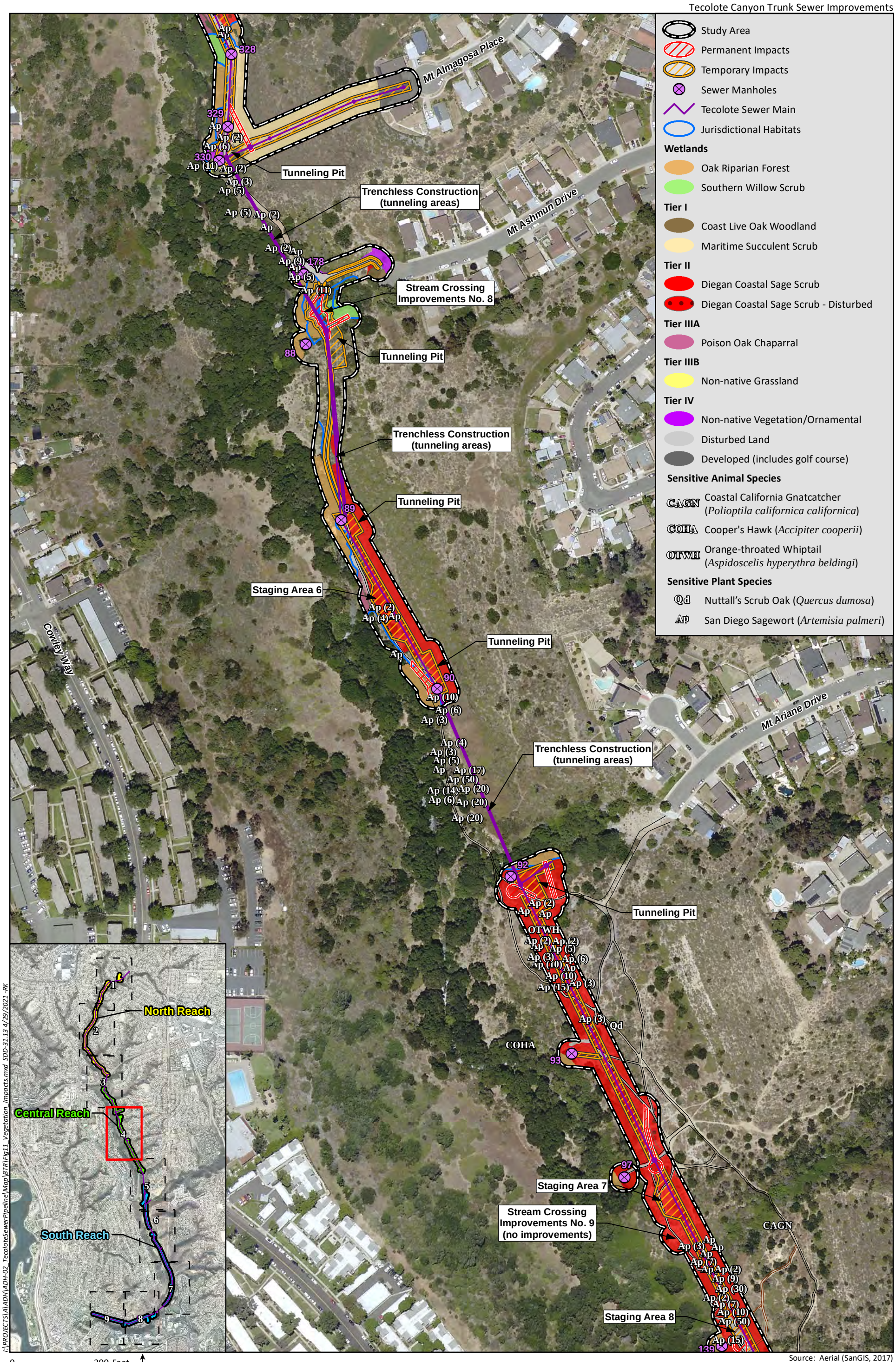
Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation/Impacts

Figure 11-3

Tecolote Canyon Trunk Sewer Improvements



I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig11_Vegetation_Impacts.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation/Impacts

Figure 11-4

Tecolote Canyon Trunk Sewer Improvements

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Tecolote Sewer Main
Jurisdictional Habitats

Wetlands
Oak Riparian Forest
Southern Riparian Forest - Disturbed

Tier II
Diegan Coastal Sage Scrub
Diegan Coastal Sage Scrub - Disturbed

Tier IIIB
Non-native Grassland

Tier IV
Non-native Vegetation/Ornamental
Disturbed Land
Developed (includes golf course)

Sensitive Animal Species
OTWH Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)

Sensitive Plant Species
Ap San Diego Sagewort (*Artemisia palmeri*)

COHA
Via Aquario
Via Amalia
Burford Street
Snead Avenue
Mt Acadia Boulevard
Cowley Way
Tunneling Pit
Trenchless Construction (tunneling areas)
Open-cut
139
195
196
197
169
170B
256
257
258
259
North Reach
Central Reach
South Reach

Source: Aerial (SanGIS, 2017)

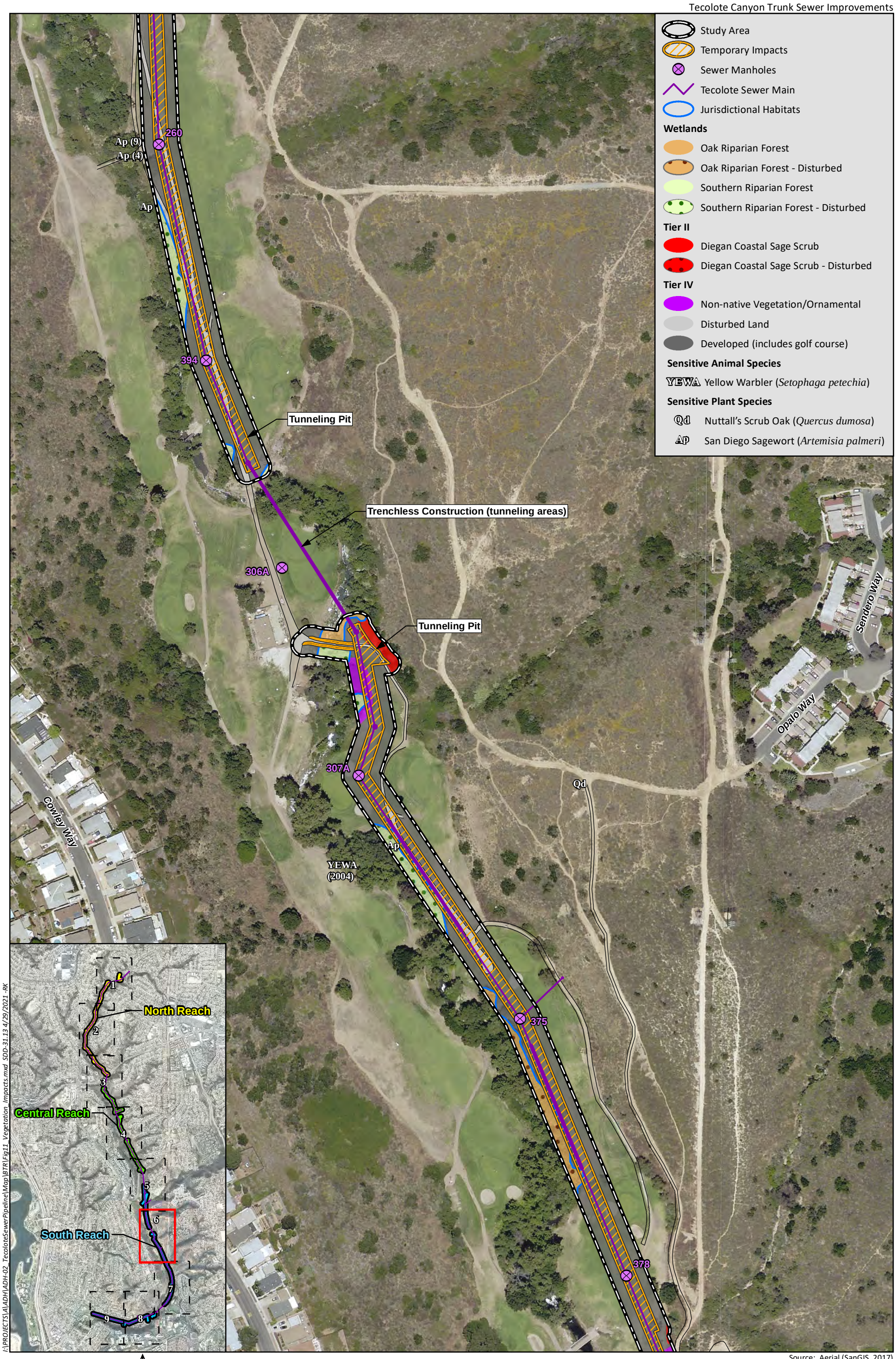
0 200 Feet

I:\PROJECTS\A\ADH\ADH-02 TecoloteSewerPipeline\Map\BTR\Fig11 Vegetation Impacts.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

Vegetation/Impacts

Figure 11-5



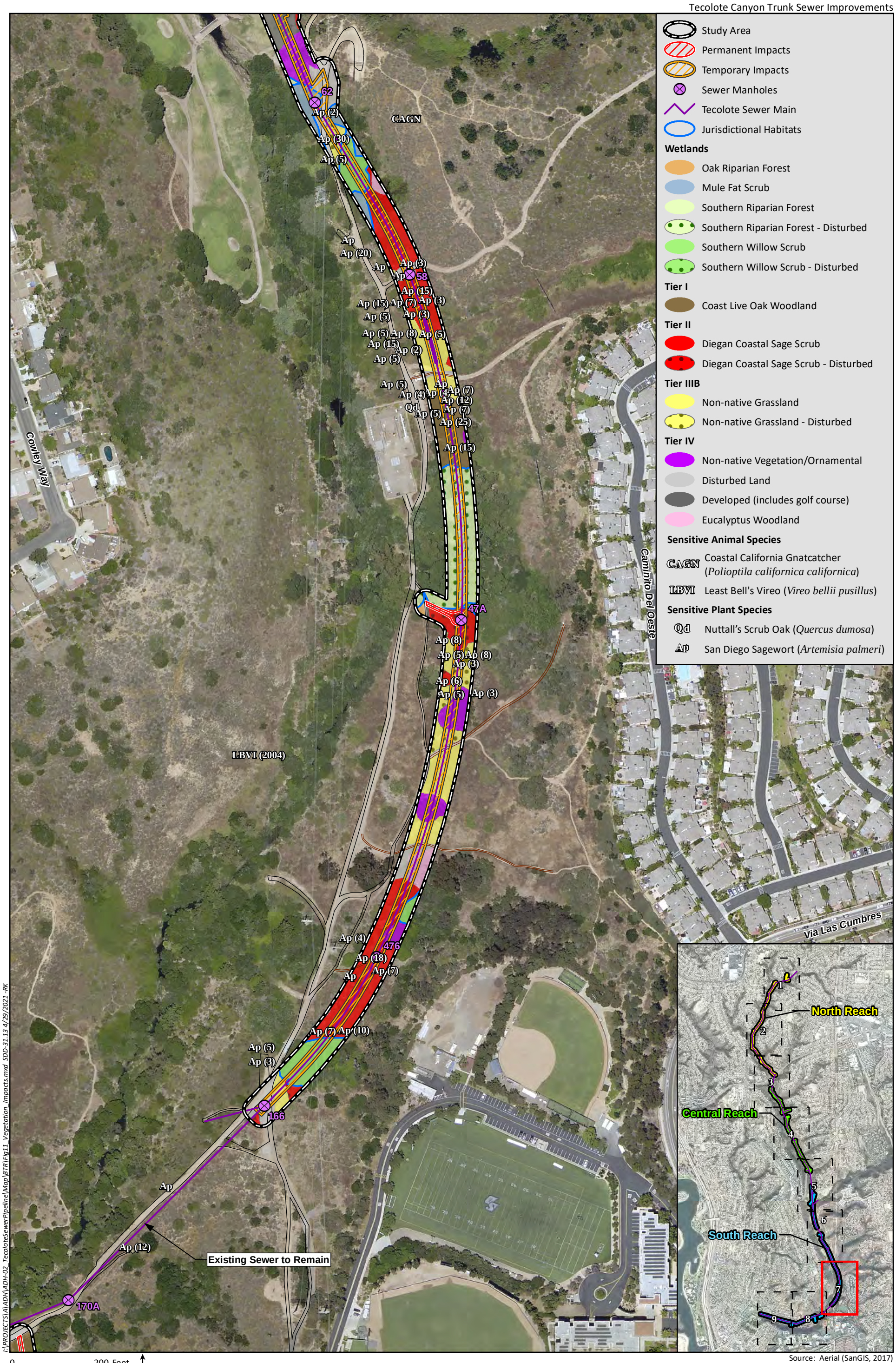
I:\PROJECTS\AIADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig11_Vegetation_Impacts.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

Vegetation/Impacts

Figure 11-6

Tecolote Canyon Trunk Sewer Improvements



- Study Area
- Permanent Impacts
- Temporary Impacts
- Sewer Manholes
- Tecolote Sewer Main
- Jurisdictional Habitats

Wetlands

- Oak Riparian Forest
- Mule Fat Scrub
- Southern Riparian Forest
- Southern Riparian Forest - Disturbed
- Southern Willow Scrub
- Southern Willow Scrub - Disturbed

Tier I

- Coast Live Oak Woodland

Tier II

- Diegan Coastal Sage Scrub
- Diegan Coastal Sage Scrub - Disturbed

Tier IIIB

- Non-native Grassland
- Non-native Grassland - Disturbed

Tier IV

- Non-native Vegetation/Ornamental
- Disturbed Land
- Developed (includes golf course)
- Eucalyptus Woodland

Sensitive Animal Species

- CAGN — Coastal California Gnatcatcher (*Polioptila californica californica*)
- LBVI — Least Bell's Vireo (*Vireo bellii pusillus*)

Sensitive Plant Species

- Qd — Nuttall's Scrub Oak (*Quercus dumosa*)
- Ap — San Diego Sagewort (*Artemisia palmeri*)

0 200 Feet

Source: Aerial (SanGIS, 2017)

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig11_Vegetation_Impacts.mxd SDD-31.13 4/29/2021 -RK

HELIX Environmental Planning

Vegetation/Impacts

Figure 11-7

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Tecolote Sewer Main
Jurisdictional Habitats

Wetlands
Oak Riparian Forest
Oak Riparian Forest - Disturbed
Southern Willow Scrub

Tier I
Coast Live Oak Woodland

Tier II
Diegan Coastal Sage Scrub
Diegan Coastal Sage Scrub - Disturbed

Tier III
Southern Mixed Chaparral
Southern Mixed Chaparral - Disturbed

Tier IIIB
Non-native Grassland
Non-native Grassland - Disturbed

Tier IV
Non-native Vegetation/Ornamental
Disturbed Land

Sensitive Plant Species
Qd Nuttall's Scrub Oak (*Quercus dumosa*)
Ap San Diego Sagewort (*Artemisia palmeri*)

February Street
September Street
March Place
Gardena Avenue
Cross Street
Santa Anita Drive
Existing Sewer to Remain
170A
184
187
179
182
203
Ap (2)
Ap (6) Ap (8)
Ap (6) Qd Ap (12)
Ap (10)
Ap (3) Ap (2)
Ap (3) Ap (2)
Ap (10)
Ap (2)
Ap (10)
Ap (4)
Ap (8)

North Reach
Central Reach
South Reach
1
2
3
4
5
6
7
8
9

I:\PROJECTS\A\ADH\ADH-02 TecoloteSewerPipeline\Map\BTR\Fig11 Vegetation Impacts.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation/Impacts

Figure 11-8

Tecolote Canyon Trunk Sewer Improvements

Study Area
Permanent Impacts
Temporary Impacts
Sewer Manholes
Tecolote Sewer Main
Jurisdictional Habitats

Wetlands
Southern Willow Scrub - Disturbed

Tier I
Coast Live Oak Woodland

Tier II
Diegan Coastal Sage Scrub
Diegan Coastal Sage Scrub - Disturbed

Tier III
Southern Mixed Chaparral
Southern Mixed Chaparral - Disturbed

Tier IIIB
Non-native Grassland

Tier IV
Disturbed Land
Developed (includes golf course)

Sensitive Plant Species
AP San Diego Sagewort (*Artemisia palmeri*)

Sparks Avenue
Viane Way
Gardena Place
Sky Street
Bonus Drive
Galena Avenue
Goldboro Street
Sparks Avenue
Georgetown Avenue
Gardena Avenue
Everview Road
Plainview Road
Elevation Road
Brownell Street
Cushman Avenue
Solar Street

266
268A
Ap (2)
Ap (22)
Ap (10)
Ap (10)
Ap (2)
272
Ap (6)
211
207

North Reach
Central Reach
South Reach

I:\PROJECTS\AIADH\ADH-02_TecoloteSewerPipeline\Map\BTR\Fig11_Vegetation_Impacts.mxd SDD-31.13 4/29/2021 -RK

0 200 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation/Impacts

Figure 11-9

This page intentionally left blank

Appendix A

Jurisdictional Delineation Data

Appendix A.1
Federal Jurisdictional Information

WETLANDS AND "WATERS OF THE U.S." DEFINITIONS

Clean Water Rule

In 2015, the U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) jointly issued the Clean Water Rule (CWR; Federal Register 2015) to define waters of the U.S. (WUS).[1] The CWR was promulgated to define the scope of WUS in light of "statute, science, Supreme Court decisions in *U.S. v. Riverside Bayview Homes, Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (*SWANCC*)*, and Rapanos v. United States* (*Rapanos*), and the agencies' experience and technical expertise." This is a definitional rule that clarifies the scope of WUS consistent with the Clean Water Act (CWA) for several federal programs, including section 404 permit program. The CWR continues to require a significant nexus cited in SWANCC and Rapanos for some waters.

The CWR defines four types of waters:

- Traditional Navigable Waters, Interstate Waters, Territorial Seas, and Impoundments of Jurisdictional Waters;
- Tributaries;
- Adjacent Waters; and
- Case-Specific Waters Requiring a Significant Nexus Determination

Traditional Navigable Waters, Interstate Waters, Territorial Seas, and Impoundments of Jurisdictional Waters

This category is essentially not changed by the CWR, although their names have changed (Table A-1, *Regulatory Framework Comparison*).

Table A-1
REGULATORY FRAMEWORK COMPARISON

1986 Definition and 2003/2008 Guidance	2015 Clean Water Rule
Traditional Navigable Waters	(a)(1) waters
Interstate waters	(a)(2) waters
Territorial seas	(a)(3) waters
Impoundments	(a)(4) waters

Tributaries

Previous definitions of WUS regulated all tributaries without qualification. This rule provides a more precise definition. The great majority of tributaries are headwater streams that play an important role in

1 The CWR has been challenged in court, and is currently in effect in 26 states, including California. On February 28, 2017, the President of the United States issued an Executive Order directing EPA and the Department of the Army to review and rescind or revise the CWR, and the agencies are in the process of reviewing the CWR and considering a revised definition of WUS consistent with the Executive Order; however, the CWR remains in effect in California at this time.

Appendix A.1 (cont.)
Federal Jurisdictional Information

the transport of water, sediments, organic matter, nutrients, and organisms to downstream waters. Tributaries are defined as jurisdictional by the CWR.

All tributaries are classified as (a)(5) waters under the CWR. These jurisdictional features affect the chemical, physical, and biological integrity of downstream waters. All waters that meet the definition of tributary in paragraph (c)(3) (i.e. has bed and bank and Ordinary High Water Mark [OHWM], and contributes flow to downstream waters) are jurisdictional under the CWR. Under previous regulations and guidance, tributaries that were not Relatively Permanent Waters required a significant nexus determination.

Adjacent Waters

By rule, (a)(6) adjacent waters have a significant nexus to (a)(1) through (a)(5) waters based on their hydrological and ecological connections to, and interactions with, those waters. Adjacent waters under the CWR are defined in paragraph (c)(1) as bordering, contiguous, or neighboring an (a)(1) through (a)(5) water, including waters separated from other WUS by constructed dikes or barriers, natural river berms, beach dunes, etc. Waters that connect segments of, or are at the head of, a stream or river are "adjacent" to that stream or river. Examples of adjacent waters include wetlands, ponds, lakes, oxbows, and impoundments. Excluded features include areas of normal farming, silviculture and ranching activities.

Neighboring is defined in paragraph (a)(6)(2) to include all waters located within 100 feet of an OHWM of an (a)(1) through (a)(5) water, and all waters located within the 100-year floodplain of an (a)(1) through (a)(5) water, provided it is not more than 1,500 feet from the OHWM.[2]

Case-Specific Waters

The CWR establishes two categories that require a significant nexus determination for them to be WUS: (a)(7) and (a)(8).

(a)(7) Waters

There are five specific subcategories of waters defined as (a)(7) waters:

1. Prairie potholes;
2. Carolina and Delmarva bays;
3. Pocosins;
4. Western vernal pools; and
5. Texas coastal prairie wetlands.

(a)(8) Waters

This includes waters located within the 100-year floodplain of an (a)(1) through (a)(3) water, and waters located within 4,000 feet of the high tide line or OHWM of an (a)(1) through (a)(5) water. Because those waters located within the 100-year floodplain and within 1,500 feet of an (a)(1) through (a)(3) water are

2 There are additional provisions under (a)(6) for adjacent and neighboring near the Great Lakes that are not covered here.

Appendix A.1 (cont.)
Federal Jurisdictional Information

already jurisdictional as (a)(6) adjacent waters, the case-specific waters that require a significant nexus determination under (a)(8) are those waters that are within the 100-year floodplain but more than 1,500 feet from the OHWM of an (a)(1) through (a)(3) water.

Excluded Waters

The CWR in paragraphs (b)(1) through (b)(7) excludes waste treatment systems; prior converted cropland; certain categories of ditches, such as ditches that flow only after precipitation; erosional features, including gullies and rills, and ephemeral features that do not have a bed and bank and OHWM; groundwater, and various categories of artificially created features.

Ordinary High Water Mark

The term OHWM refers to that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation (scouring), the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Waters of the U.S. must exhibit an OHWM or other evidence of surface flow created by hydrologic physical changes. These physical changes include (Riley 2005):

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

Further guidance on identifying the OHWM in the Arid Southwest (Lichvar and McColley 2008). This publication provided geomorphic and vegetation OHWM indicators specific to the Arid Southwest.

Wetlands

The USACE (33 CFR 328.3) and the EPA (40 CFR 230.3) jointly define wetlands as “[t]hose areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions”.

Wetland Criteria

Wetland boundaries are determined using three criteria--hydrophytic vegetation, wetland hydrology, and hydric soil--established for wetland delineations and described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers

Appendix A.1 (cont.)
Federal Jurisdictional Information

Wetland Delineation Manual: Arid West Region (USACE 2008). Following is a brief discussion of the three criteria and how they are evaluated.

Vegetation

"Hydrophytic vegetation is defined herein as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987).

The wetland indicator status (obligate upland, facultative upland, facultative, facultative wetland, obligate wetland, or no indicator status) of the dominant plant species of all vegetative layers is determined. Species considered to be hydrophytic include the classifications of facultative, facultative wetland, and obligate wetland as defined in the current list of wetland plants of the Arid Southwest (Lichvar et al. 2016; Table A-2, *Definitions of Plant Indicator Categories*). The percent of dominant wetland plant species is calculated. The hydrophytic vegetation criterion is considered met if it meets the "Dominance Test," "Prevalence Index," or the vegetation has morphological adaptations for prolonged inundation.

Table A-2
DEFINITIONS OF PLANT INDICATOR CATEGORIES

Indicator Categories	Abbreviation	Qualitative Description
Obligate	OBL	Almost always occur in wetlands
Facultative Wetland	FACW	Usually occur in wetlands but may occur in non-wetlands
Facultative	FAC	Occur in wetlands and non-wetlands
Facultative Upland	FACU	Usually occur in non-wetlands but may occur in wetlands
Upland	UPL	Almost never occur in wetlands

Hydrology

"The term 'wetland hydrology' encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic reducing conditions, respectively" (Environmental Laboratory 1987).

Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least five percent of the growing season during a normal rainfall year (approximately 18 days for most of low-lying southern California). Hydrology criteria are evaluated based on the characteristics listed below (USACE 2008). Where positive indicators of wetland hydrology are present, the limit of the OHWM (or the limit of adjacent wetlands) is noted and mapped. Evidence of wetland hydrology is met by the presence of a single primary indicator or two secondary indicators.

Appendix A.1 (cont.)
Federal Jurisdictional Information

Primary Wetland Hydrology Indicators

- surface water (A1)
- high water table (A2)
- saturation (A3)
- water marks (B1; non-riverine)
- sediment deposits (B2; non-riverine)
- drift deposits (B3; non-riverine
- surface soil cracks (B6)
- inundation visible on aerial imagery (B7)
- water-stained leaves (B9)
- salt crust (B11)
- biotic crust (B12)
- aquatic invertebrates (B13)
- hydrogen sulfide odor (C1)
- oxidized rhizospheres along living roots (C3)
- presence of reduced iron (C4)
- recent iron reduction in tilled soils (C6)
- thin muck surface (C7)

Secondary Wetland Hydrology Indicators

- watermarks (B1; riverine)
- sediment deposits (B2; riverine)
- drift deposits (B3; riverine)
- drainage patterns (B10)
- dry-season water table (C2)
- crayfish burrows (C8)
- saturation visible on aerial imagery (C9)
- shallow aquitard (D3)
- FAC-neutral test (D5)

In the absence of all other hydrologic indicators and in the absence of significant modifications of an area's hydrologic function, positive hydric soil characteristics are assumed to indicate positive wetland hydrology. This assumption applies unless the site visit was done during the wet season of a normal or wetter-than-normal year. Under those circumstances, wetland hydrology would not be present.

Soils

The USACE and EPA, in their administration of Section 404 of the Clean Water Act, rely on the National Technical Committee for Hydric Soils (NTCHS) for a definition of hydric soils. According to the NTCHS, "A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (Federal Register 1994).

Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation. Soil matrix and mottle colors are identified at each sampling plot using a Munsell soil color chart (Kollmorgen 1994). Generally, an 18-inch or deeper pit is excavated with a shovel at each sampling plot unless refusal occurs above 18 inches.

Soils in each area are closely examined for hydric soil indicators, including the characteristics listed below. Hydric soil indicators are presented in three groups. Indicators for "All Soils" (A) are used in any soil regardless of texture, indicators for "Sandy Soils" (S) area used in soil layers with USDA textures of loamy fine sand or coarser, and indicators for "Loamy and Clayey Soils" (F) are used with soil layers of loamy very fine sand and finer (USACE 2008 and Vasilias et al. 2018).

Appendix A.1 (cont.)
Federal Jurisdictional Information

Hydric Soil Indicators

- histosols (A1)
- histic epipedons (A2)
- black histic (A3)
- hydrogen sulfide (A4)
- stratified layers (A5)
- 1 cm muck (A9)
- depleted below dark surface (A11)
- thick dark surface (A12)
- sandy mucky mineral (S1)
- sandy gleyed matrix (S4)
- sandy redox (S5)
- stripped matrix (S6)
- loamy mucky mineral (F1)
- loamy gleyed matrix (F2)
- depleted matrix (F3)
- redox dark surface (F6)
- depleted dark surface (F7)
- redox depressions (F8)
- vernal pools (F9)
- 2 cm muck (A10)
- reduced vertic (F18)
- red parent material (TF2)

Hydric soils may be assumed to be present in plant communities that have complete dominance of obligate or facultative wetland species. In some cases, there is only inundation during the growing season and determination must be made by direct observation during that season, recorded hydrologic data, testimony of reliable persons, and/or indication on aerial photographs.

Non-wetland Waters of the U.S.

The non-wetland Waters of the U.S. designation is met when an area has periodic surface flows but lacks sufficient indicators to meet the hydrophytic vegetation and/or hydric soils criteria. For purposes of delineation and jurisdictional designation, the non-wetland Waters of the U.S. boundary in non-tidal areas is the OHWM as described in the Section 404 regulations (33 CFR Part 328).

U.S. Geological Survey Mapping

The U.S. Geological Survey (USGS) quad maps are one of the resources used to aid in the identification and mapping of jurisdictional areas. Their primary uses include understanding the subregional landscape position of a site, major topographical features, and a project's position in the watershed.

In our experience, the designation of watercourse as a blue-line stream (intermittent or perennial) on USGS maps has been unreliable and typically overstates the hydrology of some streams. This has also been the experience of others, including the late Dr. Luna Leopold. Dr. Leopold was a hydrologist with USGS from 1952 to 1972, professor in the Department of Geology and Geophysics and Department of Landscape Architecture, University of California, Berkeley from 1972 to 1986, and Professor Emeritus from 1987 until his death in 2006. In regard to USGS maps, Dr. Leopold observed that blue lines on USGS maps was derived more from aesthetics than observations or hydrology. (Leopold 1994).

Appendix A.1 (cont.)
Federal Jurisdictional Information

REFERENCES

Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Technical report Y-87-1. Vicksburg (MS): U.S. Army Engineer Waterways Experiment Station. 100 p. with Appendices.

Federal Register. 2015. 33 CFR Part 328 and 44 CFR Parts 110, 112, 116, 117, 122, 230, 232, 300, 302, and 401. Vol. 80, No. 124. June 29

1994. Changes in hydric soils of the United States. July 13.

Kollmorgen Instruments Corporation. 1994. Munsell Soil Color Charts. Rev. ed. Baltimore (MD).

Leopold, L.B. 1994. A View of the river. Cambridge (MA): Harvard University Press. 298 p.

Lichvar, R., D. Banks, W. Kirchner, and N. Melvin. 2016. The National Wetland Plant List: Update of Wetland Ratings. Phytoneuron 2016-30: 1 – 17. 28 April. Available from: http://wetland-plants.usace.army.mil/nwpl_static/index.html

Lichvar, R. and S. McColley. 2008. A field guide to the identification of the ordinary high water mark(OHWM) in the arid west region of the western United States, A delineation manual. August. 68 p. plus Appendices.

Riley, D.T. 2005. Ordinary high water mark. RGL No. 05-05. 4 p.

U.S. Army Corps of Engineers (USACE). 2008. Regional supplement to the Corps of Engineers wetland delineation manual: arid west region. 2nd ver. Eds. J.S. Wakely, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-06-16. Vicksburg (MS): U.S. Army Engineer Research and Development Center. September.

U.S. Supreme Court. 2001. Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, No. 99-1178 (SWANCC). January 9.

Vasilias, L., G. Hurt, J Berkowitz, ed. 2018. Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils, v 8.2. Natural Resources Conservation Service, in cooperation with the National Technical Committee for Hydric Soils. 42 pp, plus appendices.

This page intentionally left blank

Appendix A.2
State Jurisdictional Information

CALIFORNIA FISH AND WILDLIFE REGULATIONS

The California Department of Fish and Wildlife (CDFW) regulates alterations or impacts to streambeds or lakes (wetlands) under Fish and Game Code Sections 1600 through 1616 for any private, state, or local government or public utility-initiated projects. The Fish and Game Code Section 1602 requires any entity to notify the CDFW before beginning any activity that will do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers and streams as well as lakes in the state.

In order to notify the CDFW, a person, state, or local governmental agency or public utility must submit a complete notification package and fee to the CDFW regional office that serves the county where the activity will take place (CDFW 2016). A fee schedule is included in the notification package materials. Under the Permit Streamlining Act (Government Code Sections 65920 et seq.), the CDFW has 30 days to determine whether the package is complete. If the requestor is not notified within 30 days, the application is automatically deemed to be complete.

Once the notification package is deemed to be complete, the CDFW will determine whether the applicant will need a Lake or Streambed Alteration Agreement (SAA) for the activity, which will be required if the activity could substantially adversely affect an existing fish and wildlife resource. If an SAA is required, the CDFW will conduct an on-site inspection, if necessary, and submit a draft SAA that will include measures to protect fish and wildlife resources while conducting the project. If the applicant is applying for a regular SAA (less than five years), the CDFW will submit a draft SAA within 60 calendar days after notification is deemed complete. The 60-day time period does not apply to notifications for long-term SAAs (greater than five years).

After the applicant receives the SAA, the applicant has 30 calendar days to notify the CDFW whether the measures in the draft SAA are acceptable. If the applicant agrees with the measures included in the draft SAA, the applicant will need to sign the SAA and submit it to the CDFW. If the applicant disagrees with any measures in the draft SAA, the applicant must notify the CDFW in writing and specify the measures that are not acceptable. Upon written request, the CDFW will meet with the applicant within 14 calendar days of receiving the request to resolve the disagreement. If the applicant fails to respond in writing within 90 calendar days of receiving the draft SAA, the CDFW may withdraw that SAA. The time periods described above may be extended at any time by mutual agreement.

After the CDFW receives the signed draft SAA, the CDFW will make it final by signing the SAA; however, the CDFW will not sign the SAA until it both receives the notification fee and ensures that the SAA complies with the California Environmental Quality Act (Public Resources Code Section 21000 et seq.). After the applicant receives the final agreement, the applicant may begin the project, provided that the applicant has obtained any other necessary federal, state, and/or local authorizations.

Appendix A.2 (cont.)
State Jurisdictional Information

WATER RESOURCE CONTROL BOARD REGULATIONS

Section 401 Water Quality Certification

Whenever a project requires a federal Clean Water Act (CWA) Section 404 permit or a Rivers and Harbors Act Section 10 permit, it must first obtain a CWA Section 401 Water Quality Certification. The Regional Water Quality Control Board (RWQCB) administers the 401 Certification program. Federal CWA Section 401 requires that every applicant for a Section 404 permit must request a Water Quality Certification that the proposed activity will not violate state and federal water quality standards.

Porter-Cologne Water Quality Control Act

The State Water Resource Control Board (SWRCB) and the RWQCB regulate the discharge of waste to waters of the State via the 1969 Porter-Cologne Water Quality Control Act (Porter-Cologne) as described in the California Water Code (SWRCB 2017). The California Water Code is the State's version of the federal CWA. Waste, according to the California Water Code, includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal. State waters that are not federal waters may be regulated under Porter-Cologne. A Report of Waste Discharge must be filed with the RWQCB for projects that result in discharge of waste into waters of the State. The RWQCB will issue Waste Discharge Requirements (WDRs) or a waiver. The WDRs are the Porter-Cologne version of a CWA 401 Water Quality Certification.

Appendix A.2 (cont.)
State Jurisdictional Information

REFERENCES

California Department of Fish and Wildlife (CDFW). 2016. Notification of Lake or Streambed Alteration, Notification Instructions and Process.
Available from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=3773&inline.

State Water Resources Control Board. 2017. Laws and Regulations. Sacramento, CA: State Water Resources Control Board, California Environmental Protection Agency. Available from: http://www.waterboards.ca.gov/laws_regulations/.

This page intentionally left blank

Appendix A.3
City of San Diego Wetlands
Land Development Code, Biological Guidelines: Section I.A.2.

Wetlands support many of the species included in the Multiple Species Conservation Program (MSCP; i.e., Covered Species). The definition of wetlands in Environmentally Sensitive Lands (ESL) is intended to differentiate uplands (terrestrial areas) from wetlands and, furthermore, to differentiate naturally occurring wetland areas from those created by human activities. Except for areas created for the purposes of wetland habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, it is not the intent of the City of San Diego (City) to regulate artificially-created wetlands in historically non-wetland areas unless they have been delineated as wetlands by the U.S. Army Corps of Engineers (USACE) and/or the California Department of Fish and Wildlife (CDFW). For the purposes of the ESL, artificially-created lakes such as Lake Hodges, artificially-channeled floodways such as the Carmel Valley Restoration and Enhancement Project (CVREP), and previously dredged tidal areas such as Mission Bay should be considered wetlands under ESL. The following provides guidance for defining wetlands regulated by the City under the Land Development Code.

Naturally occurring wetland vegetation communities are typically characteristic of wetland areas. Examples of wetland vegetation communities include salt marsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodland, riparian scrub, and vernal pools. Common to all wetland vegetation communities is the predominance of hydrophytic plant species (plants adapted for life in anaerobic soils). Many references are available to help identify and classify wetland vegetation communities: Holland (1986), revised Holland (Oberbauer 2008), Cowardin et al. (1979), Sawyer et al. (2009), and Zedler (1982). The USACE list of wetland plants (Lichvar et al. 2016) provides technical information on hydrophytic species.

Problem areas can occur when delineating wetlands due to previous human activities or naturally occurring events. Areas lacking naturally occurring wetland vegetation communities are still considered wetlands if hydric soil or wetland hydrology is present and past human activities have occurred to remove the historic vegetation (e.g., agricultural grading in floodways, dirt roads bisecting vernal pools, channelized streambeds), or catastrophic or recurring natural events preclude the establishment of wetland vegetation (e.g., areas of scour within streambeds, coastal mudflats, and salt pannes that are unvegetated due to tidal duration). The U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the Arid West Supplement (USACE 2008) provides technical information on hydric soils and wetland hydrology.

Seasonal drainage patterns that are sufficient enough to etch the landscape (i.e., ephemeral/intermittent drainages) may not be sufficient enough to support wetland dependent vegetation. These types of drainages would not satisfy the City's wetland definition unless wetland-dependent vegetation is either present in the drainage or lacking due to past human activities. Seasonal drainage patterns may constitute "waters of the United States," which are regulated by the USACE and/or the CDFW.

Areas lacking wetland vegetation communities, hydric soils, and wetland hydrology due to non-permitted filling of previously existing wetlands will be considered a wetland under the ESL and regulated accordingly. The removal of the fill and restoration of the wetland may be required as a condition of project approval.

Areas that contain wetland vegetation, soils or hydrology created by human activities in historically non-wetland areas do not qualify as wetlands under this definition unless they have been delineated as

Appendix A.3 (cont.)
City of San Diego Wetlands
Land Development Code, Biological Guidelines: Section I.A.2.

wetlands by the Army Corps of Engineers, and/or the California Department of Fish and Game. Artificially-created wetlands consist of the following: wetland vegetation growing in brow ditches and similar drainage structures outside of natural drainage courses, wastewater treatment ponds, stock watering, desiltation and retention basins, water ponding on landfill surfaces, road ruts created by vehicles, and artificially-irrigated areas that would revert to uplands if the irrigation ceased. Areas of historic wetlands can be assessed using historic aerial photographs, existing environmental reports (Environmental Impact Reports, biology surveys, etc.), and other collateral material such as soil surveys.

Some coastal wetlands, vernal pools, and riparian areas have been previously mapped. The maps, labeled C-713 and C-740, are available to aid in the identification of wetlands. Additionally, the 1 inch = 2,000 feet scale MSCP vegetation maps may also be used as a general reference, as well as the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory maps (USFWS 2013). These maps, available for viewing at the Development Services Department, should not replace site-specific field mapping.

Appendix A.3 (cont.)
City of San Diego Wetlands
Land Development Code, Biological Guidelines: Section I.A.2.

REFERENCES

Cowardin, L., V. Carter, F. Golet, and E. Laroe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish & Wildlife Service. 144 pp.

Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. 100 pp. with appendices.

Holland R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Nongame-Heritage Program, State of California, Department of Fish and Game, Sacramento, 156 pp.

Lichvar, R., D. Banks, W. Kirchner, and N. Melvin. 2016, April 28. Arid West 2016 regional wetland plant list. Phytoneuron 2016-30: 1 – 17. 49 pp. April 28. Available from http://wetland_plants.usace.army.mil/.

Oberbauer, T., M. Kelly, & J. Buegge. 2008. Vegetation communities of San Diego County. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California", R. Holland, Department of Fish and Game, October 1986. 73 pp. March.

Sawyer, J, T. Keeler-Wolf, J. Evens. 2009. A manual of California vegetation (2nd ed). California Native Plant Society, Sacramento, California. 1,300 pp.

U.S. Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Eds. J.S. Wakely, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-06-16. Vicksburg, MS: US Army Corps of Engineers, Engineer Research and Development Center, Environmental Laboratory. September.

U.S. Fish and Wildlife Service. 2013. National Wetlands Inventory. November 21. Available from http://www.fws.gov/wetlands/index.html.

Zedler, J. 1982. The ecology of southern California coastal salt marshes: a community profile. U.S. Fish and Wildlife Service, Biological Services Program, Washington, D.C. FWS/OBS-81/54. 110 pp.

This page intentionally left blank

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tecolote Sewer Line City/County: S.D./S.D. Sampling Date: 28Mar2017

Applicant/Owner: ADH-02 State: CA Sampling Point: 1

Investigator(s): W.L. Sward Section, Township, Range: unsectioned, T 16 S, R 3 W

Landform (hillslope, terrace, etc.): streambed Local relief (concave, convex, none): none Slope (%): 3-5%

Subregion (LRR): C: Mediterranean California Lat: 32°36'39.36" Long: 117°11;03.95" Datum:

Soil Map Unit Name: Reiff sandy loam NWI classification: none

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

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

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

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

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

Remarks:

SP is located at confluence of 2 drainages; western drainage is much wetter. Eastern one is dry and overun with Toxicodendron diversilobum. WUS 20' wide; CDFW is outer edge of tree canopy.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Schinus terribanthifolia	30%	yes	FAC
2. Platanus racemosa	10%	no	FAC
3. Salix lasiolepis	40%	yes	FACW
4.			
	80% = Total Cover		
Sapling/Shrub Stratum (Plot size: r=15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: r=5)			
1. Cyperus involucreatus	3	yes	FACW
2. Cortaderia selloana	2	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	5% = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 70% % Cover of Biotic Crust 30%

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Toxicodendron diversilobum present but rooted outside of drainage.

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100%					SaL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✔ **No** _____

Remarks:

Soil analysis hindered by the abundance of large roots.
Potential problem area. Soil Saturation meets NTCHS' definition of a hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ✔ No ___ Depth (inches): 13"

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 8"

Wetland Hydrology Present? **Yes** ✔ **No** _____

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

Remarks:

Hydrology source is runoff from USD. FAC-neutral Test, w:u = 2:1
Small plunge pool with surface water is located 12 ft. s. of soil pit.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tecolote Sewer Line City/County: S.D./S.D. Sampling Date: 28Mar2017

Applicant/Owner: ADH-02 State: CA Sampling Point: 2

Investigator(s): W.L. Sward Section, Township, Range: unsectioned, T 16 S, R 3 W

Landform (hillslope, terrace, etc.): terrace/valley floor Local relief (concave, convex, none): none Slope (%): 5%

Subregion (LRR): C: Mediterranean California Lat: 32°46'38.89" Long: 117°11'04.28" Datum:

Soil Map Unit Name: Reiff sandy loam NWI classification: none

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

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

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

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

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

Remarks:

Upland location

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=20')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=15')			
1. Quercus agrifolia	5%	yes	UPL
2. Baccharis pilularis	3%	yes	UPL
3.			
4.			
5.			
	8%	= Total Cover	
Herb Stratum (Plot size: r=5')			
1. Medicago plymorpha	20%	yes	FACU
2. Glebionis coronaria	7	no	UPL
3. Ambrosia psilostachya	1	no	FACU
4. Helminthotheca echioides	5	no	FAC
5. Sonchus asper	1	no	FAC
6. Foeniculum vulgare	1	no	UPL
7. Bromus madritensis	25	yes	UPL
8.			
	60	= Total Cover	
Woody Vine Stratum (Plot size: r=10')			
1.			
2.			
	0	= Total Cover	

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 6	x 3 =	18
FACU species 21	x 4 =	84
UPL species 41	x 5 =	205
Column Totals: 68 (A)		307 (B)

Prevalence Index = B/A = 4.5

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

Upland vegetation

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/2	100%					SaCL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✔

Remarks:

No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ **No** ✔

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

Remarks:

No wetland hydrology indicators

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tecolote Sewer Line City/County: S.D./S.D. Sampling Date: 28Mar2017

Applicant/Owner: ADH-02 State: CA Sampling Point: 3

Investigator(s): W.L. Sward Section, Township, Range: unsectioned, T 16 S, R 3 W

Landform (hillslope, terrace, etc.): terrace/valley floor Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): C: Mediterranean California Lat: 32°46;50.84" Long: 117°10;59.99" Datum:

Soil Map Unit Name: Reiff sandy loam NWI classification: none

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

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

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

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

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

Remarks:

Low area collects local runoff - no identifiable surface connection to Tecolote Creek. Not a WUS based on hydrologic isolation. City/CDFW jurisdictional habitat.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus agrifolia	3%	no	UPL
2. Populus fremontii	20%	yes	FAC
3. Platanus racemosa	10%	yes	FAC
4. Salix lasiolepis	4%	no	FACW
	37%	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=15')			
1. Salix lasiolepis	20%	yes	FACW
2. Rosa californica	5%	yes	FAC
3.			
4.			
5.			
	25	= Total Cover	
Herb Stratum (Plot size: r=5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: r=10')			
1.			
2.			
	0	= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Abundant leaf litter

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7.5	10YR 3/2	100%						
7.5-16	2.5Yr 3.5/2	99%	10YR 5/6	1%	C	M	SaCL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks:

No hydric soil indicators: mottling insufficient to meet hydric soil parameters.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✔ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ✔ **No** _____

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

Remarks:

FAC-neutral Test; W:U = 0:0

Sample Point 1. This sample point was located in a tributary to Tecolote Creek. This location met the Dominance Test for wetland vegetation and met the wetland hydrology criterion with one primary (saturation) and two secondary wetland hydrology indicators (drift deposits [riverine] and FAC-neutral Test). Wetland soil indicators were not noted in the soil pit. However, this location is subject to prolonged saturation, which is the definiı on of a wetland soil. This locaı on is a wetland waters of the U.S. (WUS), California Department of Fish and Wildlife (CDFW) jurisdicı onal habitat, and City wetland.

G:\PROJECTS\A\ADH-ALL\ADH-02_TecoloteCnynTSI_Reports\BTR\JD Information\JD PhotoPage Appendix

Sample Point 2. This sample point was located in upland vegetation near Sample Point 1. It lacked wetland soil and wetland hydrology indicators. This sample point is an upland.

G:\PROJECTS\A\ADH-ALL\ADH-02_TecoloteCnynTSI_Reports\BTR\JD Information\JD PhotoPage Appendix

Sample Point 3. This sample point was located on the terrace east of Tecolote Creek. The surface topography was concave and formed a shallow basin, with no apparent surface connection to Tecolote Creek. This location met the Dominance Test for wetland vegetation and met the wetland hydrology criterion with one primary wetland hydrology indicator (sediment deposits). Wetland soil indicators were not noted in the soil pit. Sediment deposits indicate ponded surface water. Unlike Sample Point 1 there were no signs that this was a regular occurrence, and they likely only occur during extraordinary rainfall years. This location is not a WUS, but is CDFW jurisdictional habitat and City wetland.

G:\PROJECTS\A\ADH-ALL\ADH-02_TecoloteCnynTSI_Reports\BTR\JD Information\JD PhotoPage Appendix

Appendix B

Species Observed

Appendix B
Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Plants–Dicots			
Adoxaceae	*Sambucus nigra* ssp. *caerulea**	blue elderberry	CLOW, ORF
Aizoaceae	*Carpobrotus edulis**	hottentot-fig	DCSS, DCSS-D, NNG, NNV, SRF-D
Anacardiaceae	*Malosma laurina*	laurel sumac	DCSS, NG, NNG, NNV, MSS, SMC
	Rhus aromatica	basket-brush	SRF
	Rhus integrifolia	lemonadeberry	CLOW, DCSS-D, ORF, MSS, SMC
	*Schinus molle**	Peruvian pepper tree	CLOW, NNV
	*Schinus terebinthifolius**	Brazilian pepper tree	SRF-D
	Toxicodendron diversilobum	poison oak	DCSS-D, MFS, ORF, SRF
	*Schinus terebinthifolius**	Brazilian pepper tree	DCSS
Apiaceae	*Apium graveolens**	celery	ORF
	*Conium maculatum**	poison-hemlock	CLOW, DCSS, MFS, NNV, SRF-D
	*Foeniculum vulgare**	fennel	MFS, NNG, NNV, ORF, SRF-D
Asphodelaceae	*Asphodelus fistulosus*	onion weed	DCSS-D, NG, NNV, ORF, SRF
Asteraceae	*Ambrosia psilostachya*	western ragweed	CLOW, MFS, NNG, ORF, SRF, SRF-D
	Artemisia californica	California sagebrush	DCSS, NG, NNG, NNV, ORF, SRF, MSS
	Artemisia douglasiana	mugwort	NNV, ORF, SRF, SRF-D
	Artemisia palmeri†	San Diego sagewort	CLOW, ORF, SRF, SRF-D
	Baccharis pilularis	coyote brush	CLOW, DCSS, MFS, NNV, ORF, SRF
	Baccharis salicifolia	mule fat	MFS, NNG, SRF, SRF-D
	Baccharis sarothroides	broom baccharis	NG, NNG, ORF, SRF
	Bahiopsis laciniata	San Diego sunflower	DCSS
	*Carduus pycnocephalus**	Italian thistle	CLOW, NNG, NNV
	*Centaurea melitensis**	star thistle	DCSS, NNG
	Cotula australis	Australian brass-buttons	NG, SRF-D
	Deinandra fasciculata	fascicled tarplant	DCSS, NG
	Encelia californica	California encelia	DCSS, NNV, ORF
	*Erigeron bonariensis**	flax-leaf fleabane	SRF-D
	Erigeron canadensis	horseweed	DCSS, NNV, SRF
	Eriophyllum confertiflorum	golden-yarrow	DCSS, NG
	Euthamia occidentalis	western goldenrod	SRF
	*Glebionis coronaria**	garland daisy	CLOW, DCSS, DCSS-D, EW, MFS, NNG, NNV, SRF, SRF-D
	*Hedypnois cretica**	Crete hedypnois	CLOW, NG, NNG, ORF

Appendix B (cont.)
Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Plants–Dicots (cont.)			
Asteraceae (cont.)	*Helminthotheca echioides**	bristly ox-tongue	MFS, NG, NNV, SRF
	Heterotheca grandiflora	telegraph weed	DCSS
	*Hypochaeris glabra**	smooth catsear	NG, NNG, ORF
	Isocoma menziesii	goldenbush	DCSS, NG, NNG, NNV, ORF, SRF
	*Lactuca serriola**	wild lettuce	NNV, ORF, SRF
	*Logfia gallica**	narrow-leaf filago	ORF
	Lasthenia californica ssp. *californica*	goldfields	NG
	*Matricaria discoidea**	pineapple weed	DCSS, SRF, NNV
	*Matricaria matricarioides**	common pineapple-weed	DCSS-D, NNV
	Pseudognaphalium biolettii	bicolor cudweed	DCSS
	Pseudognaphalium sp.	everlasting	NG
	Senecio vulgaris	common groundsel	DCSS, SRF-D
	*Silybum marianum**	milk thistle	DCSS, DSCC-D, NNG, ORF
	Solidago sp.	goldenrod	ORF
	*Sonchus asper**	prickly sow thistle	CLOW, DCSS, MFS, NNV, SRF
	*Sonchus oleraceus**	common sow thistle	DCSS-D, NNG, NNV, ORF, SRF, SRF-D
	*Taraxacum officinale**	common dandelion	SRF-D
	Xanthium strumarium	cocklebur	MFS, SRF-D
Boraginaceae	*Cryptantha* sp.	popcorn flower	DCSS
	Eucrypta chrysanthemifolia var. *chrysanthemifolia*	common eucrypta	CLOW, DCSS, ORF
	Heliotropium curassavicum var. *oculatum*	salt heliotrope	DCSS
Brassicaceae	*Brassica nigra**	black mustard	CLOW, DCSS, EW, MFS, NG, NNG, NNV, ORF, SRF, SRF-D
	*Lepidium didymum**	wart cress	SRF, SRF-D
	Lepidium sp.	peppergrass	DCSS
	*Raphanus sativus**	wild radish	SRF, SRF-D
	*Sisymbrium irio**	London rocket	DCSS, NG, NNV, SRF
Cactaceae	*Cylindropuntia prolifera*	coastal cholla	DCSS, NG, MSS
	Ferocactus viridescens†	San Diego barrel cactus	DCSS, MSS
	*Opuntia ficus-indica**	Indian-fig	DCSS, DCSS-D
	Opuntia littoralis	coastal prickly pear	NG, DCSS, NNG, MSS
Capparaceae	*Peritoma arborea*	bladderpod	DCSS
Caprifoliaceae	*Lonicera subspicata*	San Diego honeysuckle	DCSS, ORF
Caryophyllaceae	*Silene gallica**	common catchfly	NNG
	*Stellaria media**	common chickweed	DCSS

Appendix B (cont.)
Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Plants–Dicots (cont.)			
Chenopodiaceae	*Atriplex semibaccata**	Australian saltbush	DCSS, DCSS-D, NNV
	*Chenopodium murale**	nettle-leaf goosefoot	NNV
	Chenopodium sp.	goosefoot	ORF
	*Salsola tragus**	Russian thistle	DCSS, DCSS-D
Convolvulaceae	*Cuscuta californica*	dodder	DCSS
Crassulaceae	*Crassula connata*	pygmy-weed	DCSS
	*Crassula ovata**	jade plant	DCSS-D
	Dudleya lanceolata	coastal dudleya	DCSS
Cucurbitaceae	*Marah macrocarpa*	wild cucumber	CLOW, DCSS
Cupressaceae	*Juniperus* sp.*	ornamental juniper	DCSS
Dipsacaceae	*Dipsacus sativus**	Fullers teasel	DCSS
Euphorbiaceae	*Croton setigerus*	dove weed	NG
	*Euphorbia peplus**	petty spurge	CLOW, NG, ORF, SRF-D
	*Ricinus communis**	castor-bean	SRF-D
Fabaceae	*Acacia* sp.*	acacia	EW, NNV
	Acmispon glaber	deerweed	DCSS
	Astragalus sp.	milk-vetch	DCSS-D
	Lupinus bicolor	miniature lupine	NNG
	Lupinus succulentus	arroyo lupine	DCSS-D
	*Medicago polymorpha**	burclover	CLOW, DCSS, NNG, ORF, SRF, SRF-D
	*Melilotus indicus**	Indian sweet clover	DCSS, DCSS-D, NG, NNV, SRF
	Trifolium sp.*	clover	NNG
	Vicia sp.	vetch	SRF-D
Fagaceae	*Quercus agrifolia* var. *agrifolia*	coast live oak	CLOW, DCSS, NG, NNG, ORF, SRF, SRF-D
	Quercus dumosa	Nuttall's scrub oak	SMC
Geraniaceae	*California macrophylla*	round-leaved filaree	DCSS-D
	*Erodium botrys**	long-beak filaree	DCSS, NNG
	*Erodium cicutarium**	redstem filaree	DCSS, NG, NNV, SRF
	*Erodium moschatum**	green-stem filaree	DCSS-D, ORF
	*Geranium dissectum**	cutleaf geranium	CLOW, NNG, ORF, SRF
	Geranium sp.*	geranium	SRF-D
Grossulariaceae	*Ribes speciosum*	fuchsia-flowered gooseberry	ORF
Iridaceae	*Sisyrinchium bellum*	blue-eyed grass	DCSS, NG
Juglandaceae	*Juglans* sp.	black walnut	ORF
Lamiaceae	*Lamium amplexicaule**	henbit	SRF

Appendix B (cont.)
Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Plants–Dicots (cont.)			
Lamiaceae	*Marrubium vulgare**	horehound	CLOW, NG, NNG, NNV, ORF
	Salvia apiana	white sage	DCSS
	Salvia mellifera	black sage	DCSS, NG, SRF
Malvaceae	*Malacothamnus fasciculatus*	chaparral mallow	SRF
	*Malva parviflora**	cheeseweed	NNV
Myrsinaceae	*Anagallis arvensis**	scarlet pimpernel	DCSS, NG, ORF, SRF, SRF-D
Myrtaceae	*Eucalyptus* sp.*	eucalyptus	EW
Nyctaginaceae	*Mirabilis laevis* ssp. *crassifolia*	wishbone bush	DCSS
Oleaceae	*Fraxinus sp.**	ash	ORF-D
	*Olea europaea**	olive	ORF
Onagraceae	*Camissonia* sp.	sun cup	SRF
	Epilobium canum ssp. *canum*	California fuchsia	DCSS
	Epilobium sp.	willow herb	NNG
	Oenothera elata ssp. *hookeri*	great marsh evening-primrose	SRF-D, SWS
Oxalidaceae	*Oxalis pes-caprae**	Bermuda buttercup	ORF, ORF-D, SRF
	Oxalis sp.	wood-sorrel	NG, SRF
Papaveraceae	*Eschscholzia californica*	California poppy	DCSS
Phrymaceae	*Mimulus aurantiacus*	monkey-flower	DCSS, DCSS-D, ORF, SRF
Plantaginaceae	*Plantago lanceolata**	English plantain	SRF-D
	*Plantago major**	common plantain	SRF-D
	Plantago ovata	island plantain	DCSS
Platanaceae	*Platanus racemosa*	western sycamore	ORF, SRF-D
Polygonaceae	*Eriogonum fasciculatum*	buckwheat	DCSS, DCSS-D, NG, NNG, ORF, MSS
	Persicaria lapathifolia	willow weed	ORF-D
	Polygonum sp.*	knotweed	ORF
	*Rumex crispus**	curly dock	NNV, SRF-D
	Rumex sp.	dock	ORF
Portulacaceae	*Claytonia perfoliata* ssp. *perfoliata*	miner's lettuce	DCSS, CLOW, ORF
Rhamnaceae	*Rhamnus crocea*	spiny redberry	CLOW, DCSS, SMC
Rosaceae	*Heteromeles arbutifolia*	toyon	DCSS, ORF
	Rosa californica	California rose	MFS, SRF
Rubiaceae	*Galium aparine**	goosegrass	DCSS, ORF
	Galium nuttallii ssp. *nuttallii*	San Diego bedstraw	DCSS, ORF
Salicaceae	*Populus fremontii* ssp. *fremontii*	Fremont cottonwood	SRF
	Salix exigua	narrow-leaved willow	MFS

Appendix B (cont.)
Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Plants–Dicots (cont.)			
Salicaceae	*Salix gooddingii*	Goodding's black willow	SRF-D
	Salix lasiolepis	arroyo willow	ORF, SRF, SRF-D
Simaroubaceae	*Ailanthus altissima**	tree-of-heaven	SRF-D
Solanaceae	*Datura wrightii*	jimson weed	DCSS
	*Nicotiana glauca**	tree tobacco	DCSS, ORF
	Solanum sp.	nightshade	DCSS-D, ORF
Themidaceae	*Dichelostemma capitatum*	blue dicks	DCSS, DCSS-D
Tropaeolaceae	*Tropaeolum majus**	nasturtium	ORF-D, SRF
Urticaceae	*Urtica dioica* ssp. *holosericea*	stinging nettle	CLOW, NNV
Verbenaceae	*Verbena* sp.	verbena	SRF
Plants–Monocots			
Agavaceae	*Agave* sp.*	agave	DCSS
	*Yucca aloifolia**	yucca	DCSS
Arecaceae	*Washingtonia robusta**	Mexican fan palm	ORF, SRF-D
Cyperaceae	*Cyperus involucratus**	umbrella plant	SRF-D
	Cyperus sp.	flatsedge	ORF
	Scirpus sp.	bullrush	ORF, ORF-D
Poaceae	*Avena* sp.*	oat	DCSS-D, NNG, NNV, ORF, SRF
	*Brachypodium distachyon**	purple false brome	DCSS, DCSS-D, NNG, NNV
	*Bromus diandrus**	common ripgut grass	CLOW, DCSS, DCSS-D, MFS, NNG, NNV, ORF, SRF-D
	*Bromus hordeaceus**	soft brome	NNG, DCSS
	*Bromus madritensis**	red brome	CLOW, DCSS, DCSS-D, NG, NNG, NNV
	*Cortaderia selloana**	pampas grass	SRF-D, NNV
	*Cynodon dactylon**	Bermuda grass	ORF, NNV
	Elymus condensatus	giant wild rye	MFS, ORF, SRF
	*Festuca myuros**	fescue	DCSS, NG, NNV
	*Festuca perennis**	English ryegrass	NNG
	Hordeum sp.*	barley	CLOW, DCSS, DCSS-D, NNV, ORF, SRF
	*Lamarckia aurea**	goldentop	DCSS-D
	*Pennisetum setaceum**	fountain grass	DCSS-D, NNV
	Poa sp.	grass	DCSS, NG, NNV, ORF, SRF-D
	Stipa lepida	foothill needlegrass	DCSS
	*Stipa miliacea**	smilo grass	NNG, ORF, SRF-D
	Stipa pulchra	purple needlegrass	DCSS, DCSS-D, NG, ORF
Typhaceae	*Typha* sp.	cattail	ORF

Appendix B (cont.)
Species Observed

Order/Family	Scientific Name†	Common Name
Animals–Invertebrates		
Order Decapoda		
Astacidae	*Pacifastacus* sp.	crayfish
Order Hymenoptera		
Apidae	*Apis mellifera*	honeybee
Order Lepidoptera		
Hesperiidae	unknown species	skipper
Lycaenidae	unknown species	blue
Nymphalidae	*Adelpha bredowii californica*	California sister
	Limenitis lorquini	Lorquin's admiral
	Nymphalis antiopa	mourning cloak
	Vanessa annabella	west coast lady
	Vanessa sp.	lady
Papilionidae	*Papilio rutulus*	western tiger swallowtail
	Papilio zelicaon	anise swallowtail
Pieridae	*Anthocharis sara sara*	Pacific Sara orangetip
	unknown species	sulphur
Order Odonata		
Coenagrionoidea	unknown species	damselfly
Animals–Vertebrates		
Reptiles		
Order Squamata		
Crotalidae	*Crotalus oreganus helleri*	southern pacific rattlesnake
Phrynosomatidae	*Sceloporus occidentalis*	western fence lizard
	Uta stansburiana	common side-blotched lizard
Teiidae	*Aspidoscelis hyperythra*†	orange-throated whiptail
Birds		
Order Accipitriformes		
Accipitridae	*Accipiter cooperii*†	Cooper's hawk
	Buteo lineatus	red-shouldered hawk
Order Apodiformes		
Trochilidae	*Calypte anna*	Anna's hummingbird
Order Columbiformes		
Columbidae	*Zenaida macroura*	mourning dove

Appendix B (cont.)
Species Observed

Order/Family	Species Name	Common Name
Animals–Vertebrates (cont.)		
Birds (cont.)		
Order Passeriformes		
Aegithalidae	*Psaltriparus minimus*	bushtit
Corvidae	*Aphelocoma californica*	California scrub-jay
Corvidae	*Corvus brachyrhynchos*	American crow
Emberizidae	*Melospiza melodia*	song sparrow
	Pipilo crissalis	California towhee
	Pipilo maculatus	spotted towhee
Fringillidae	*Carduelis psaltria*	lesser goldfinch
Mimidae	*Mimus polyglottos*	northern mockingbird
	Toxostoma redivivum	California thrasher
Parulidae	*Geothlypis trichas*	common yellowthroat
Sylviidae	*Chamaea fasciata*	wrentit
	Polioptila californica californica†	coastal California gnatcatcher
Troglodytidae	*Thryomanes bewickii*	Bewick's wren
Tyrannidae	*Sayornis nigricans*	black phoebe
	Tyrannus verticalis	Western kingbird
Order Piciformes		
Picidae	*Picoides nuttallii*†	Nuttall's woodpecker
Mammals		
Order Lagomorpha		
Leporidae	*Sylvilagus audubonii*	desert cottontail
Order Rodentia		
Cricetidae	*Neotoma* sp.	woodrat
Geomyidae	*Thomomys bottae*	Botta's pocket gopher
Sciuridae	*Spermophilus beecheyi*	California ground squirrel

[1] Habitats: CLOW=Coast live oak woodland; DCSS=Diegan coastal sage scrub; DCSS-D=Diegan coastal sage scrub-disturbed; DH=Disturbed habitat; DW=Disturbed wetland; EW=Eucalyptus woodland; MFS=Mulefat scrub; MSS=maritime succulent scrub, NG=Native grassland; NNG=Non-native grassland; NNV=Non-native vegetation; ORF=Oak riparian forest; ORF-D= Oak riparian forest-disturbed; SCWRF=southern cottonwood-willow riparian forest (includes disturbed phase); SMC=Southern mixed chaparral, SRF=Southern riparian forest; SRF-D=Southern riparian forest-disturbed; SWS=Southern willow scrub.

* Non-native Species

† Sensitive Species

Appendix C

Special Status Species Observed or With Potential to Occur

Appendix C
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
San Diego Narrow Endemic Plants				
Acanthomintha ilicifolia	San Diego thorn-mint	FT/SE CRPR 1B.1 MSCP Covered	Small herb. Occurs on clay soils near vernal pools and in grassy openings in coastal sage scrub and chaparral. Flowering period Apr – Jun.	**None.** Suitable habitat does not occur on the site.
Ambrosia pumila	San Diego ambrosia	FE/-- CRPR 1B.1 MSCP Covered	Small herb. Occurs on clay soils. Found in grasslands, valley bottoms and dry drainages, also can occur on slopes, disturbed places, and in coastal sage scrub. Flowering period Apr – Oct.	**None.** No clay soils are present on the project site.
Dudleya brevifolia	Short-leaved dudleya	--/SE CRPR 1B.1 MSCP Covered	Small leaf succulent. Occurs in open areas and sandstone bluffs in chamise chaparral or Torrey pine forest. Flowering period Apr – May.	**None.** Suitable habitat does not occur on the site.
Dudleya variegata	Variegated dudleya	--/-- CRPR 1B.2 MSCP Covered	Small leaf succulent. Occurs on clay soils near vernal pools, and on metavolcanic rocky soils in open coastal sage scrub, chaparral, and grasslands. Elevation range 0-3,500 ft. Flowering period Apr – Jun.	**None.** Suitable habitat does not occur on the site.
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE CRPR 1B.1 MSCP Covered VPHCP Covered Vernal Pool Species	Medium herb. Vernal pools or mima mound areas with vernally moist conditions are preferred habitat. Suitable habitat does not occur on site. Flowering period Apr – Jun.	**None.** No vernal pool habitat present on the site.
Navarretia fossalis	Prostrate spreading navarretia	FT/-- CRPR 1B.1 MSCP Covered VPHCP Covered Vernal Pool Species	Small herb. Occurs in vernal pools. Elevation range 200-3,000 ft. Flowering period Apr – Jun.	**None.** Suitable habitat does not occur on the site.
Pogogyne abramsii	San Diego mesa mint	FE/SE CRPR 1B.1 MSCP Covered VPHCP Covered Vernal Pool Species	Small herb. Occurs within vernal pools. Flowering period Mar – Jul.	**None.** No vernal pool habitat present on the site.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Plants				
Adolphia californica	California adolphia	--/-- CRPR 2B.1	Shrub. Occurs in chaparral, valley grassland, and coastal sage scrub. Flowering period Dec – May.	**None.** Shrub would have been observed if present.
Ambrosia monogyra	Singlewhorl burrobrush	--/-- CRPR 2B.2	Shrub. Occurs in chaparral communities. Elevation range 0 to 1,640 ft. Flowering period Aug - Nov.	**None.** Shrub would have been observed if present.
Artemisia palmeri	San Diego sagewort	--/-- CRPR 4.2	Shrub. Occurs in coastal scrub, chaparral, riparian forest, riparian woodland, and riparian scrub. Elevation range 0 – 1,970 ft. Flowering period May - Sep.	**Present.** Observed in Tecolote Canyon during 2017 surveys conducted by HELIX.
Atriplex coulteri	Coulter's saltbush	--/-- CRPR 1B.2	Small herb. Found in coastal strand, valley grassland, and coastal sage scrub. Elevation range 0 to 1,640 ft. Flowering period Mar – Oct.	**None.** Nearest observation is over 3 miles from the project site.
Bloomeria clevelandii	San Diego goldenstar	--/-- CRPR 1B.1 MSCP Covered	Small herb. Occurs on clay soils in grasslands and coastal sage scrub. Elevation range 0-2,000 ft. Flowering period Apr – May.	**Presumed Absent.** This species was last reported in Tecolote Canyon in 1940 but it is presumed extirpated.
Brodiaea orcuttii	Orcutt's brodiaea	--/-- CRPR 1B.1 MSCP Covered	Small herb. Occurs only on clay soils in vernally moist environments, usually near vernal pools but occasionally near streams. Elevation range 0-5,000 ft. Flowering period May – Jul.	**Presumed Absent.** This species was last reported in Tecolote Canyon in 1940 but it is presumed extirpated.
Ceanothus verrucosus	wart-stemmed ceanothus	--/-- CRPR 2B.2 MSCP Covered	Large shrub. Occurs in chaparral. Elevation range 0-2,000 ft. Flowering period Jan – Apr.	**Low.** This species was documented in Tecolote Canyon by Dudek in 2003 but specific location was not documented. This large shrub would have been observed if present.
Chorizanthe orcuttiana	Orcutt's spineflower	FE/SE CRPR 1B.1	Small herb. Occurs in chaparral, coastal sage scrub, and closed-cone pine forest. Elevation range 195-660 ft. Flowering period Mar – May.	**Low.** Sandy soils are present on site. Most observations of this species are on the coast. Closest observation was over 5 km from the project site.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Plants (cont.)				
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	--/-- CRPR 1B.2	Large shrub. Occurs in coastal chaparral. Elevation range 100-2,700 ft. Flowering period Apr – Jun.	**Low.** This species was documented in Tecolote Canyon in the 1980s.
Euphorbia misera	cliff spurge	--/-- CRPR 2B.2	Shrub. Occurs in coastal sage scrub. Elevation range 0 to 1,640 ft. Flowering period Dec – Aug.	**None.** Shrub would have been observed if present.
Ferocactus viridescens	San Diego barrel cactus	--/-- CRPR 2B.1 MSCP Covered	Conspicuous stem succulent. Occurs in coastal sage scrub, chaparral, and valley grasslands. Elevation range 0-1,300 ft. Flowering period May – Jun.	**Present.** Observed by HELIX during 2017 surveys.
Harpagonella palmeri	Palmer's grapplinghook	--/-- CRPR 4.2	Small herb. Occurs in chaparral, valley grassland, and coastal sage scrub. Elevation range 0-3,280 ft. Flowering period Mar – May.	**Low.** Occurs on clay soils.
Heterotheca sessiliflora ssp. *sessiliflora*	beach goldenaster	--/-- CRPR 1B.1	Mat-forming herb that occurs in a variety of habitats. Elevation range 0-5,000 ft. Flowering period Mar – Dec.	**None**. Has not been observed in local area (Mission Bay) since the 1930s.
Isocoma menziesii var. *decumbens*	decumbent goldenbush	--/-- CRPR 1B.2	Conspicuous shrub. Occurs in disturbed areas of coastal sage scrub and riparian areas. Elevation range 0-1,500 ft. Flowering period Apr – Nov.	**None.** Would have been observed if present.
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	--/-- CRPR 4.2	Perennial grass-like herb. Occurs in coastal strand, wetland-riparian, seeps, meadows, salt-marsh, and dunes. Elevation range 0 – 985 ft. Flowering period May-Jun.	**Low.** This species was observed on site in 2008. This large perennial grass would have been observed if present.
Leptosyne maritima	sea dahlia	--/-- CRPR 2B.2	Herb. Occurs in coastal sage scrub. Elevation range 0-65 ft. Flowering period Mar – May.	**None**. Has not been observed locally (Mission Bay area) since the late 1800s.
Monardella viminea	willowy monardella	--/-- CRPR 1B.1 MSCP covered	Herb. Occurs in rocky washes and alluvial benches. Elevation range 0 – 1,310 ft. Flowering period Jun - Aug.	**Presumed absent.** Limited appropriate habitat is present. Last observed to the north of Tecolote Canyon Park in 1993.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Plants (cont.)				
Quercus dumosa	Nuttall's scrub oak	--/-- CRPR 1B.1	Small tree. Occurs in chaparral and coastal sage scrub near the coast. Elevation range 50-6,800 ft. Flowering period Feb – Mar.	**Present**. This species was observed during surveys in 2004 and 2016.
Salvia munzii	Munz's sage	--/-- CRPR 2B.2	Shrub. Occurs in chaparral and coastal sage scrub. Elevation range 0 – 2,625 ft. Flowering period Feb – Apr.	**Presumed absent.** Large shrub would have been observed if present.
Sidalcea neomexicana	Salt Spring checkerbloom	--/-- CRPR 2B.2	Herb. Occurs in creosote bush scrub, chaparral, yellow pine forest, coastal sage scrub, alkali sink, and wetland-riparian. Elevation range 0 – 4,920 ft. Flowering period Mar – Jun.	**None**. Most recent observation was 5 km north of the project site in 1961.
Stylocline citroleum	oil neststraw	--/-- CRPR 1B.1	Small herb. Occurs in clay soils in coastal sage scrub and chenopod scrub. Flowering period Mar – Apr.	**None.** Reported from Point Loma in 1883 and mapped by CNDDB in the general vicinity of San Diego. Current known occurrences are in Kern County.
Animals				
<u>Invertebrates</u>				
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/-- MSCP Covered VPHCP Covered Vernal Pool Species	Restricted to vernal pools and other ephemeral basin in southern California. 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.** Restricted to vernal pools, which do not occur on the project site.
Helminthoglypta coelata	mesa shoulderband	FS/--	Known only from a few locations in western San Diego County. Found in rock slides, beneath bark and rotten logs, and among coastal vegetation (i.e. coastal bluff scrub).	**None.** No sightings of this species have occurred since 1972. Presumed extirpated.
Lycaena hermes	Hermes copper	FC/--	Occurs in southern mixed chaparral and coastal sage scrub with mature specimens of its larval host plant, spiny redberry (*Rhamnus crocea*).	**Low.** Appropriate habitat occurs on site.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Amphibians and Reptiles				
Anniella stebbinsi	San Diegan legless lizard	--/SSC	Occurs in areas with loose soil, particularly in sand dunes and or otherwise sandy soil. Generally found in leaf litter, under rocks, logs, or driftwood in oak woodland, chaparral, and desert scrub. Sometimes found in suburban gardens in southern California.	**Moderate.** This species has been observed in Tecolote canyon according the Tecolote Canyon Natural Park NRMP.
Arizona elegans occidentalis	California glossy snake	--/SSC	Occurs along the coastal regions from San Francisco south to San Diego County; though it is absent along the central coast of California. Inhabits arid scrub, rocky washes, grasslands, and chaparral. Prefers open areas and areas with soils loose enough for easy burrowing.	**Low.** Appropriate habitat occurs on site.
Aspidoscelis hyperthyra	orange-throated whiptail	--/WL 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.	**Present.** Suitable grassland and sage scrub habitat occurs on the site. This species was observed by HELIX in Tecolote Canyon during surveys in 2017.
Crotalus ruber	red-diamond rattlesnake	--/SSC	Found in chaparral, coastal sage scrub, along creek banks, particularly among rock outcrops or piles of debris with a supply of burrowing rodents for prey.	**Moderate.** Appropriate habitat occurs on site; however this species has not been documented in Tecolote Canyon for several years according to the Tecolote Canyon Natural Park NRMP.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Amphibians and Reptiles (cont.)				
Phrynosoma blainvillii	Blainville's (coast) horned lizard	--/SSC MSCP Covered	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects. Occurs in chaparral, cismontane woodland, coastal bluff scrub, and coastal scrub.	**High.** This species was observed in Tecolote Canyon in 2004.
Plestiodon skiltonianus interparietalis	Coronado skink	--/WL	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.	**Low.** Appropriate habitat occurs on site.
Salvadora hexalepis virgultea	coast patch-nosed snake	--/SSC	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.** Appropriate habitat occurs on site.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Amphibians and Reptiles (cont.)				
Spea hammondii	western spadefoot	--/SSC	Occurs from northern California southward to San Diego County, and to the west of the Sierra Nevada at elevations below 4,500 feet. Terrestrial species requiring 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.	**None.** No vernal pool habitats are present on the site.
Thamnophis hammondii	two-striped gartersnake	--/SSC	Found in California from Monterey County south along the coast to San Diego County and into northern Baja California 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.	**Low.** Appropriate habitat is present on site however there have been no incidental observations of this species. No species-specific surveys have been conducted.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Birds				
Accipiter cooperii	Cooper's hawk	--/WL County Group 1 MSCP Covered	In California, the species breeds from Siskiyou County south to San Diego County and east to the Owens Valley at elevations below 9,000 feet. Inhabits forests, riparian areas, and more recently suburban and urban areas nesting within dense woodlands and forests and isolated trees in open areas.	**Present.** This species was observed in Tecolote Canyon in 2007.
Accipiter striatus	sharp-shinned hawk	--/WL	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.	**Moderate**. Suitable habitat occurs on site and there are reported occurrences of the species within the area. Species would only occur as a wintering visitor as the site is located outside of the species known breeding range.
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	--/WL 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.	**Low.** Suitable habitat occurs on site.
Ammodramus savannarum	grasshopper sparrow	--/SSC	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.	**Low.** Appropriate habitat occurs on site.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Birds (cont.)				
Amphispiza belli belli	Bell's sparrow	BCC/WL	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.** Appropriate habitat occurs on site.
Buteo regalis	ferruginous hawk	BCC/WL MSCP Covered	Found only as wintering individual in California; uncommon in San Diego County. Typically occupies flat and rolling terrain in grasslands, shrub habitats, and deserts.	**Low.** Appropriate habitat occurs on site.
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	BCC/SSC (San Diego and Orange Counties) 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.	**Low.** *Opuntia* cactus was observed on site during 2017 surveys. Listed as not known to occur in NRMP (HELIX 2006).

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Birds (cont.)				
Elanus leucurus	white-tailed kite	--/FP	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 isolate trees or relatively large stands.	**Low.** Appropriate habitat occurs on site.
Falco mexicanus	prairie falcon	BCC/WL	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 ft.	**Low.** Appropriate habitat occurs on site.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Birds (cont.)				
Falco peregrinus anatum	American peregrine falcon	BCC/FP	Breeds and winters throughout California, except for desert areas. Very uncommon breeding resident and uncommon as a migrant. Active nesting sites in 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. 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.	**Low.** Appropriate habitat occurs on site.
Icteria virens	yellow-breasted chat	--/SSC	In California, 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.	**Low.** Appropriate habitat occurs on site.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Birds (cont.)				
Lanius ludovicianus	loggerhead shrike	BCC/SSC	Found year-round in California throughout the foothills and lowlands with winter migrants found coastally north of Mendocino County. Inhabits a variety of habitats. Forages 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.	**Low.** Appropriate habitat occurs on site.
Polioptila californica californica	coastal California gnatcatcher	FT/-- MSCP Covered	Year-round resident of California occurring from Ventura County south to San Diego County, and east to the western portions of San Bernardino and Riverside Counties. Typically occurs in arid, open sage scrub habitats on gently slopes hillsides to relatively flat areas at elevations below 3,000 ft. The composition of sage scrub in which gnatcatchers are found varies; however, California sagebrush (*Artemisia californica*) is at least present as dominant or co-dominant species.	**Present.** Heard calling in coastal sage scrub habitat on site.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Birds (cont.)				
Setophaga petechia	yellow warbler	--/SSC	Common to locally abundant species breeding throughout California at elevations below 8,500 ft, excluding most of the Mojave Desert, and all of the Colorado Desert. Breeds in riparian areas dominated by willows (*Salix* spp.) and cottonwoods (*Populus* spp.), near rivers, streams, lakes, and wet meadows. Also breeds in montane shrub and conifer forests in higher elevation areas.	**High.** Suitable habitat occurs on site.
Sialia mexicana	western bluebird	--/-- 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.	**Low.** Appropriate habitat occurs on site.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Birds (cont.)				
Vireo bellii pusillus	least Bell's vireo	FE/SE 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 County, 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, 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.	**High.** This species has been observed in the south end of Tecolote Canyon in 1991 and 2004 but has not been observed since.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Mammals				
Antrozous pallidus	pallid bat	--/SSC	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.** Suitable habitat occurs on site but is situated within a heavily urbanized environment.
Chaetodipus californicus femoralis	Dulzura California pocket mouse	--/SSC	Occurs in the foothills and mountains of San Diego County, although species can be found on the upper portions of mountain slopes extending into the desert regions. Prefers gravelly substrates with sun exposure and can be found within open to dense vegetation. Inhabits chaparral habitats, but also occurs in coastal sage scrub, oak woodland, and at the edge of grasslands.	**Low.** Appropriate habitat occurs on site.
Choeronycteris mexicana	Mexican long-tongued bat	--/SSC	Found in southern California from Ventura County south to San Diego County. Occurs in arid habitats below 7,900 feet such grasslands, scrub, mixed forest, and canyons in mountain ranges rising from the desert. Primarily found in urban and suburban areas in San Diego County. Roosts in in caves and mines, and man-made structures such as garages, office buildings, under porches, and warehouses.	**None.** No suitable habitat occurs on site.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Mammals (cont.)				
Euderma maculatum	spotted bat	--/SSC	In California, found in a small number of localities in the foothills, mountains, and desert regions at elevations below 10,000 ft. 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.** No suitable habitat on site.
Eumops perotis californicus	western mastiff bat	--/SSC	In California, 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.	**Low.** Coast live oaks present on site for roosting.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	--/SSC	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.** Patches of appropriate habitat occurs on site.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Mammals (cont.)				
Neotoma bryanti (formerly lepida) intermedia	San Diego Bryant's (formerly desert) woodrat	--/SSC	Occurs along the coastal regions of California 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.	**Low.** Patches of appropriate habitat occurs on site.
Nyctinomops femorosaccus	pocketed free-tailed bat	--/SSC	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 bodes for drinking.	**Not Expected.** Reported from Linda Vista; suitable habitat does not occur in the site.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Mammals (cont.)				
Nyctinomops macrotis	big free-tailed bat	--/SSC	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.** Trees that could be used for roosting occur on site. This species was recorded west of the project site in 1981.
Perognathus longimembris pacificus	Pacific pocket mouse	FE/SSC	Historically occurred in coastal southern California from Los Angeles County south to San Diego County. Current distribution is within 1 mile of the coast with three known populations still present: Dana Point Headlands (Orange County, San Mateo Creek (northern San Diego County), and Camp Pendleton (southern San Diego County). Occurs on fine-grained, sandy or gravelly substrates in coastal strand, coastal dunes, river alluvium, and coastal sage scrub growing on marine terraces.	**Low.** Appropriate habitat occurs on site.

Appendix C (cont.)
Special Status Species Observed or With Potential to Occur[1]

Species Name	Common Name	Status[2]	Habit, Ecology and Life History	Potential to Occur[3]
Mammals (cont.)				
Taxidea taxus	American badger	--/SSC 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.	**Not Expected.** Burrows would have been observed if present.

[1] Special status species reported within 0.5 mile of the project site, except Narrow Endemics which are County-wide.

[2] Listing is as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; FC = Federal Candidate Species, R = Rare; BCC = Federal Bird of Conservation Concern; SSC = State Species of Special Concern; FP = State Fully Protected; WL = Watch List.

CRPR = California Rare Plant Rank: 1A – presumed extinct; 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.

MSCP Covered Species: Covered Species under City of San Diego Multiple Species Conservation Plan (MSCP) Subarea Plan; NE = Narrow Endemic Species.

[3] Potential to Occur is assessed as follows. **None**: Species is either sessile (*i.e.* plants) or so limited to a particular habitat that it cannot disperse on its own, and habitat suitable for its establishment and survival does not occur on the project site; **Not Expected**: Species moves freely and might disperse through or across the project site, but suitable habitat for residence or breeding does not occur on the project site; **Low**: Suitable habitat is present on the project site but of low quality and no sign of the species was observed during surveys, however the species cannot be excluded with certainty; **Presumed Absent:** Habitat suitable for residence and breeding occurs on the project site, however protocol-level focused surveys conducted for the current project were negative; **High**: Suitable habitat occurs on the project site and the species has been recorded recently on or near the project site, but was not observed during surveys for the current project; **Presumed Present**: The species was observed during biological surveys for the current project and is assumed to occupy the project site

Appendix D

Restoration Plan for the Tecolote Canyon Trunk Sewer Improvement Project

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942
619.462.1515 tel
619.462.0552 fax
www.**helixepi**.com

September 30, 2020 SDD-31.13

Mr. Sean Paver
City of San Diego Public Works Department
525 B Street, Suite 750
San Diego, CA 92101

Subject: Restoration Plan for the Tecolote Canyon Trunk Sewer Improvement Project

Dear Mr. Paver:

This letter presents the restoration plan (hereafter referred to as Plan) for temporary impacts associated with the City of San Diego (City) Engineering & Capital Projects Department (ECPD) Tecolote Canyon Trunk Sewer Improvement Project (project) located in Tecolote Canyon Natural Park. The proposed restoration would be located within Tecolote Park on land owned by the City. This Plan intends to provide the framework for restoration of temporary impacts to riparian habitat and sensitive upland habitats, as well as to jurisdictional resources subject to the U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the federal Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) jurisdiction pursuant to Section 401 of the CWA or State Porter-Cologne Water Quality Control Act, California Department of Fish and Wildlife (CDFW) jurisdiction under Section 1602 of the California Fish and Game Code, and wetlands subject to the City's Environmentally Sensitive Lands (ESL) Ordinance Regulations. The proposed restoration of native habitat within Tecolote Canyon implements the goals and objectives of the City's Multiple Species Conservation Program (MSCP) Subarea Plan (City of San Diego [City] 1997) and Tecolote Canyon Natural Resource Management Plan (HELIX Environmental Planning, Inc. [HELIX] 2006) and follows the City's Land Development Code Biology Guidelines (City 2018). Included in this document are an installation plan, maintenance plan, and monitoring program for proposed restoration. Nomenclature used in this report follows Oberbauer (2008) and City's Biology Guidelines (City 2018) for vegetation communities, Jepson Flora Project (eds. 2017) for plants, and American Ornithological Society (2016) for birds.

PROJECT LOCATION

The approximately 6.5-mile Tecolote Canyon Trunk Sewer is located within the Tecolote Canyon Natural Park, south of Genesee Avenue, and northwest of Tecolote Road in the City of San Diego, California (Figure 1, *Regional Location Map*). The project is located within unsectioned lands of the Pueblo land grant in Townships 15 and 16 South, Range 3 West as shown on the U.S. Geological Survey (USGS) 7.5-minute La Jolla quadrangle map (Figure 2, *Project Vicinity Map [USGS Topography]*). The majority of project impacts are within the Multi-Habitat Planning Area (MHPA) of the City's MSCP Subarea Plan (City

1997) boundaries (Figure 3, *Project Vicinity Map [Aerial Photograph]*). The project area is divided into three reaches: north, central, and south. The northern reach is north of Balboa Avenue, the central reach is between Balboa Avenue and Mount Acadia Boulevard, and the southern reach is south of Mount Acadia Boulevard.

PROJECT DESCRIPTION

The Tecolote Canyon Trunk Sewer was built in the 1950s and is composed of vitrified clay that is generally greater than 18 inches in diameter. In 2012, the trunk sewer was assessed, and it was determined that improvements were required. Computer modeling indicated the sewer would reach capacity in 2017-2020 and that improved capacity is required due to rainfall inflow and infiltration during the rainy season. Inflow occurs from rainfall runoff entering the sewer system via manholes, and infiltration occurs from water entering cracks and breaks in the existing sewer pipes. Additionally, a closed-circuit television investigation of the pipe revealed deteriorated conditions and damages in the upper portion of the alignment.

The project will involve the replacement and rehabilitation of approximately 4.7 miles of the 6.5-mile trunk sewer and water main. It will also involve access improvements to minimize damage associated with emergency repairs and will include stream crossings, manhole protection, and new access pathways. The project design will include both open trenching and trenchless construction methods to minimize impacts to City Environmentally Sensitive Lands.

EXISTING CONDITIONS

The City defines sensitive habitat as Environmentally Sensitive Lands in their Biology Guidelines (City 2018). According to these guidelines, all wetlands and associated plant communities, and Tier I through IIIB uplands, are considered sensitive habitat and impacts to these areas require mitigation. The project site supports 11 sensitive vegetation communities (Figures 4-1 through 4-9): oak riparian forest (including disturbed phase), mule fat scrub, southern riparian forest (including disturbed phase and existing restored areas), southern willow scrub (including disturbed phase), maritime succulent scrub, coast live oak woodland, native grassland (comprised entirely of existing restored areas), Diegan coastal sage scrub (including disturbed phase and existing restored areas), southern mixed chaparral (including disturbed phase), poison oak chaparral, and non-native grassland (including disturbed phase and existing restored areas). Non-sensitive vegetation communities within the project site consist of eucalyptus woodland, disturbed land, non-native vegetation/ornamental, and developed land.

The project area is located within the bottom of the canyon, which runs generally from north to south, and is situated along the east side of Tecolote Creek. The surrounding topography rises above the project site to the east and west. The northern end of the project site is approximately 200 feet above mean sea level (amsl) in elevation and the south end of the project site is approximately 45 feet amsl in elevation.

Nine soil types are mapped within the project area (U.S. Department of Agriculture 2014). The two most common soil types are Terrace escarpments and Reiff fine sandy loam, two to five percent slopes. The seven other soil types present include: Salinas clay loam, two to nine percent slopes; Huerhuero loam, 15 to 30 percent slopes, eroded; Huerhuero loam, two to nine percent slopes; Gaviota fine sandy loam,

30 to 50 percent slopes; Chesterton-Urban land complex, two to nine percent slopes; Olivenhain cobbly loam, nine to 30 percent slopes; and Carlsbad-Urban land complex, nine to 30 percent slopes.

Tecolote Creek is within the Tecolote Hydrological Area of the Peñasquitos Hydrologic Unit and is a perennial stream with flows that vary with the season. The project site receives an average of 10.5 inches of rain per year. Urban run-off enters the site year-round through approximately 77 storm drains that direct water into Tecolote Creek (HELIX 2006).

PROJECT IMPACTS AND MITIGATION REQUIREMENTS

Impacts to City ESL Wetlands and Sensitive Vegetation Communities

The Tecolote Canyon Trunk Sewer Improvement Project will result in 5.28 acres of permanent and temporary impacts to sensitive habitats (Table 1, *Impacts to Vegetation and City ESL Wetlands and Required Mitigation*). The restoration of temporarily impacted sensitive habitat addressed by this Plan will provide credit toward total mitigation requirements as specified in the City of San Diego Guidelines (City 2018). Impacts to City ESL wetlands and riparian habitat total 0.95 acre and are comprised of 0.55 acre of oak riparian forest (including disturbed), 0.03 acre of mule fat scrub, 0.18 acre of southern riparian forest (including disturbed), and 0.19 acre of southern willow scrub (including disturbed). Impacts to sensitive upland vegetation communities total 4.33 acres and are comprised of 0.28 acre of maritime succulent scrub, 0.22 acre of coast live oak woodland, 2.28 acres of Diegan coastal sage scrub (including disturbed phase), 0.13 acre of southern mixed chaparral (including disturbed phase), 0.08 acre of poison oak chaparral, and 1.34 acres of non-native grassland (including disturbed phase). Impacts to coast live oak woodland do not result in direct impacts to individual coast live oak (*Quercus agrifolia*) trees.

Impacts to sensitive vegetation communities shall occur in accordance with the ratios provided in Table 3 of the City's Biology Guidelines (City 2018). Impacts to 0.55 acre of oak riparian forest (including disturbed phase) and 0.18 acre of southern riparian forest (including disturbed phase) will be provided at a 3:1 ratio; impacts to 0.19 acre of southern willow scrub (including disturbed phase) and 0.03 acre of mule fat scrub will be provided at a 2:1 ratio, for an anticipated combined mitigation obligation of 2.63 acres (Table 1). Mitigation for impacts to 0.22 acre of coast live oak woodland Tier I habitat, 0.28 acre of maritime succulent scrub Tier I habitat, 2.28 acres of Diegan coastal sage scrub Tier II habitat, 0.21 acre of southern mixed chaparral/poison oak chaparral Tier IIIA habitat, and 1.34 acres of non-native grassland Tier IIIB habitat shall occur in accordance with the ratios provided in Table 3 of the City's Biology Guidelines (City 2018), for an anticipated combined mitigation obligation of 4.83 acres. (Table 1).

Table 1
IMPACTS TO VEGETATION AND CITY ESL WETLANDS AND REQUIRED MITIGATION

Vegetation Community	Tier	Total Impacts (Acres)	Mitigation Ratio[1]	Required Mitigation (Acres)
City ESL wetlands/Riparian Habitat				
Oak riparian forest (includes disturbed)	Wetland	0.55	3:1	1.65
Southern riparian forest, disturbed	Wetland	0.18	3:1	0.54
Southern willow scrub (includes disturbed)	Wetland	0.19	2:1	0.38
Mule fat scrub	Wetland	0.03	2:1	0.06
	Wetlands Subtotal	***0.95***	**--**	***2.63***
Sensitive Uplands				
Tier I Habitat				
Coast live oak woodland (understory)	I	0.22	2:1	0.44
Maritime succulent scrub	I	0.28	2:1	0.56
Native Grassland	I	--	--	--
	Tier I Total	***0.50***	**--**	***1.00***
Tier II Habitat				
Diegan coastal sage scrub (includes disturbed)	II	2.28	1:1	2.28
	Tier II Total	**2.28**	**--**	***2.28***
Tier IIIA Habitat				
Southern mixed chaparral (includes disturbed)	IIIA	0.13	1:1	0.13
Poison oak chaparral	IIIA	0.08	1:1	0.08
	Tier IIIA Total	***0.21***	**--**	***0.21***
Tier IIIB Habitat				
Non-native grassland (includes disturbed)	IIIB	1.34	1:1	1.34
	Tier IIIA Total	***1.34***	**--**	***1.34***
	Sensitive Uplands Subtotal	***4.33***	**--**	***4.83***
Non-Sensitive Uplands				
Eucalyptus woodland	IV	0.03	--	--
Disturbed land[2]	IV	0.83	--	--
Non-native vegetation/ornamental	--	0.38	--	--
Developed	--	2.61	--	--
¤	***Non-Sensitive Uplands Subtotal***	***3.85***	--	--
	TOTAL	**9.13**	**--**	**7.46**

[1] Proposed ratios are in accordance with the City Biology Guidelines (2018) and presume mitigation will occur within MHPA boundaries.

[2] Consisting of dirt paths and trails; disturbed land impacts requiring erosion control will be evaluated post-construction

Impacts to Non-Sensitive Vegetation Communities

Temporary impacts to non-sensitive upland habitat consisting of non-native vegetation/ornamental and eucalyptus woodland (totaling 0.41 acre [Table 1]; excluding impacts to disturbed and developed lands associated with trails, access paths, and the golf course) will be revegetated for erosion control purposes following the Revegetation and Erosion Control Guidelines in the Landscape Standards of the City's Land

Development Code (City 2016). Revegetation requirements will be addressed separately by the plan(s) being prepared by the licensed landscape architect.

Impacts to Jurisdictional Waters and Wetlands

The project will result in permanent and temporary impacts to jurisdictional wetlands and riparian habitat as defined by the USACE, RWQCB, and CDFW. Impacts to jurisdictional waters and wetlands include permanent impacts to 0.02 acre of non-wetland waters of the U.S./State, and temporary impacts to 0.003 acre of wetland waters of the U.S./State and 0.05 acre of non-wetland waters of the U.S/State subject to USACE and RWQCB jurisdiction (Table 2, *Impacts to Jurisdictional Waters and Wetlands and Proposed Mitigation*).

A total of 1.03 acres of CDFW jurisdictional riparian habitat and streambed is comprised of 0.32 acre of permanent impacts and 0.71 acre of temporary impacts (Table 2). Permanent impacts include 0.25 acre of oak riparian forest (including disturbed), 0.03 acre of coast live oak woodland, 0.001 acre of disturbed southern riparian forest, 0.03 acre of southern willow scrub (including disturbed phase), and 0.01 acre of unvegetated streambed. Temporary impacts include 0.30 acre of oak riparian forest (including disturbed phase), 0.02 acre of coast live oak woodland, 0.03 acre of mule fat scrub, 0.18 acre of disturbed southern riparian forest, and 0.16 acre of southern willow scrub (including disturbed phase), and 0.02 acre of unvegetated streambed.

Impacts to jurisdictional waters and wetlands will require permitting through the appropriate regulatory agencies. Anticipated wetland permits include a CWA Section 404 permit from the USACE, CWA Section 401 Water Quality Certification or State Porter-Cologne Water Quality Control Act Waste Discharge requirements from the RWQCB, and CFG Code Section 1602 Streambed Alteration Agreement from CDFW. Mitigation for impacts to jurisdictional wetlands and waters are proposed to occur at ratios consisted with those required by the regulatory agencies. However, final mitigation requirements would be determined through consultation with the USACE, RWQCB, and CDFW; final approved mitigation ratios will supersede those proposed here and will not be in addition to mitigation required by the City.

Impacts to 0.07 acre of non-wetland waters of the U.S./State subject to USACE and RWQCB jurisdiction will be mitigated at a 1:1 ratio (Table 2). Impacts to 0.55 acre of oak riparian forest and 0.18 acre of southern cottonwood-willow riparian forest of CDFW jurisdictional riparian habitat shall be mitigated at a 3:1 ratio. Impacts to 0.05 acre of coast live oak woodland, 0.19 acre of southern willow scrub, and 0.03 acre of mule fast scrub of CDFW jurisdictional riparian habitat shall be mitigation at a 2:1 ratio. Impacts to 0.03 acre of CDFW unvegetated streambed shall be mitigated at a 1:1 ratio. Combined mitigation for CDFW riparian habitat and streambed totals 2.76 acres (Table 2).

Table 2
IMPACTS TO JURISDICTIONAL WATERS AND WETLANDS AND PROPOSED MITIGATION

Vegetation Community	Impacts (acre)	Mitigation Ratio[1,2]	Required Mitigation (acre)
USACE/RWQCB Jurisdiction			
Non-wetland WUS/Waters of the State	0.07	1:1	0.07
Total USACE/RWQCB	**0.07**	**--**	**0.07**
CDFW Jurisdiction			
Coast live oak woodland	0.05	2:1	0.10
Oak riparian forest – including disturbed phase	0.55	3:1	1.65
Southern riparian forest- disturbed	0.18	3:1	0.54
Southern willow scrub – including disturbed phase	0.19	2:1	0.38
Mule fat scrub	0.03	2:1	0.06
Streambed	0.03	1:1	0.03
Total CDFW	**1.03**	**--**	**2.76**

[1] Mitigation ratios for impacts to USACE, RWQCB, and CDFW jurisdictional areas will be negotiated with the agencies and final approved mitigation ratios will supersede those proposed here and will not be in addition to mitigation required by the City. Proposed ratios are in accordance with the City Biology Guidelines (2018) and presume mitigation will occur within MHPA boundaries.

[2] Mitigation required by the USACE/RWQCB includes 1:1 establishment for permanent impacts; the remaining mitigation may be with be establishment, rehabilitation, and/or enhancement. City mitigation requirements for wetland impacts include a 1:1 minimum creation or restoration component.

Mitigation

The project's overall mitigation requirement for impacts to City ESL wetlands, riparian habitat, and sensitive Tier I-IIIB uplands totals 7.46 acres and is comprised of 2.63 acres of City ESL wetlands/riparian habitat and 4.83 acres of sensitive uplands which includes 1.00 acre of Tier I habitat, 2.28 acres of Tier II habitat, 0.21 acre of Tier IIIA habitat, and 1.34 acres of Tier IIIB. Mitigation shall occur through on-site restoration of sensitive vegetation communities temporarily impacted during construction, and allocation of available mitigation credits to existing public utilities department (PUD) mitigation sites. On-site mitigation will consist of restoration of 0.69 acre of temporarily impacted riparian habitat areas and 3.77 acres of temporarily impacted sensitive upland habitat areas for a total of 4.46 acres (Table 3, *Mitigation*). Mitigation for impacts shall occur in-kind or of a higher habitat Tier.

The remaining 3.00 acres of required mitigation will consist of allocation of available mitigation credits at existing PUD mitigation sites as follows: 1.94 acres of wetland credits at the Central Tecolote Mitigation Site; 0.61 acre of Tier I credits at either the Central Tecolote Mitigation Site and Otay Mesa Upland Mitigation Bank; and 0.19 acre of Tier II credits, 0.04 acre of Tier IIIA credits, and 0.22 acre of Tier IIIB credits at either the Central Tecolote Mitigation Site, Otay Mesa Upland Mitigation Bank, and Canyon View Upland Restoration Mitigation Site.

Table 3
MITIGATION (acre)

Vegetation Community	Required Mitigation	On-Site Mitigation[1]	Mitigation Credits[2]
City ESL wetlands/Riparian Habitat			
Oak riparian forest (includes disturbed)	1.65	0.30	1.35
Southern riparian forest, disturbed	0.54	0.21[3]	0.33
Southern willow scrub (includes disturbed)	0.38	0.15	0.23
Mule fat scrub	0.06	0.03	0.3
Wetlands Subtotal	***2.63***	***0.69***	***1.94***
Sensitive Uplands			
Tier I Habitat			
Coast live oak woodland (understory)	0.44	0.12	--
Maritime succulent scrub	0.56	0.24	--
Native Grassland	--	0.03[4]	--
Tier I Total	***1.00***	***0.39***	***0.61***
Tier II Habitat			
Diegan coastal sage scrub (includes disturbed)	2.28	3.21[5,7]	--
Tier II Total	***2.28***	***3.21***	***0.19***
Tier IIIA Habitat			
Southern mixed chaparral (includes disturbed)	0.13	0.17[6]	--
Poison oak chaparral	0.08	--[6]	--
Tier IIIA Total	***0.21***	***0.17***	***0.04***
Tier IIIB Habitat			
Non-native grassland (includes disturbed)	1.34	--[7]	0.22
Tier IIIA Total	***1.34***	***0***	***0.22***
Sensitive Uplands Subtotal	***4.83***	***3.77***	***1.06***
TOTAL	**7.46**	**4.46**	**3.00**

1 On-site mitigation shall be provided through on-site revegetation of temporary disturbed areas.
2 The remaining mitigation not met through on-site restoration shall be provided through the allocation of available mitigation credits as follows: Central Tecolote Mitigation Site for wetland impacts; Central Tecolote Mitigation Site and Otay Mesa Upland Mitigation Bank for Tier I habitats; and Central Tecolote Mitigation Site, Otay Mesa Upland Mitigation Bank, and Canyon View Upland Restoration Mitigation Site for Tier II, IIIA, and IIIB habitats.
3 Southern riparian forest restoration includes a 0.3-acre portion of the Central Tecolote Canyon Mitigation site that was impacted by the project.
4 Native grassland will be restored within a 0.03-acre portion of the Central Tecolote Canyon Mitigation site that was impacted by the project.
5 Diegan coastal sage scrub restoration includes 1.09 acres of temporarily disturbed non-native grassland that will be restored as Diegan coastal sage scrub and a 0.15-acre portion of the Central Tecolote Canyon Mitigation site that was impacted by the project.
6 Temporarily impacted poison oak chaparral areas will be restored as chaparral.
7 1.09 acres of temporarily impacted non-native grassland areas will be restored as Diegan coastal sage scrub and 0.03 acre will be restored as native grassland.

The project's overall anticipated mitigation requirement for impacts to USACE and RWQCB jurisdictional areas totals 0.07 acre of non-wetland waters of the U.S./State (Table 4, *Proposed Mitigation for Impacts to Jurisdictional Waters and Wetlands*). The overall anticipated mitigation obligation for impacts CDFW jurisdictional riparian habitat and streambed total 2.76 acres (Table 4). Mitigation shall occur through on-site restoration of jurisdictional areas temporarily impacted during construction, and allocation of available mitigation credits to existing PUD mitigation sites. On-site mitigation will consist of restoration of 0.79 acre of CDFW jurisdictional riparian habitat (Table 4).

The remaining 0.07 acre of required mitigation for impacts to USACE and RWQCB jurisdictional habitat shall occur through the allocation of 0.07 acre of available creation credit at the Central Tecolote Mitigation site. The Central Tecolote Mitigation Site mitigates for past and future impacts to upland and wetland habitat within Tecolote Canyon Natural Park and Los Peñasquitos watershed associated with the maintenance of water and sewer pipelines and related access paths. The remaining 1.97 acres of required mitigation for impacts to CDFW jurisdictional riparian habitat and streambed will be completed through the allocation of 1.97 acres of available mitigation credits at the Central Tecolote Canyon Mitigation Site. The required 1:1 wetland creation/restoration component will be satisfied through on-site restoration of temporary impact areas and the allocation of creation credit at the Central Tecolote Canyon Mitigation site.

As stated previously, final mitigation requirements to offset impacts on federal and state jurisdictional waters will be determined as part of the permitting process with the USACE, RWQCB, and CDFW and will depend on mitigation type (creation, restoration, etc.), mitigation location, quality of mitigation proposed, and will supersede those proposed here and will not be in addition to mitigation required by the City.

Table 4
PROPOSED MITIGATION FOR IMPACTS TO JURISDICTIONAL WATERS AND WETLANDS

Vegetation Community	Required Mitigation[1]	On-Site Mitigation[2] (acre)	Mitigation Credits[3] (acre)
USACE/RWQCB Jurisdiction			
Non-wetland WUS/Waters of the State	0.07	--	0.07
Total USACE/RWQCB	**0.07**	**0**	**0.07**
CDFW Jurisdiction			
Coast live oak woodland	0.10	0.10	--
Oak riparian forest – including disturbed phase	1.65	0.30	1.35
Southern riparian forest- disturbed	0.54	0.21[4]	0.33
Southern willow scrub – including disturbed phase	0.38	0.15	0.23
Mule fat scrub	0.06	0.03	0.03
Streambed	0.03	--	0.03
Total CDFW	**2.76**	**0.79**	**1.97**

[1] Final mitigation obligations shall be negotiated with the USACE, RWQCB, and CDFW during the permitting process
[2] On-site mitigation shall be provided through on-site revegetation of temporary disturbed areas.

This Plan addresses the on-site restoration of the 4.46 acres of temporarily impacted City ESL wetlands, sensitive habitat, and CDFW jurisdictional riparian habitat which is comprised of 20 restoration areas (Figures 4-1 through 4-9, *Restoration/Revegetation Plan Maps*).

RESTORATION GOALS AND OBJECTIVES

To partially meet the project's mitigation requirements, the City proposes the on-site restoration of 4.46 acres of temporary impacts to sensitive habitats (City ESL Wetlands and Tier I – IIIB upland habitats). The final goal will be to restore areas temporarily impacted to same or better functions and services provided prior to impacts.

TARGET FUNCTIONS AND SERVICES

The functions and services of the restored habitats are expected to approach those present in existing habitats prior to project impacts. The existing wetland and upland habitats are used by a variety of wildlife as a corridor between important habitat areas and for foraging, nesting, and roosting. The restoration areas will provide suitable nesting and foraging habitat for invertebrates, reptiles, birds, and mammals. Areas revegetated for erosion control are expected to stabilize soils with native vegetation so that impacts to adjacent, native habitat can be minimized.

MULTIPLE SPECIES CONSERVATION PROGRAM LAND USE CONSISTENCY ANALYSIS

The MSCP establishes specific guidelines that limit activities that occur within the MHPA. In general, activities occurring within the MHPA must conform to these guidelines and, wherever feasible, should be located in the least sensitive areas. Utility lines (e.g., sewer, water, etc.), limited water facilities, and other essential public facilities in compliance with the General Planning Policies and Design Guidelines found in Section 1.4.2 of the City's MSCP Subarea Plan (City 1997) are considered conditionally compatible with the biological objectives of the MSCP and are thus allowed within the City's MHPA. The City's MSCP also includes Land Use Adjacency Guidelines (LUAGs), contained in Section 1.4.3 of the MSCP, that are designed to minimize indirect impacts to sensitive resources contained adjacent to the MHPA and thus maintain the value of the preserved open space. These adjacency guidelines govern impacts within and adjacent to the MHPA.

The project has been designed to adhere to the applicable general planning policies, guidelines, and LUAGS to minimize impacts and to maintain the function of the MHPA. Compatible land use guidelines consist of roads and utilities, fencing and lighting, materials storage, mining, extraction, processing facilities, and flood control. Land use adjacency guidelines pertain to drainage, toxins, lighting, noise, barriers to incursion, invasive species, brush management, and grading/land development. Activities in this restoration plan that align with MSCP-compatible land use requirements include: storing materials within designated areas, using appropriate containment and approved erosion and sediment controls during and after maintenance, and restoring unavoidable temporary impacts to native habitat. The proposed restoration effort is consistent with the MSCP General Planning Policies and Design Guidelines and with the Land Use Adjacency Guidelines, as described below.

The proposed restoration effort is consistent with the roads and utilities guidelines because temporary construction areas, roads, and staging areas will not disturb adjacent sensitive habitat unless it is unavoidable. All vehicular site access will occur along the existing dirt access road or other disturbed areas; foot trails will be designated by the Restoration Specialist and will occur through disturbed or non-sensitive habitat wherever possible. If temporary habitat disturbance beyond minor trimming of above-ground vegetation is unavoidable, then restoration of, and/or other mitigation for, the disturbed area will occur. Only temporary staking will be used to demarcate the work area and only as needed. No lighting is included as part of the restoration effort. Long-term materials storage (e.g., hazardous or toxic, chemicals, equipment, etc.) will not occur within the MHPA. Storage may occur, if necessary, temporarily during construction, per applicable regulations and only within designated staging areas. Best Management Practices (BMPs) will be used, as needed, to protect habitat within the MHPA. Mining will not occur as part of the restoration effort. The need for flood control is not expected.

Proposed restoration will not affect current drainage patterns or create any new, impermeable surfaces within the restoration areas. No toxins will be introduced as only appropriate herbicides will be used for weed control. No night lighting will be used as part of the restoration effort. Since the restoration areas will not be graded and weed whipping will be completed within a few days, no noise impacts or constraints are expected. No permanent barriers will be constructed as part of the restoration effort, temporary signage will direct public access away from the restoration site. Temporary barriers may be installed if public access becomes detrimental to the restoration effort. Invasive plants will be removed from the restoration boundaries and will not be included in the installed plant palettes. Brush management does not apply, as all proposed restoration is located outside of any Brush Management Zone and no new structures are being installed as part of the restoration effort. The proposed restoration is consistent with the land use adjacency guideline concerning grading/land development as no separate grading is proposed (all grading will be part of the project).

The proposed restoration specifically conforms to the MSCP because existing, sensitive habitats (City ESL wetlands and Tier I – Tier IIIB upland habitats) will be restored in-kind, or a higher habitat Tier, thereby re-creating existing functions and services. All the proposed restoration and subsequent maintenance and monitoring will be consistent with the City's MSCP Subarea Plan (City 1997).

RESPONSIBLE PARTIES

Financial Responsibility

The City ECPD will be responsible for financing the installation, five-year maintenance program, and biological monitoring of the restoration proposed in this plan. Damage to 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 facilities, as determined by the Restoration Specialist.

Restoration Team

The City ECPD will be responsible for retaining a qualified Restoration Specialist with over five years of experience monitoring habitat restoration to oversee the entire installation and monitoring in coordination with City DSD staff. The City ECPD will also be responsible for retaining qualified installation

and maintenance contractors with documented success in restoration of native upland habitat. Contact information for the City ECPD is:

City of San Diego
Engineering & Capital Projects Department
Contact: Mr. Sean Paver
525 B Street, MS908A
San Diego, CA 92101
Office: 619-533-3629

Landscape Architect

A licensed landscape architect will prepare the necessary construction documents, including planting plans, and will provide the draft landscape plans to the City for review and approval prior to initiating construction.

Restoration Specialist

Overall supervision of the installation and maintenance of this restoration effort will be the responsibility of a Restoration Specialist with at least five years of experience in native habitat restoration. The Restoration Specialist will oversee the efforts of the installation/maintenance contractor(s) for the life of the restoration. Specifically, the Restoration Specialist will educate all participants about restoration goals and requirements; inspect plant material; directly oversee planting, seeding, weeding, installation of erosion control materials, and other maintenance activities; and conduct regular monitoring as well as annual assessments of the restoration effort. The Restoration Specialist will help ensure that the contractor does not inadvertently impact adjacent sensitive habitat during installation or maintenance activities. When necessary, the Restoration Specialist will provide the City ECPD and contractor with a written monitoring memo, including a list of items in need of attention. The Restoration Specialist will prepare and submit required reports annually. A Biologist may perform some of the duties outlined under the supervision of the qualified Restoration Specialist.

Installation/Maintenance Contractor(s)

The installation and maintenance contractor(s), hired by the City ECPD, will have experience in native habitat restoration, be knowledgeable as to the maintenance of native upland habitat, and be familiar with native and non-native plants. The maintenance contractor and the installation contractor may be the same entity. The installation and maintenance contractor(s) will be a firm (or firms) holding a valid C-27 Landscape Contracting License from the State of California, a valid Maintenance Gardener Pest Control Business License or Pest Control Business License, and a Qualified Applicator Certificate or Qualified Applicator License, with Category B, that will allow them to perform the required work for this restoration effort. The project proponent may change contractors at its discretion.

The installation contractor will be responsible for plant salvage, initial weed control, irrigation installation, planting, and seeding, as well as maintenance of the restoration sites during the 120-day plant establishment period (PEP). Following installation, this contractor will submit marked up as-built irrigation plans to the project proponent and lists of all plant/seed material installed to the Restoration Specialist for inclusion in the as-built report. The installation contractor will remain responsible for the

restoration effort until these areas have met the success criteria specified for the PEP and official sign off has been obtained from the Restoration Specialist, City ECPD, and City DSD staff.

The maintenance contractor will implement maintenance of the restoration areas for five years. The maintenance contractor will service the entire site according to the maintenance schedule (Table 14, below). Service will include, but not be limited to, weed control, irrigation maintenance, trash removal, watering, dead plant replacement, re-seeding, and pest and disease management. Following restoration sign off, the maintenance contractor also will remove any erosion control, fencing/staking, and the aboveground portion of the irrigation system, as directed by the Restoration Specialist and City ECPD. All activities conducted will be seasonally appropriate and approved by the Restoration Specialist and City ECPD. The maintenance contractor will meet the Restoration Specialist and City ECPD at the site when requested and will perform all checklist items in a timely manner as directed.

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 coastal San Diego County, within 25 miles of the coast. If necessary, salvaged plants may be stored at a qualified nursery under the supervision of the Restoration Specialist. All plants will be inspected for Argentinian ants and will not be accepted if ants are present.

Long-term Responsibility

Due to the location of the restoration areas on City-owned Park lands, the City's Parks and Recreation Department will be responsible for Long-Term Management following successful completion of the five-year maintenance and monitoring program. The primary avenue for the City's participation is through the permitting process; reviewing and commenting on this plan, the construction documents, and subsequent annual reports; and inspecting and commenting on significant milestones involved in the implementation of this plan.

City of San Diego
Parks and Recreation Department
Contact: Mr. Paul Kilburg
Office: 619-685-1327
pkilburg@sandiego.gov

RESTORATION IMPLEMENTATION AND SITE PREPARATION

On-site restoration of 4.46 acres of impacted City ESL wetlands and sensitive upland habitat will be conducted in place and in-kind, with the exception of the following: poison oak chaparral (Tier IIIA) will be restored as chaparral (Tier IIIA) and non-native grassland habitat (Tier IIIB will be restored as coastal sage scrub (Tier II). Restoration of riparian forest communities is composed of oak riparian forest and southern riparian forest, and restoration of riparian scrub communities is composed of mule fat scrub and southern willow scrub. Total restoration will consist of 0.51 acre of riparian forest, 0.18 acre of riparian scrub, 0.12 acre of coast live oak woodland understory, 0.24 acre of maritime succulent scrub, 0.03 acre of native grassland, 3.21 acres of coastal sage scrub, and 0.17 acre of chaparral vegetation communities (Table 5, *On-Site Habitat Restoration*).

Revegetation for proposed temporary impacts to 0.41 acre of non-native vegetation/ornamental and eucalyptus woodland will be revegetated with an erosion control seed mix. Existing disturbed lands consist of dirt trails and paths that will be returned to their former condition as bare ground; the trails being abandoned due to trail improvements consisting of trail relocation are not addressed by this plan.

Table 5
ON-SITE HABITAT RESTORATION

Restored Habitats	Tier	Total Acres
Wetlands		
Riparian forest	Wetland	0.51
Riparian scrub	Wetland	0.18
Wetlands Subtotal		***0.69***
Sensitive Uplands		
Coast live oak woodland understory	I	0.12
Native grassland	I	0.03
Maritime succulent scrub	I	0.24
Diegan coastal sage scrub	II	3.21
Chaparral	IIIA	0.17
Sensitive Uplands Subtotal		***3.77***
TOTAL		**4.46**

Pre-construction Meeting

Prior to starting restoration, a meeting will be held on-site with the installation contractor, Restoration Specialist, City ECPD Project Manager, City Parks and Recreation Department, and City Development Services Department (DSD) staff to identify sensitive areas, devise a strategy for avoidance, and discuss project details and schedules.

Site Access

A right-of-entry permit will be obtained from the Parks and Recreation Department by the installation and maintenance contractor(s). Vehicles may access the canyon for restoration-related activities along existing access paths. Some equipment (e.g., irrigation materials or container plantings) may be temporarily stored inside of delineated restoration areas.

Access to restoration areas in the north reach can be obtained from Genesee Avenue and Balboa Avenue; access to restoration areas in the central reach can be obtained from Mount Ashmun Drive, Mount Ariane Drive, and Mount Acadia Boulevard; access to restoration areas in the south reach can be obtained from Mount Acadia Boulevard, Snead Avenue, and Tecolote Road. Additional access to restoration areas in the south reach may be obtained through agreements with the Tecolote Canyon Golf Course and San Diego Gas & Electric (SDG&E) for use of access roads through their property and easements; SDG&E has an access road from San Buenaventura Way near the University of San Diego campus.

Fencing/Erosion Control

Temporary fencing consisting of metal T-posts and high-visibility rope will be installed where restoration boundaries abut access paths and trails. To help control erosion until vegetation has established, biodegradable straw wattles and a hydroseed slurry (in accordance with Section 4.4 of the City's Landscape Standards; City 2016) will be installed in all temporarily impacted habitat. Native seed mixes for inclusion with the hydroseed slurry are provided in the Planting section of this Plan (Tables 3 to 8) for each vegetation community being restored. Additional erosion control will be installed and damaged erosion control will be replaced only as needed to reduce the potential for sediment movement. Fencing and wattles will be removed after sufficient vegetation has established to control erosion, as determined by the restoration specialist and City ECPD Project Manager.

Signage

Temporary signs will provide an explanation of the project and a contact number for any public inquiries. At minimum, one sign will be installed for each of the 20 restoration areas, with multiple signs placed within long, linear restoration areas. A total of 26 signs will be installed along the work area corridor. Final sign language and locations will be approved by the Parks and Recreation Department.

Documenting Pre-restoration Conditions

To document pre-restoration conditions, photos will be taken from 26 photo documentation locations representing the restoration areas and will correspond to the photo locations of the pre-impact assessment completed prior to project construction. These photo locations will be mapped using a Global Positioning System (GPS) with sub-meter accuracy.

Non-native Plant and Debris Removal

Prior to installation of irrigation and plantings, all non-native vegetation must be removed from within the restoration areas and a 10-foot buffer zone. Appropriate herbicide (e.g., only wetland approved herbicides should be used, if necessary, in the riparian restoration areas) may be used during non-native plant control, if necessary. Perennial species that resprout from the below-ground portion of the plant (e.g., fennel [*Foeniculum vulgare*]) should be cut and herbicide applied immediately to the cut stump. All large woody exotics will be cut to ground level with all above-ground portions removed from the site, and stumps will be treated with an appropriate herbicide. Any annual non-native vegetation that is flowering or fruiting will be removed by hand, immediately bagged, and removed from the site the same day. All plant material, as well as any trash and other debris removed from the project area, will be disposed of in a licensed landfill.

Irrigation Installation

Restoration areas will be temporarily irrigated such that runoff into adjacent existing and restored habitat is minimized. A few of the small restoration patches may not require irrigation, but this will need to be confirmed in the field with the restoration specialist. The irrigation method will be at the discretion of the installation contractor. Options include installation of a buried main line and temporary above-ground low-flow overhead irrigation, installation of above-ground overhead irrigation that would

be charged from a water truck, installation of buried drip irrigation, or manual watering using hoses and a water truck. The water source will be determined by the installation contractor.

Planting

Once an area has been weeded and irrigation installation is complete (as appropriate), container plantings and seed will be installed. All seed and plant material for this project will be collected or propagated from local plant populations occurring in San Diego County within 25 miles of the coast. Substitutions, other donor sites, or use of commercial material may be allowed if materials are unavailable, at the discretion of the Parks and Recreation Department and restoration specialist. Final plant and seed orders must be authorized by the restoration specialist, and all container plantings and seed must be inspected and approved by the restoration specialist prior to installation.

Seed Mixes

Restoration seed mixes are provided in Tables 6, *Riparian Seed Mix*, Table 7, *Coastal Sage Scrub Seed Mix*, Table 8, *Native Grassland Seed Mix*, Table 9, *Coast Live Oak Woodland Seed Mix*, and Table 10, *Chaparral Seed Mix,* and Table 11, *Erosion Control Seed Mix*. These seed mixes were based on the seed mixes that were installed for previous restoration efforts located in Tecolote Canyon, as well as native species that were documented in the areas proposed for temporary impacts. The erosion control seed mix will be applied to areas mapped as eucalyptus woodland and non-native vegetation/ornamental habitat. As noted in the Fencing/Erosion Control section above, seed will be mixed and applied in a hydroseed slurry in accordance with Section 4.4 of the City's Landscape Standards (City 2016).

Table 6
RIPARIAN SEED MIX (0.69 acre)
(for impacts to oak riparian forest, southern riparian forest, southern willow scrub, and mule fat scrub)

Scientific Name	Common Name	% Purity/ Germination	% Live Seed	Lbs./Acre	Total Lbs.
Ambrosia psilostachya	western ragweed	45/45	20	4	2.8
Artemisia douglasiana	Douglas' mugwort	15/40	6	6	4.1
Artemisia palmeri	San Diego sagewort	20/50	10	4	2.8
Baccharis pilularis	coyote brush	10/50	5	1	0.7
Baccharis salicifolia	mule fat	10/20	2	4	2.8
Elymus triticoides	creeping wild rye	90/80	72	4	2.8
Epilobium ciliatum	willow herb	25/50	13	1	0.7
Euthamia occidentalis	western goldenrod	24/45	11	1	0.7
Isocoma menziesii	goldenbush	18/40	7	1	0.7
Juncus acutus spp. *leopoldii*	southwestern spiny rush	95/80	76	1	0.7
Stipa lepida	foothill needlegrass	90/71	64	4	2.8
				TOTAL	**21.6**

Table 7
COASTAL SAGE SCRUB SEED MIX (3.45 acres)
(for impacts to maritime succulent scrub, Diegan coastal sage scrub, and non-native grassland)

Scientific Name	Common Name	% Purity/ Germination	% Live Seed	Lbs./Acre	Total Lbs.
Acmispon glaber	deerweed	95/80	76	0.5	1.7
Artemisia californica	California sagebrush	30/60	18	4	13.8
Bahiopsis laciniata	San Diego sunflower	31/45	14	4	13.8
Bloomeria clevelandii	San Diego golden star	NA	NA	0.5	1.7
Castilleja exserta	owl's clover	50/50	25	1	3.5
Cryptantha muricata	popcorn flower	30/60	18	1	3.5
Deinandra fasciculata	fascicled tarplant	25/65	16	3	10.4
Eriogonum fasciculatum	California buckwheat	55/20	11	6	20.7
Eriophyllum confertiflorum	golden yarrow	36/62	22	1	3.5
Mimulus aurantiacus	monkeyflower	2/75	2	2	6.9
Plantago erecta	plantain	97/89	86	4	13.8
Salvia mellifera	black sage	85/50	43	4	13.8
Sisyrinchium bellum	blue-eyed grass	98/80	78	1	3.5
Stipa lepida	foothill needlegrass	90/71	64	3	10.4
Stipa pulchra	purple needlegrass	90/75	68	3	10.4
				TOTAL	**131.4**

Table 8
NATIVE GRASSLAND SEED MIX (0.03 acre)

Scientific Name	Common Name	% Purity/ Germination	% Live Seed	Lbs./Acre	Total Lbs.
Cryptantha muricata	popcorn flower	30/60	18	3	0.1
Deinandra fasciculata	fascicled tarplant	25/65	16	3	0.1
Eriophyllum confertiflorum	golden yarrow	36/62	22	3	0.1
Eschscholzia californica	California poppy	98/80	78	3	0.1
Lasthenia californica	California goldfields	55/70	39	3	0.1
Lupinus succulentus	arroyo lupine	98/85	83	3	0.1
Plantago erecta	plantain	97/89	86	3	0.1
Sisyrinchium bellum	blue-eyed grass	98/80	76	3	0.1
Stipa lepida	foothill needlegrass	90/71	64	10	0.3
Stipa pulchra	purple needlegrass	90/75	68	10	0.3
				TOTAL	**1.4**

Table 9
COAST LIVE OAK WOODLAND UNDERSTORY SEED MIX (0.12 acre)

Scientific Name	Common Name	% Purity/ Germination	% Live Seed	Lbs./Acre	Total Lbs.
Ambrosia psilostachya	western ragweed	45/45	20	5	0.6
Artemisia palmeri	San Diego sagewort	20/50	10	5	0.6
Claytonia perfoliata ssp. perfoliata	miner's lettuce	25/55	14	2	0.2
Marah macrocarpa	wild cucumber	98/80	78	3	0.4
Rhamnus crocea	spiny redberry	83/47	40	4	0.5
Rhus integrifolia	lemonadeberry	90/77	69	4	0.5
				TOTAL	**2.8**

Table 10
CHAPARRAL SEED MIX (0.17 acre)
(for impacts to southern mixed chaparral and poison oak chaparral)

Scientific Name	Common Name	% Purity/ Germination	% Live Seed	Lbs./Acre	Total Lbs.
Adenostoma fasciculatum	chamise	85/20	17	6	1.0
Artemisia californica	California sage brush	30/60	18	5	0.9
Helianthemum scoparium	rush rose	98/80	78	4	0.7
Salvia mellifera	black sage	85/50	43	6	1.0
Stipa lepida	foothill needlegrass	90/71	64	8	1.4
				TOTAL	**5.0**

Table 11
EROSION CONTROL SEED MIX (0.41 acre)
(for impacts to eucalyptus woodland and non-native/ornamental vegetation)

Scientific Name	Common Name	% Purity/ Germination	% Live Seed	Lbs./Acre	Total Lbs.
Acmispon glaber	deerweed	95/80	76	2	0.8
Artemisia californica	California sage brush	30/60	18	3	1.2
Encelia californica	California encelia	30/45	14	3	1.2
Eriogonum fasciculatum	flat-top buckwheat	50/20	11	5	2.1
Eschscholzia californica	California poppy	98/80	78	3	1.2
Lasthenia californica	goldfields	55/70	39	3	1.2
Lupinus bicolor	miniature lupine	98/85	83	2	0.8
Lupinus succulentus	Arroyo lupine	98/85	83	3	1.2
Plantago erecta	plantain	97/89	86	3	1.2
Stipa pulchra	purple needlegrass	90/75	68	5	2.1
				TOTAL	**13.0**

Container Plantings

Plant palettes for restoration are provided in Tables 12, *Riparian Forest Plant Palette*, Table 13, *Riparian Scrub Plant Palette*, Table 14, *Coast Live Oak Woodland Plant Palette*, Table 15, *Maritime Succulent Scrub Plant Palette*, Table 16, *Diegan Coastal Sage Scrub Plant Palette*, Table 17, *Chaparral Plant Palette*, and Table 18, *Native Grassland Plant Palette*. These plant palettes were based on those installed for previous restoration and restoration efforts located in Tecolote Canyon, as well as native species that were documented in the areas proposed for temporary impacts. In addition, while these plant palettes include all species proposed for restoration of a specific vegetation community, restoration areas that overlap with the new 20-foot sewer easement will require modifications to the plant palette to include only height restricted plants, consisting of plants that will grow no higher than five feet. Height restricted plants are noted in the plant palette tables. The location of the new 20-foot sewer easement will be determined when construction plans for the replacement of the trunk sewer pipe have been finalized.

Container stock will be installed in holes that are three times the width and 1.5 times the depth of the planting container. Holes will be dug with mechanical augers where possible and by hand elsewhere. Holes must be filled with water and allowed to drain prior to installation, and, after installation, each container plant must be watered with at least one gallon of water. To aid plant establishment, plants should be inoculated with mycorrhizae by the nursery or at installation. If overhead or manual irrigation will be used, a shallow berm, approximately 12 inches in diameter should surround each planting. To protect young plants from herbivory, plant protectors may be used, as needed, at the restoration specialist's direction. Additionally, all container stock will be inspected for Argentinian ants (*Linepithema humile*).

Table 12
RIPARIAN FOREST PLANT PALETTE
(0.51 acre)

Scientific Name	Common Name	Number Per Acre	Container Size	Spacing on Center (feet)	Total Number
Artemisia palmeri[1]	San Diego sagewort	100	1-gallon	5	51
Distichlis spicata[1]	saltgrass	300	plugs	3	153
Elymus triticoides[1]	creeping wild rye	300	plugs	3	153
Isocoma menziesii[1]	goldenbush	100	1-gallon	5	51
Mimulus aurantiacus	sticky monkeyflower	100	1-gallon	5	51
Salix exigua	sand bar willow	200	1-gallon[2]	6	102
Salix gooddingii	Gooding's black willow	100	1-gallon[2]	6	51
Salix lasiolepis	arroyo willow	200	1-gallon[2]	6	102
Sambucus nigra	blue elderberry	60	1-gallon	15	31
Quercus agrifolia	coast live oak	300	1-gallon	15	153
				TOTAL	**898**

[1] Height restricted plant species allowed within 20-foot sewer easement.
[2] Live cuttings may be substituted.

Table 13
RIPARIAN SCRUB PLANT PALETTE
(0.18 acre)

Scientific Name	Common Name	Number Per Acre	Container Size	Spacing on Center (feet)	Total Number
Artemisia palmeri[1]	San Diego sagewort	100	1-gallon	5	18
Baccharis pilularis[1]	coyote brush	150	1-gallon	5	27
Baccharis salicifolia	mule fat	400	1-gallon[2]	6	72
Salix exigua	narrow-leaved willow	100	1-gallon[2]	6	18
Salix lasiolepis	arroyo willow	200	1-gallon[2]	6	36
				TOTAL	**171**

[1] Height restricted plant species allowed within 20-foot sewer easement.
[2] Live cuttings may be substituted.

Table 14
COAST LIVE OAK WOODLAND UNDERSTORY PLANT PALETTE
(0.12 acre)

Scientific Name	Common Name	Number Per Acre	Container Size	Spacing on Center (feet)	Total Number
Artemisia palmeri[1]	San Diego sagewort	200	1-gallon	5	24
Elymus triticoides[1]	creeping wild rye	300	plugs	3	36
Mimulus aurantiacus[1]	monkeyflower	200	1-gallon	5	24
Quercus dumosa	Nuttall's scrub oak	100	1-gallon	5	12
				TOTAL	**96**

[1] Height restricted plant species allowed within 20-foot sewer easement.

Table 15
MARITIME SUCCULENT SCRUB PLANT PALETTE
(0.24 acre)

Scientific Name	Common Name	Number Per Acre	Container Size	Spacing on Center (feet)	Total Number
Artemisia californica[1]	California sagebrush	150	1-gallon	5	36
Bahiopsis laciniata[1]	San Diego sunflower	100	1-gallon	5	24
Cylindropuntia prolifera[1]	coast cholla	400	1-gallon[2]	5	96
Eriogonum fasciculatum[1]	California buckwheat	150	1-gallon	5	36
Ferocactus viridescens[1]	San Diego barrel cactus	200	1-gallon	5	48
Opuntia littoralis[1]	coastal prickly pear	400	1-gallon[2]	5	96
Rhus integrifolia	lemonadeberry	100	1-gallon	10	24
				TOTAL	**360**

[1] Height restricted plant species allowed within 20-foot sewer easement.
[2] Live cuttings may be substituted.

Table 16
DIEGAN COASTAL SAGE SCRUB PLANT PALETTE
(3.21 acres)

Scientific Name	Common Name	Number Per Acre	Container Size	Spacing on Center (feet)	Total Number
Artemisia californica[1]	California sagebrush	200	1-gallon	5	642
Bahiopsis laciniata[1]	San Diego sunflower	200	1-gallon	5	642
Cylindropuntia prolifera[1]	coast cholla	60	1-gallon[2]	5	193
Eriogonum fasciculatum[1]	California buckwheat	200	1-gallon	5	642
Hesperoyucca whipplei[1]	our Lord's candle	60	1-gallon	5	193
Malosma laurina	laurel sumac	60	1-gallon	10	193
Mimulus aurantiacus[1]	monkeyflower	100	1-gallon	3	321
Opuntia littoralis[1]	coastal prickly pear	60	1-gallon[2]	5	193
Rhus integrifolia	lemonadeberry	60	1-gallon	10	193
Salvia mellifera[1]	black sage	200	1-gallon	5	642
				TOTAL	**3,854**

[1] Height restricted plant species allowed within 20-foot sewer easement.
[2] Live cuttings may be substituted.

Table 17
CHAPARRAL PLANT PALETTE
(0.17 acre)

Scientific Name	Common Name	Number Per Acre	Container Size	Spacing on Center (feet)	Total Number
Adenostoma fasciculatum	chamise	400	1-gallon	6	68
Heteromeles arbutifolia	toyon	100	1-gallon	6	17
Malosma laurina	laurel sumac	100	1-gallon	6	17
Rhus integrifolia	lemonadeberry	300	1-gallon	6	51
Salvia mellifera[1]	black sage	200	1-gallon	6	34
				TOTAL	**187**

1 Height restricted plant species allowed within 20-foot sewer easement.

Table 18
NATIVE GRASSLAND PLANT PALETTE
(0.03 acre)

Scientific Name	Common Name	Number Per Acre	Container Size	Spacing on Center (feet)	Total Number
Mimulus aurantiacus[1]	monkeyflower	68	1-gallon	3	2
Rhus trilobata[1]	basket bush	68	1-gallon	5	2
Solanum xanti[1]	purple nightshade	68	1-gallon	3	2
Stipa pulchra	purple needlegrass	300	plugs	3	9
Viguiera laciniata[1]	San Diego sunflower	68	1-gallon	5	2
Yucca whipplei[1]	our Lord's candle	68	1-gallon	5	2
				TOTAL	**19**

[1] Height restricted plant species allowed within 20-foot sewer easement.

Live Cuttings

Live cuttings may be substituted for mule fat and willow container stock. The amount of cuttings substituted for container stock shall be 50 percent more than the total specified in the plant palette (e.g., 100 container stock of arroyo willow can be substituted with 150 cuttings of arroyo willow). Cuttings can be sourced from existing mature shrubs and trees found within Tecolote Canyon. Prior to taking cuttings, all equipment being used, including buckets of water and wood cutters, will be sterilized so no pathogen cross contamination occurs. Specific cutting procedures include taking cuttings that are straight or nearly so and at least 20 inches long (or sufficiently long enough to reach the water table) and 0.5 to 1 inch in diameter. To help ensure genetic diversity within the restoration areas and limit damage to existing vegetation, no more than 10 cuttings shall be collected per individual tree or shrub. The stems shall be cut so that the bottom end is at an angle, to help identify which end to put in the ground. All cuttings shall be stripped of leaves to allow roots to develop prior to above-ground vegetation and keep the cutting from drying out, while tops shall be cut flat to distinguish the top from the bottom end. Cuttings shall be installed so that 50 to 60 percent of their total length is below grade. The ground shall be saturated prior to installation, and cuttings shall be installed immediately to avoid desiccation.

Live cuttings also may be substituted for cactus (coast cholla and coastal prickly pear). Cactus cuttings should be obtained from existing cacti populations within Tecolote Canyon and cut ends shall be allowed to dry prior to installation to reduce risk of infection or rot. The coastal prickly pear cuttings shall be installed using the following method: (1) cut off the top two paddles from a cactus branch (one cutting consists of two paddles); (2) scarify the soil where planting will occur, removing any weeds and large cobbles; (3) lay the cactus cutting flat against the soil, making sure the areoles on the underside of the paddle have contact with the soil (remove some thorns, if necessary); and (4) soak the newly installed cuttings the same day they are planted. Coast cholla cuttings can be installed using similar methods.

As-built Conditions

The Restoration Specialist shall submit a brief letter report to the appropriate regulatory agencies (USACE, RWQCB, CDFW, Parks and Recreation, and DSD), including an as-built graphic, within six weeks of completion of restoration installation. This letter will describe site preparation, installation methods, and the as-built status of the overall restoration project. Pre- and post-installation photographs taken from identified photo stations shall be included as part of the as-built report.

MAINTENANCE PROGRAM

The maintenance guidelines are tailored for native plant establishment. Maintenance personnel will be informed of the goals of the restoration effort and the maintenance requirements. A professional with experience and knowledge in native habitat restoration maintenance will supervise all maintenance. It is the maintenance contractor's responsibility to keep all seeded and planted areas free of debris, to monitor irrigation function and scheduling as well as the condition and health of all plant material, to remove non-native plant species, and to inspect and maintain any required erosion control. Maintenance of the restoration areas will be conducted by the maintenance contractor as needed to ensure restoration areas meet success criteria. At a minimum, maintenance will be conducted monthly during the 120-day PEP, at least six times per year during Year 1 through 3, and at least four times per

year in Years 4 and 5 (Table 19, *Maintenance Schedule*). The maintenance contractor will complete maintenance requests from the restoration specialist within 14 days of any written request or monitoring report.

Table 19
MAINTENANCE SCHEDULE[1,2]

Time Frame	Schedule
Installation Contractor	
120-day Plant Establishment Period	Monthly
Maintenance Contractor	
Year 1 through Year 3	Six times per year
Year 4 and Year 5	Four times per year

[1] This schedule is only a guideline; maintenance will be performed as necessary as directed by the Restoration Specialist. The entire restoration area will be serviced during each maintenance "event", which may span multiple days depending on crew size.
[2] This maintenance schedule pertains to the areas of temporary impacts that are being restored for mitigation credit. Areas of temporary impacts to non-sensitive habitats being restored for erosion control will adhere to a 25-month maintenance period.

Maintenance Activities

A five-year maintenance program will help to ensure the successful establishment and persistence of the restored habitats. The maintenance period begins on the first day following acceptance on installation and may be extended at the determination of the City ECPD. The maintenance program will involve removal of non-native species and trash, irrigation maintenance, and any remedial measures deemed necessary for successful restoration (e.g., re-seeding and re-planting). Maintenance activities will be directed by the Restoration Specialist and implemented by the maintenance contractor.

Herbicides

Any herbicides used to control non-native plants as part of the overall native habitat restoration effort must be on a Parks and Recreation Department list of approved herbicides. In addition, only those herbicides that are approved for aquatic use can be sprayed within wetland habitats (e.g., riparian restoration areas). Lastly, herbicides must be applied by an individual with a valid applicator's license, and only those individuals with an F Category on their license can use herbicides in aquatic habitats.

Non-native Plant Control

For the duration of the maintenance period, there will be a very low tolerance for non-native plant species, and removal will be conducted as necessary to minimize competition that could prevent the establishment of native species. As non-native species become evident, they should be removed by hand or controlled with appropriate herbicides (e.g., only wetland approved herbicides should be used, if necessary, in the riparian restoration areas). All non-native plant species shall be treated/removed prior to flowering and/or prior to attaining a height of six inches. The Restoration Specialist will oversee non-native plant removal by the maintenance contractor; however, maintenance personnel must be knowledgeable in distinguishing non-native species from desirable native vegetation.

Horticultural Treatments

No post-installation pruning is necessary unless otherwise directed by the Restoration Specialist and Project Manager. If weed control continues to be an issue, mulch application around plants may be specified by the Restoration Specialist and Project Manager. Fertilizer will not be applied except in extraordinary circumstances and only at the written direction of the Restoration Specialist and Project Manager. Shrubs and trees will be monitored for signs of disease and pests; infected and infested plants will be treated as necessary and as directed by the Restoration Specialist and Project Manager. Treatment measures may include pruning to prevent the spread of the disease or pestilence. Severely diseased or pest damaged plants will be removed and replaced if directed by the Restoration Specialist and Project Manager. Plant substitutions may be recommended if the disease is likely to affect its replacement (i.e., soil borne pathogens). Active pest control measures will be implemented if a pest species poses a competitive threat to native species establishment.

Erosion Control

During the 120-day PEP and five-year maintenance period, the installation and maintenance contractors will replace or add erosion control measures, as needed or as identified by the Restoration Specialist and City ECPD. Any installed erosion control materials will be removed from the site by the maintenance contractor once the Restoration Specialist and City ECPD determines sufficient native plant cover has established.

Trash/Debris Removal

All trash and debris will be removed from the restoration areas by the installation/maintenance contractor during each visit. Trash removal activities will minimize or avoid impacts to plants. All trash and debris will be removed and disposed of at an off-site, licensed, waste-disposal facility.

Replacement Planting and Seeding

Plantings will be replaced as needed based on biological monitoring assessments. Visual inspections conducted by the Restoration Specialist will be used to determine plant survivorship. Any losses of container stock within 120 days of installation will be replaced in-kind by the installation contractor. After 120 days, any losses for the first year will be replaced in-kind by the maintenance contractor unless it has been determined by the Restoration Specialist that use of another species and/or stock size would better achieve the restoration goals. Thereafter, plant materials will be checked as part of the monitoring program. Thereafter, if success criteria are not being met, additional measures, such as installation of replacement container plantings or additional seed, may be implemented as directed by the Restoration Specialist and City ECPD.

Site Protection and Signage; Vandalism

Perimeter fencing or staking will be maintained, as needed, until removal is authorized by the Restoration Specialist. It is likely that markers or fencing delineating the restoration areas will be needed until final sign off has been authorized.

Pedestrian access is a potential maintenance issue in some of the restoration areas. Much of the restoration areas occur along existing trails and access paths used by Park staff and the public. Fencing and/or signage is recommended in these areas.

Issues such as illegal access, off-road vehicle activity, or destruction of plant material or irrigation system, would be handled by the maintenance contractor in coordination with the City ECPD and the Restoration Specialist. Corrective and preventative actions could include irrigation repairs, additional fencing, placement of other barriers, and posting of signs that designate the site as a habitat restoration area. The cost of such repairs/work will be paid for as extra work. The contractor will be responsible for damage caused by inadequate maintenance or operation of facilities, as determined by the Restoration Specialist and City ECPD.

Pest Management

All plantings will be inspected for evidence of pests during each maintenance event. Any pest-infested plants shall be immediately treated or replaced as needed by the installation/maintenance contractor. If herbivores are found to be a significant problem for installed plant material, the Restoration Specialist may request that container plants in the affected area be caged or similarly protected. Generally, there will be a high threshold of tolerance before other control measures are considered. As required by law, specific recommendations (e.g., for pesticide use) will be made only by a licensed pest control adviser. All applicable federal and state laws and regulations will be closely followed. The Restoration Specialist and City ECPD will be consulted on any pest control matters.

Irrigation

Temporary irrigation will be utilized within the restoration areas. The contractor will be responsible for determining the water source and maintaining the temporary irrigation system in good working order throughout the duration of the project. The goal is to obtain germination and growth with the least amount of irrigation. Frequent irrigation encourages weed invasion and leaches nutrients from the soil; therefore, water will be applied infrequently and only as needed to obtain seed germination and prevent plant and seedling mortality. Native plantings 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 in the long term.

Assuming cool, dry weather conditions, it is anticipated that the restoration areas would initially be irrigated daily for approximately 15 minutes. After seedlings are established, the irrigation schedule should be modified to develop deep root growth with evenly spaced, infrequent, deep applications of water (e.g., to a depth of 12 inches or more). To obtain deep penetration of water, the irrigation system may be activated several times in one 24-hour period. Irrigation will be minimized following natural rainfall events. Once the plant material is established and no longer requires supplemental irrigation, the system will be deactivated. If necessary, irrigation can be used throughout the first three years of the five-year maintenance period to help establish native vegetation. Irrigation will be discontinued at the end of Year 3, or sooner if recommended by the Restoration Specialist. The above-ground portions of the system will be removed at project sign-off.

BIOLOGICAL MONITORING PROGRAM

Monitoring visits and annual assessments will be carried out under direction of the Restoration Specialist. Biological monitoring of the restoration effort is divided into four phases: (1) pre-installation; (2) installation and establishment; (3) maintenance monitoring; and (4) annual monitoring (Table 20, *Monitoring Schedule*).

Table 20
MONITORING SCHEDULE [1]

Time Frame	Schedule
Pre-Installation/Site Preparation	
Pre-construction meeting	Once
Plant/topsoil salvage	As needed
Pre-installation photos	Once
Installation and 120-Day Plant Establishment Period	
Site preparation and installation	As needed
120-day Plant Establishment Period	Monthly
Maintenance Monitoring	
Year 1	Eight times per year
Years 2 and 3	Six times per year
Years 4 and 5	Four times per year
Annual Monitoring	
Years 1 through 5	April (1 visit per year)

[1] This schedule is only a guideline; monitoring will be performed as necessary. Restoration areas will be monitored for the full five years; revegetation areas will be monitored for 25 months.

Installation Monitoring

A restoration specialist will complete daily monitoring of all phases of the installation process (Table 17), including initial non-native plant removal, irrigation installation, quality of container plantings, and installation of container plants and hydroseed. Post-installation photos will be taken from the designated photo stations and will be used in each annual report for comparison with the respective year's annual assessment photos. The 120-day PEP will begin after the restoration specialist and City ECPD Project Manager have field verified that any irrigation and all plantings and hydroseed have been installed.

120-Day Plant Establishment Period Monitoring

Following installation, a Restoration Specialist will monitor maintenance activities conducted by the installation contractor monthly during the 120-day PEP. The Restoration Specialist will evaluate the establishment of container plantings and seed and note the presence of non-native and target invasive species that need to be removed. Sign off of the 120-day PEP by the City Parks and Recreation Department, City ECPD and DSD staff, and the Restoration Specialist will be based on a final site inspection and whether the site meets the success criteria outlined above.

Maintenance Monitoring

Following installation and the 120-day PEP, a Restoration Specialist will monitor maintenance activities conducted by the maintenance contractor during the five-year restoration period (in accordance with the schedule outlined in Table 17). Maintenance monitoring will consist of walking the entire area, making observations of native and non-native vegetation, and recording all wildlife incidentally observed or detected. 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 maintenance contractor, City ECPD, and City Parks and Recreation Department.

Annual Monitoring

The Restoration Specialist will conduct an annual assessment of the restoration effort in April of each year. The visits are scheduled for April to coincide with the peak of the growing season for most native herbs and shrubs. The exact timing of the visits will depend on site and weather conditions. Annual monitoring will consist of both qualitative and quantitative assessments in each of the 20 restoration areas. The qualitative assessment will include photo documentation (from the 26 established photo locations), dominant species observed, any observations of native plant recruitment, and a list of all plant and animal species observed. The quantitative assessment will include a visual estimate of native and non-native cover (annual, perennial, and invasive) rather than collection of data from transects due to the small size of each restoration area located throughout the approximately 4.7-mile long project site. Cover will be visually estimated by evaluating the proportion of the ground in each restoration area that is obscured by a species' aboveground biomass. Visual cover estimates will be completed separately for upland areas and riparian restoration areas. Cover estimates will be completed in each of the 20 general restoration areas noted in Figures 4-1 through 4-9. Photos will be included in the respective year's annual report and include comparison with the corresponding pre-impact photos.

Wildlife use of the corridor will be noted incidentally during each annual assessment by hearing species-specific vocalizations or by observing the species, or their tracks, scat, or dens. This information will be combined with observations from maintenance monitoring events and a list of all species observed during the year will be included in the annual report. No focused wildlife surveys will be conducted.

An annual report will be prepared each year during the five-year monitoring period following installation. The City ECPD will be responsible for submitting each report to agencies, including the CDFW and City (Parks and Recreation Department and DSD).

SUCCESS CRITERIA

This section provides standards to determine the successful completion of the restoration effort.

Installation

For sign off of the installation effort, the following parameters must be met: (1) temporary irrigation (where installed) must provide 100 percent coverage of the restoration and revegetation areas without any overspray or runoff into adjacent habitat; and (2) all plantings/seed must be installed. The installation contractor must provide the Restoration Specialist and City ECPD copies of the irrigation

mark-ups for approval and submittal with the as-built report. The Restoration Specialist and City ECPD must approve the irrigation system installation and oversee a coverage test for the restoration area for approval of installation.

120-Day Plant Establishment Period

Success at the end of the 120-day PEP will be met if: (1) there is 100 percent survivorship of container stock; (2) there is some evidence of establishment from seed; (3) no target invasive plant species are present; (4) any installed irrigation continues to provide adequate cover and appropriate application rates; and (5) there are no erosion-related issues or trash. Any replacement plantings added to attain the survivorship criterion must be installed for at least 30 days prior to sign off. The 120-day PEP will end when the Restoration Specialist recommends and City ECPD approves sign off of the 120-day PEP in writing. The five-year maintenance/monitoring period for the restoration area will begin following formal sign off of the PEP by the City ECPD.

Maintenance and Monitoring Period

At the end of the five-year monitoring period, restoration must attain at least 60 to 75 percent native cover, depending on habitat type, or 80 percent of the native cover documented prior to impacts (Table 21, *Success Criteria for Restoration*). The pre-impact assessment of areas that will be temporarily impacted will serve as reference data for native cover criteria. If the annual goals for native cover are not met, additional measures (e.g., re-seeding, re-planting, etc.) will be taken as necessary to ensure final success.

Table 21
SUCCESS CRITERIA FOR RESTORATION
(percent)

CRITERIA	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Native Cover Targets					
Riparian Forest/Scrub	25	35	40	50	60[2]
Coast Live Oak Woodland Understory	25	40	50	60	70[2]
Maritime Succulent Scrub	30	40	55	65	75[2]
Diegan Coastal sage scrub	30	35	55	65	75[2]
Chaparral	25	35	55	65	75[2]
Native Grassland (total/native grass)	25/10	35/12	40/15	50/20	60/20[2]
Non-native Cover Limits					
Non-native Grasses	<10	<10	<10	<10	<10
Non-native Forbs	<5	<5	<5	<5	<5
Invasive and Perennial Non-native Forbs[1]	0	0	0	0	0

[1] This does not preclude the presence of new seedlings of invasive species, which are expected to volunteer from adjacent habitat, but does require documentation of complete removal within restoration boundaries prior to dropping seed.
[2] Minimum success criteria for native cover, or 80 percent of the native cover assessed prior to impacts.

At the end of the five-year monitoring period, cover by annual non-native species such as grasses, but excluding other highly invasive species, shall account for no more than 10 percent within all restoration areas. Non-native vegetation, excluding grasses, shall account for no more than five percent within all restoration areas, and perennial non-native species shall not be allowed to persist within the restoration

areas. Plants ranked as high or moderate for invasiveness by the California Invasive Plant Council (2017) shall be eradicated from within restoration boundaries and any new volunteers shall be removed prior to seed set.

SCHEDULE OF ACTIVITIES

Table 22, *Restoration Schedule of Activities*, provides a summary of the proposed schedule of activities for the restoration areas.

Table 22
RESTORATION SCHEDULE OF ACTIVITIES

Milestone	Action
Prior to Project Construction	– Delineate limits of work – Order container plantings and seed – Salvage plants and topsoil
Within 90 Days of Project Construction Completion	– Install salvaged topsoil – Install temporary, above-grade irrigation system – Install erosion control measures – Install container plantings and salvaged plantings – Install hydroseed
Monthly During 120-Day Plant Establishment Period	– Conduct biological monitoring – Inspect plantings and adjust irrigation levels as needed based on weather conditions – Inspect area for invasive plants and control as necessary – Inspect plants for pests or disease; treat/replace as needed – Monitor irrigation system and erosion control measures; replace/repair as needed – Monitor site for trash and vandalism; remove/repair as needed – Re-seed/re-plant, as needed, to achieve milestones
120 Days after Plant Installation	– Conduct site inspection with City ECPD, P&R, and DSD – Submit biological monitoring report within 30 days of monitoring
1-3 Years after Plant Installation	– Conduct biological monitoring during the year, including qualitative and/or quantitative annual monitoring – Inspect plantings and adjust irrigation levels as needed based on weather conditions – Seed/re-plant as needed to achieve milestone – Inspect area for invasive plants and control as necessary – Inspect plants for pests or disease; treat/replace as needed – Monitor irrigation system and erosion control measures; replace/repair as needed – Cease irrigation if deemed appropriate by the restoration biologist – Monitor site for trash and vandalism; remove/repair as needed – Submit biological monitoring report within 30 days of monitoring

Table 22 (cont.)
RESTORATION SCHEDULE OF ACTIVITIES

Milestone	Action
4-5 Years after Plant Installation	– Conduct biological monitoring during the year, including quantitative annual monitoring – Inspect plantings and adjust irrigation levels as needed based on weather conditions – Inspect area for invasive plants and control as necessary – Inspect plants for pests or disease; treat/replace as needed – Monitor erosion control measures; replace/repair as needed – Monitor site for trash and vandalism; remove/repair as needed – Submit biological monitoring report within 30 days of monitoring
Prior to City and USACE/RWQCB/CDFW Approval of Restoration Area	– Submit final report – Conduct final site inspection of restoration areas with ECPD, P&R, DSD, USACE/RWQCB/CDFW, and Project Manager – Remove temporary irrigation system and any remaining fencing/BMPs

REMEDIATION MEASURES

If the restoration effort is not meeting success standards for the project, the City ECPD shall notify and propose corrective measures to the CDFW and City Parks and Recreation Department and DSD. Sufficient contingency mitigation areas are present on-site. If the success criteria are not being met on-site, the CDFW and City Parks and Recreation Department and DSD will work together with the City ECPD to reach an alternative mutually acceptable solution.

Should the restoration effort fail due to a natural disaster such as fire or flood, the City ECPD will be held responsible for replanting. The City ECPD will confer with DSD, the regulatory agencies, and City Parks and Recreation Department to determine a mutually agreeable course of action, which would be based on the goals and objectives outlined in this plan.

CONFIRMATION AND NOTIFICATION OF COMPLETION

If the restoration effort meets all success criteria at the end of the five-year maintenance and monitoring period (or sooner) and all irrigation has been discontinued for at least two years, then the restoration effort will be considered a success. If not, the City ECPD will submit a revised or supplemental restoration program to compensate for those restoration areas that were not successful. The maintenance and monitoring program will be extended one year at a time until the standards are met. Specific remedial measures (approved by the USACE, RWQCB, CDFW, and City DSD) will be used during any such extension. Monitoring extensions will be done only for areas that fail to meet final success criteria. This process will continue until all Year 5 standards are attained or until the USACE, RWQCB, CDFW, and City DSD determine that other mitigation measures are appropriate.

The City ECPD will notify and coordinate with the USACE, RWQCB, CDFW, and City DSD to seek concurrence that the final performance criteria have been met through the submittal of the final monitoring report and a letter requesting a Notification of Completion. The final report will include analysis of quantitative sampling data that will illustrate the final success criteria have been met. All

temporary structures, fences, stakes, irrigation, BMPs, and similar temporary items must be removed from the site prior to filing the notification of completion. The site may qualify for early approval if final success criteria have been met prior to Year 5 and the site is accepted as complete by the USACE, RWQCB, CDFW, and City DSD; however, the site must be off supplemental irrigation for at least two growing seasons prior to final approval.

CLOSING

Please contact me at (619) 462-1515 if you have any questions regarding this report.

Sincerely,

Laura Moreton
Biologist

Attachments:

Figure 1	Regional Location Map
Figure 2	Project Vicinity Map (USGS Topography)
Figure 3	Project Vicinity Map (Aerial Photograph)
Figures 4-1 through 4-9	Restoration/Revegetation Plan Maps

REFERENCES

American Ornithological Society. 2016. AOU Checklist of North and Middle American Birds (online checklist). Retrieved from: http://checklist.aou.org/taxa/

California Invasive Plant Council. 2017. California Invasive Plant Inventory Database. Retrieved from: http://cal-ipc.org/paf/. Accessed on July 24, 2017.

HELIX Environmental Planning, Inc. 2017. Year 5 Monitoring Report for the Central Tecolote Canyon Mitigation Project. January 6.

2006. Tecolote Canyon Natural Park Natural Resource Management Plan. Prepared for City of San Diego Park and Recreation Department, Open Space Division. March.

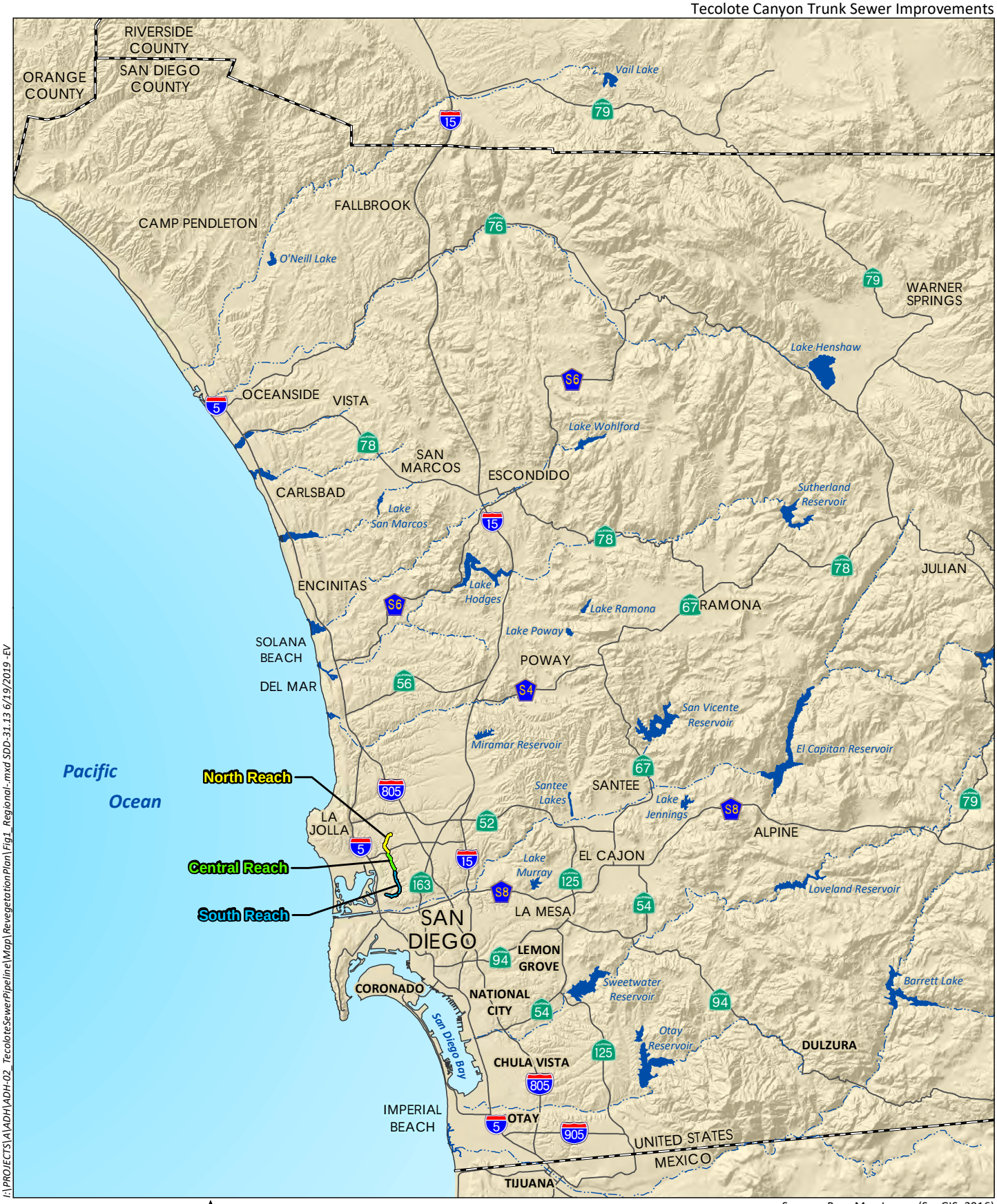
Jepson Flora Project (eds.). 2017. Jepson eFlora. Retrieved from: http://cal-ipc.org/paf/ Accessed on July 7, 2017.

Oberbauer, T., Kelly, M., and Buegge, J. 2008. Vegetation Communities of San Diego County. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California", R.F. Holland, 1986. 73 pp.

San Diego, City of. 2016. Land Development Code Landscape Standards. Amended April 5.

2018. Land Development Code Biology Guidelines (as amended by Resolution No. R-311507). February 1.

1997. Multiple Species Conservation Program. City of San Diego MSCP Subarea Plan. March.



I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig1_Regional-.mxd SDD-31.13 6/19/2019 -EV

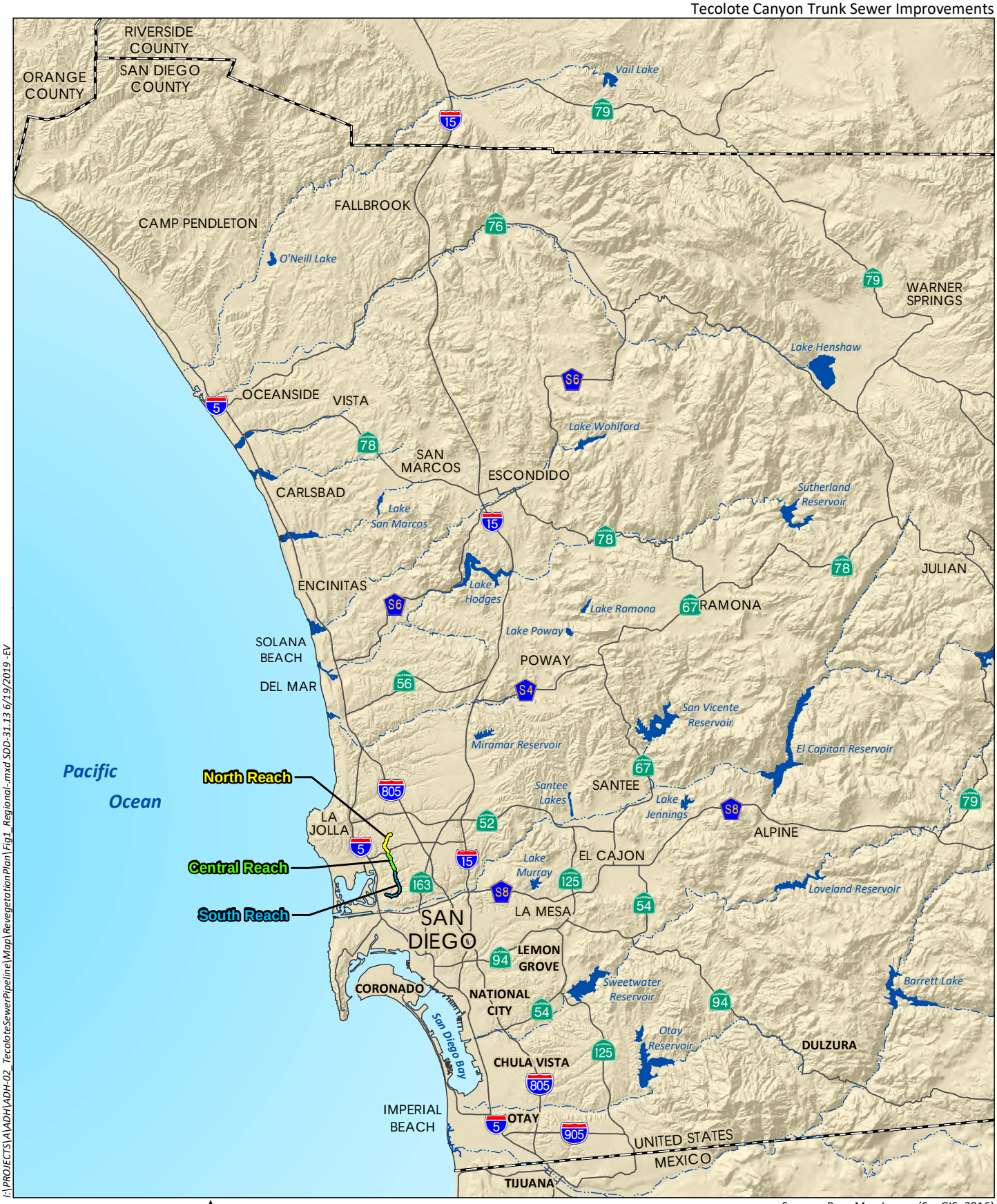
0 8 Miles

Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

Regional Location

Figure 1



I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig1_Regional-.mxd SDD-31.13 6/19/2019 -EV

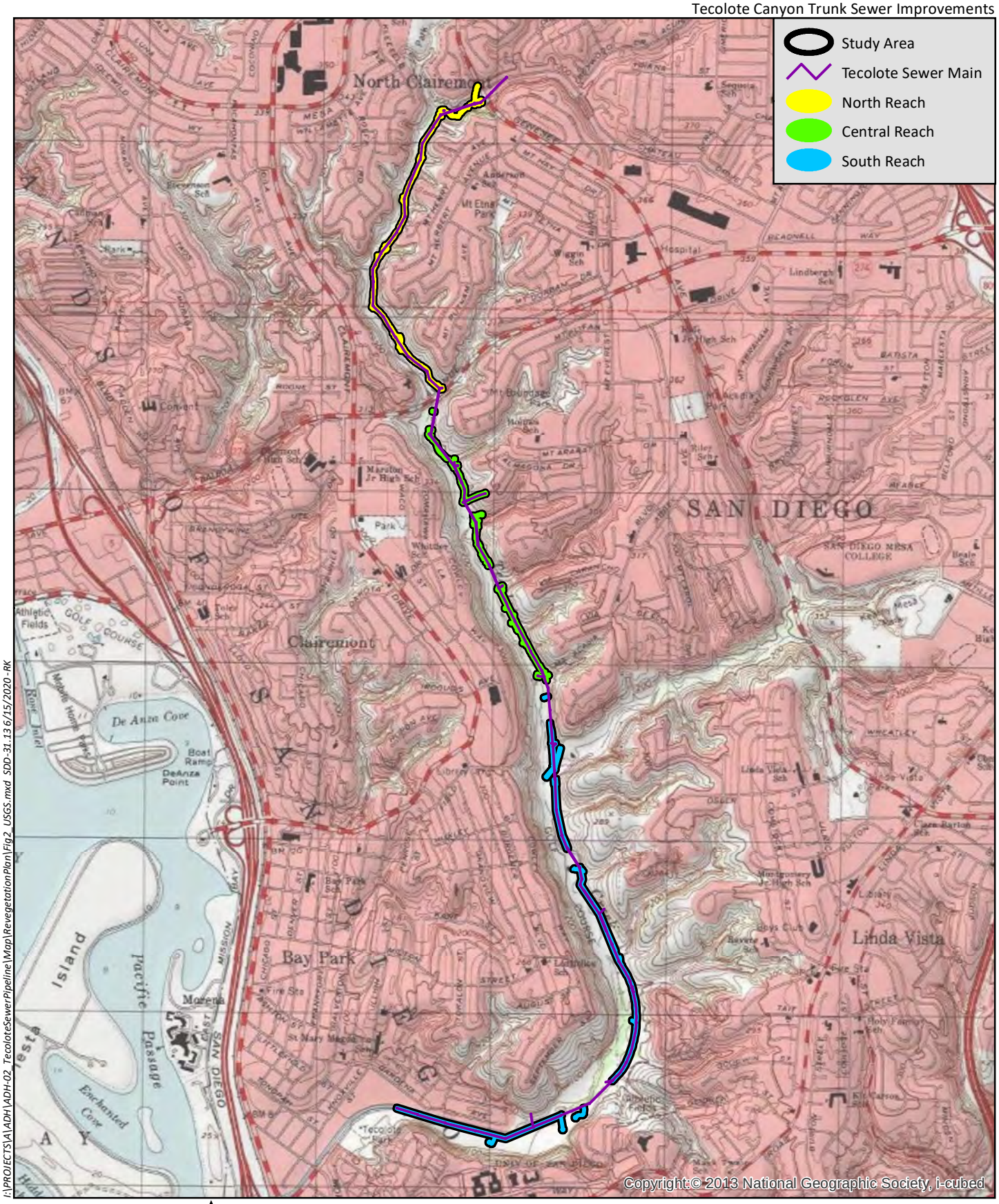
0 8 Miles

Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

Regional Location

Figure 1



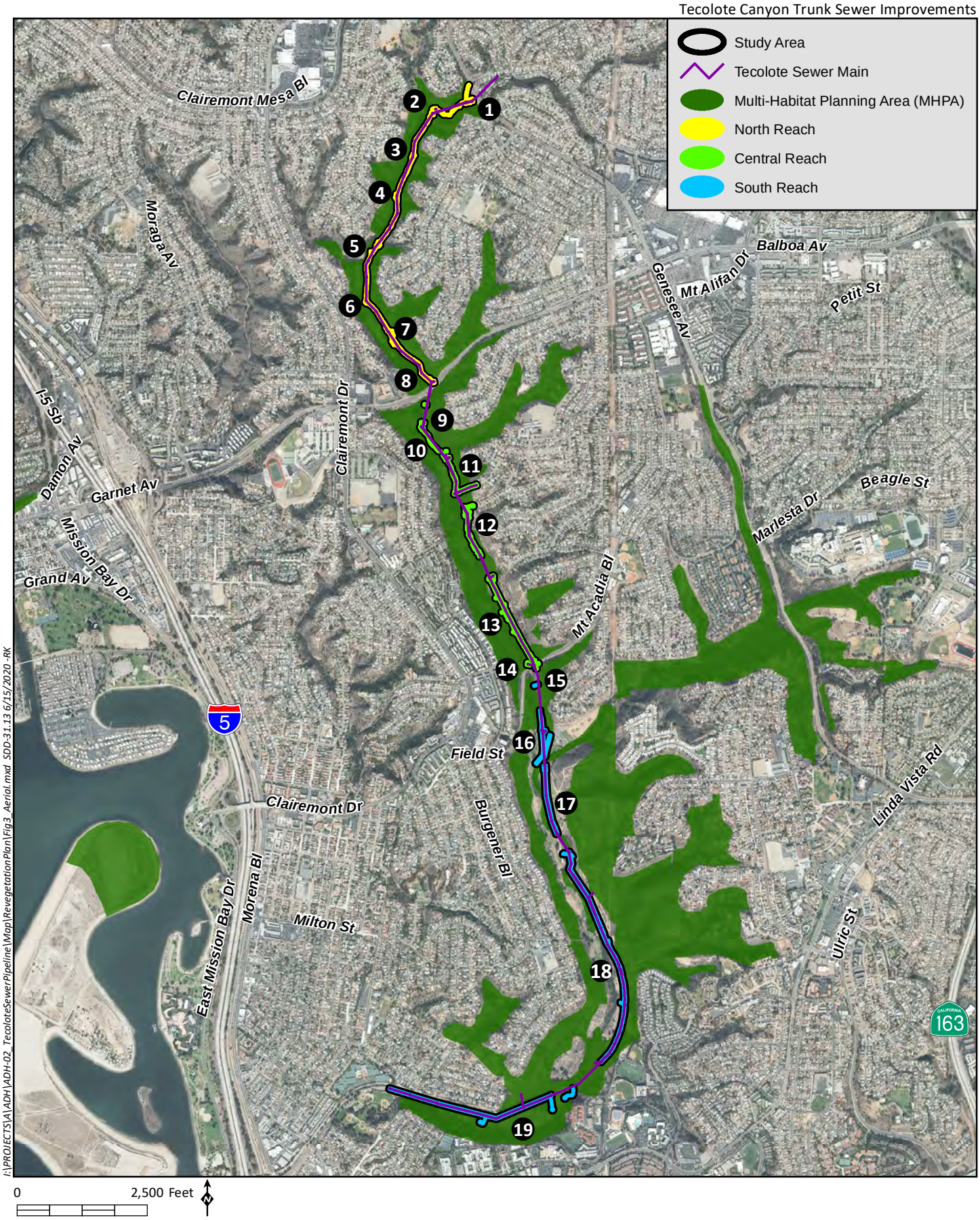
I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig2_USGS.mxd SDD-31.13 6/15/2020 - RK

0 2,500 Feet

HELIX Environmental Planning

Project Vicinity Map (USGS Topography)

Figure 2



HELIX Environmental Planning

Project Vicinity Map (Aerial Photograph)

Figure 3

Existing Access Path

Restoration Areas

Riparian Forest

Coastal Sage Scrub

Revegetation Areas

Erosion Control Areas

Chickasaw Court

Genesee Avenue

Winnebago Avenue

Chinook Court

Chateau Drive

Access Location

1

2

3

Mt Gaywas Drive

Mt Lindsey Place

Mt Lindsey Avenue

Mt Henry Avenue

Mt King Drive

Mt Herbert Avenue

Mt Etna Drive

North Reach

Central Reach

South Reach

I:\PROJECTS\AVADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

0 200 Feet

Source: Base Map Layers (SanGIS, 2014)

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-1

Existing Access Path

Restoration Areas

Riparian Forest

Coastal Sage Scrub

Mt King Drive

Mt Highpine Place

Rolfe Road

Donald Avenue

Mt Henry Avenue

Mt Henry Place

Mt Herbert Avenue

Mt Laudo Drive

Mt Hukee Avenue

Mt Hubbard Avenue

Mt Voss Drive

4

5

6

North Reach

Central Reach

South Reach

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

0 200 Feet

Source: Base Map Layers (SanGIS, 2014)

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-2

Tecolote Canyon Trunk Sewer Improvements

Existing Access Path

Restoration Areas

- Riparian Forest
- Riparian Scrub
- Oak Woodland
- Native Grassland
- Maritime Succulent Scrub
- Coastal Sage Scrub
- Chaparral

Revegetation Areas

- Erosion Control Areas

Mt Armet Drive

Dalles Avenue

Balboa Avenue

Access Location

Mt Alifan Drive

7

8

9

10

11

North Reach

Central Reach

South Reach

I:\PROJECTS\AADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

0 200 Feet

Source: Base Map Layers (SanGIS, 2014)

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-3

Existing Access Path

Restoration Areas

Riparian Forest

Riparian Scrub

Oak Woodland

Maritime Succulent Scrub

Coastal Sage Scrub

Chaparral

Revegetation Areas

Erosion Control Areas

Mt Ashmun Drive

Access Location

Mt Everest Boulevard

Mt Armour Drive

12

Cowley Way

Mt Ariane Drive

Access Location

North Reach

Central Reach

South Reach

13

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

0 200 Feet

N

Source: Base Map Layers (SanGIS, 2014)

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-4

Existing Access Path

Restoration Areas

Riparian Forest

Coastal Sage Scrub

Revegetation Areas

Erosion Control Areas

13

14

15

16

Mt Acadia Boulevard

Access Location

Access Location

Via Alcazar

Burford Street

Mt Acadia Boulevard

North Reach

Central Reach

South Reach

I:\PROJECTS\AA\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

0 200 Feet

Source: Base Map Layers (SanGIS, 2014)

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-5

Existing Access Path

Restoration Areas

Riparian Forest

Coastal Sage Scrub

Revegetation Areas

Erosion Control Areas

17

18

19

North Reach

Central Reach

South Reach

0 200 Feet

N

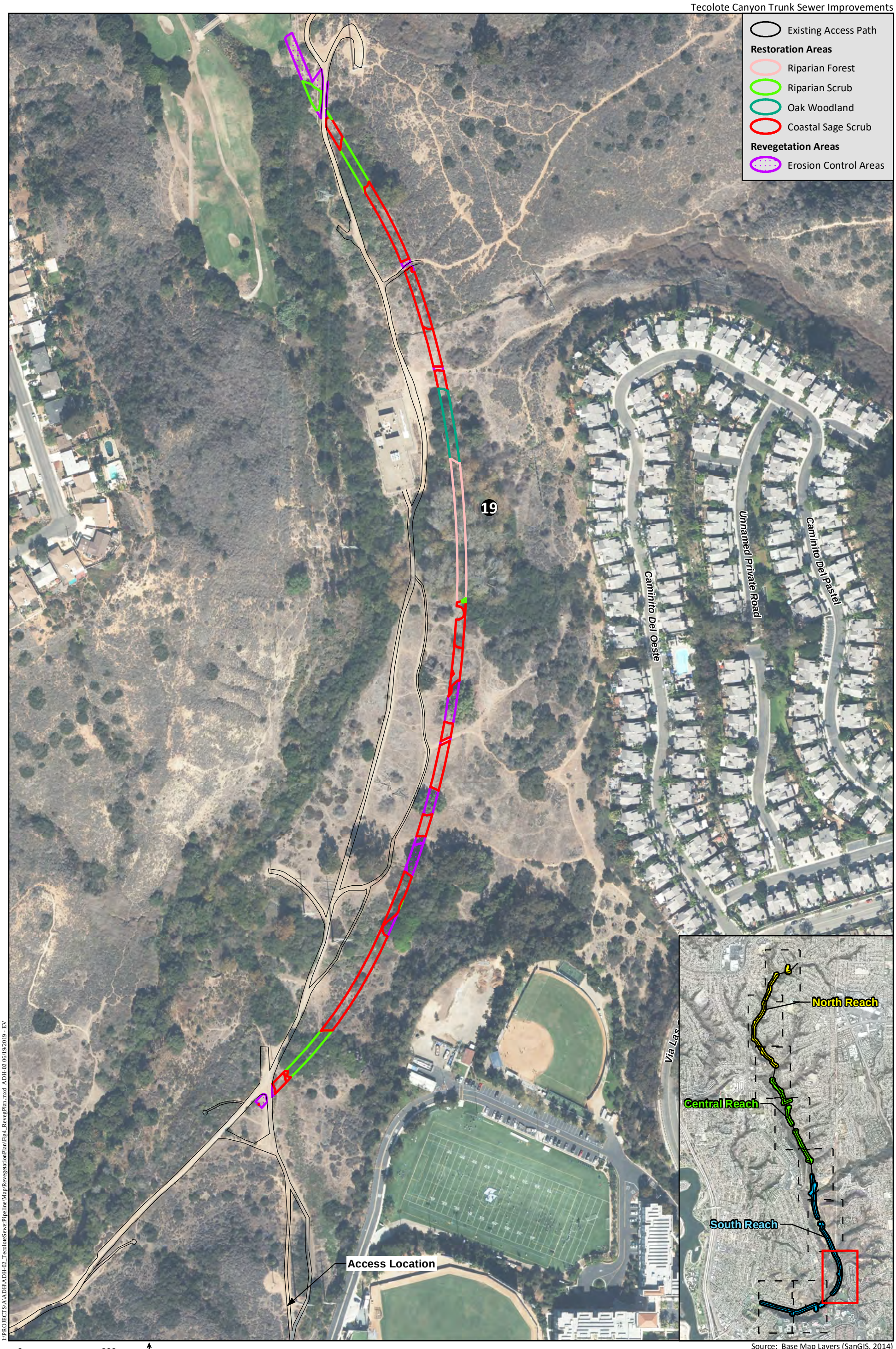
Source: Base Map Layers (SanGIS, 2014)

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-6


Existing Access Path
Restoration Areas
Riparian Forest
Riparian Scrub
Oak Woodland
Coastal Sage Scrub
Revegetation Areas
Erosion Control Areas
19
Caminito Del Oeste
Unnamed Private Road
Caminito Del Pastel
Via Las
Access Location
North Reach
Central Reach
South Reach
0
200 Feet
N
Source: Base Map Layers (SanGIS, 2014)
I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

Source: Base Map Layers (SanGIS, 2014)

I:\PROJECTS\AVADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-8

Existing Access Path

Restoration Areas

Riparian Forest

Riparian Scrub

Oak Woodland

Coastal Sage Scrub

Chaparral

Revegetation Areas

Erosion Control Areas

Sky Street

Sparks Avenue

Gardena Place

Bonus Drive

Goldboro Street

Gasconade Avenue

Georgetown Avenue

Access Location

Gardena Avenue

20

Everview Road

Plainview Road

Elevation Road

Cushman Avenue

Marian Way

North Reach

Central Reach

South Reach

0 200 Feet

N

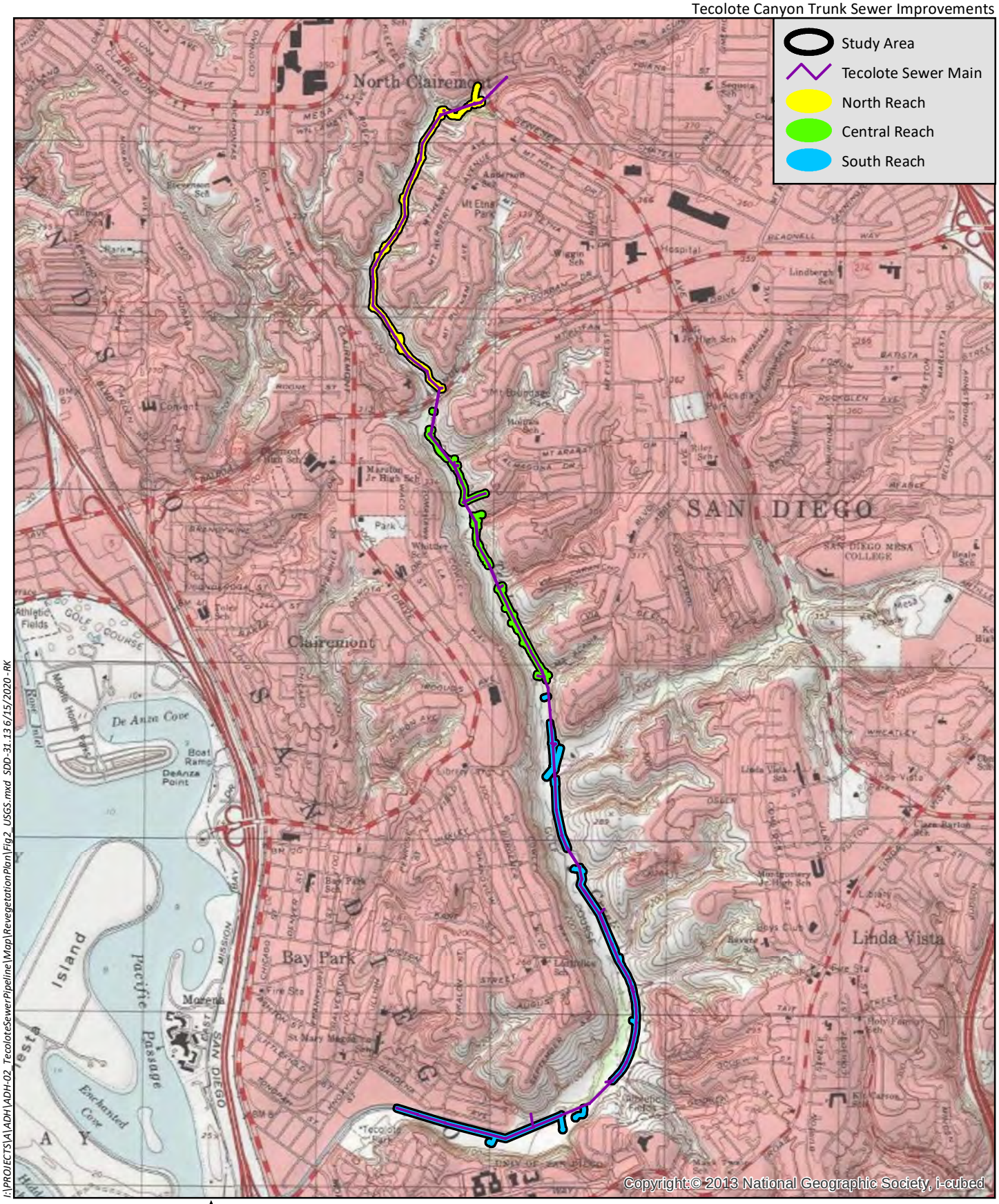
Source: Base Map Layers (SanGIS, 2014)

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-9



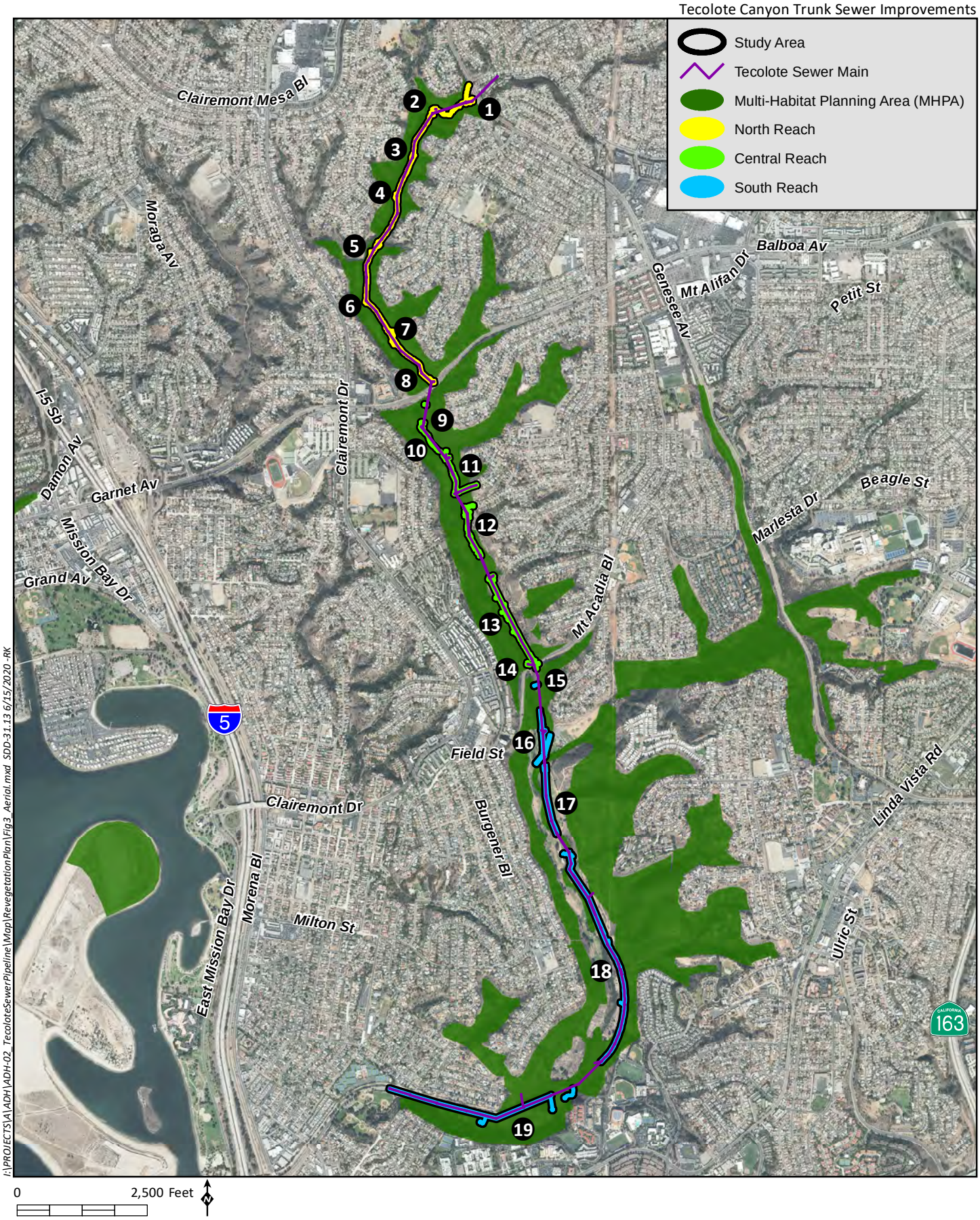
I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig2_USGS.mxd SDD-31.13 6/15/2020 - RK

0 2,500 Feet

HELIX Environmental Planning

Project Vicinity Map (USGS Topography)

Figure 2



HELIX Environmental Planning

Project Vicinity Map (Aerial Photograph)

Figure 3

Existing Access Path

Restoration Areas

Riparian Forest

Coastal Sage Scrub

Revegetation Areas

Erosion Control Areas

Chickasaw Court

Genesee Avenue

Winnebago Avenue

Chinook Court

Chateau Drive

Access Location

1

2

3

Mt Gaywas Drive

Mt Lindsey Place

Mt Lindsey Avenue

Mt Henry Avenue

Mt King Drive

Mt Herbert Avenue

Mt Etna Drive

North Reach

Central Reach

South Reach

I:\PROJECTS\AVADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

0 200 Feet

Source: Base Map Layers (SanGIS, 2014)

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-1

Existing Access Path

Restoration Areas

Riparian Forest

Coastal Sage Scrub

Mt King Drive

Mt Highpine Place

Rolfe Road

Donald Avenue

Mt Henry Avenue

Mt Henry Place

Mt Herbert Avenue

Mt Laudo Drive

Mt Hukee Avenue

Mt Hubbard Avenue

Mt Voss Drive

4

5

6

North Reach

Central Reach

South Reach

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

0 200 Feet

N

Source: Base Map Layers (SanGIS, 2014)

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-2

Tecolote Canyon Trunk Sewer Improvements

Existing Access Path

Restoration Areas

- Riparian Forest
- Riparian Scrub
- Oak Woodland
- Native Grassland
- Maritime Succulent Scrub
- Coastal Sage Scrub
- Chaparral

Revegetation Areas

- Erosion Control Areas

Mt Armet Drive

Dalles Avenue

Balboa Avenue

Access Location

Mt Alifan Drive

7

8

9

10

11

North Reach

Central Reach

South Reach

I:\PROJECTS\AADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

0 200 Feet

Source: Base Map Layers (SanGIS, 2014)

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-3

Existing Access Path

Restoration Areas

Riparian Forest

Riparian Scrub

Oak Woodland

Maritime Succulent Scrub

Coastal Sage Scrub

Chaparral

Revegetation Areas

Erosion Control Areas

Mt Ashmun Drive

Access Location

Mt Everest Boulevard

Mt Armour Drive

12

Cowley Way

Mt Ariane Drive

Access Location

North Reach

Central Reach

South Reach

13

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

0 200 Feet

N

Source: Base Map Layers (SanGIS, 2014)

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-4

Existing Access Path

Restoration Areas

Riparian Forest

Coastal Sage Scrub

Revegetation Areas

Erosion Control Areas

13

14

15

16

Mt Acadia Boulevard

Access Location

Access Location

Via Alcazar

Burford Street

Mt Acadia Boulevard

North Reach

Central Reach

South Reach

I:\PROJECTS\AA\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

0 200 Feet

Source: Base Map Layers (SanGIS, 2014)

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-5

Existing Access Path

Restoration Areas

Riparian Forest

Coastal Sage Scrub

Revegetation Areas

Erosion Control Areas

17

18

19

North Reach

Central Reach

South Reach

0 200 Feet

N

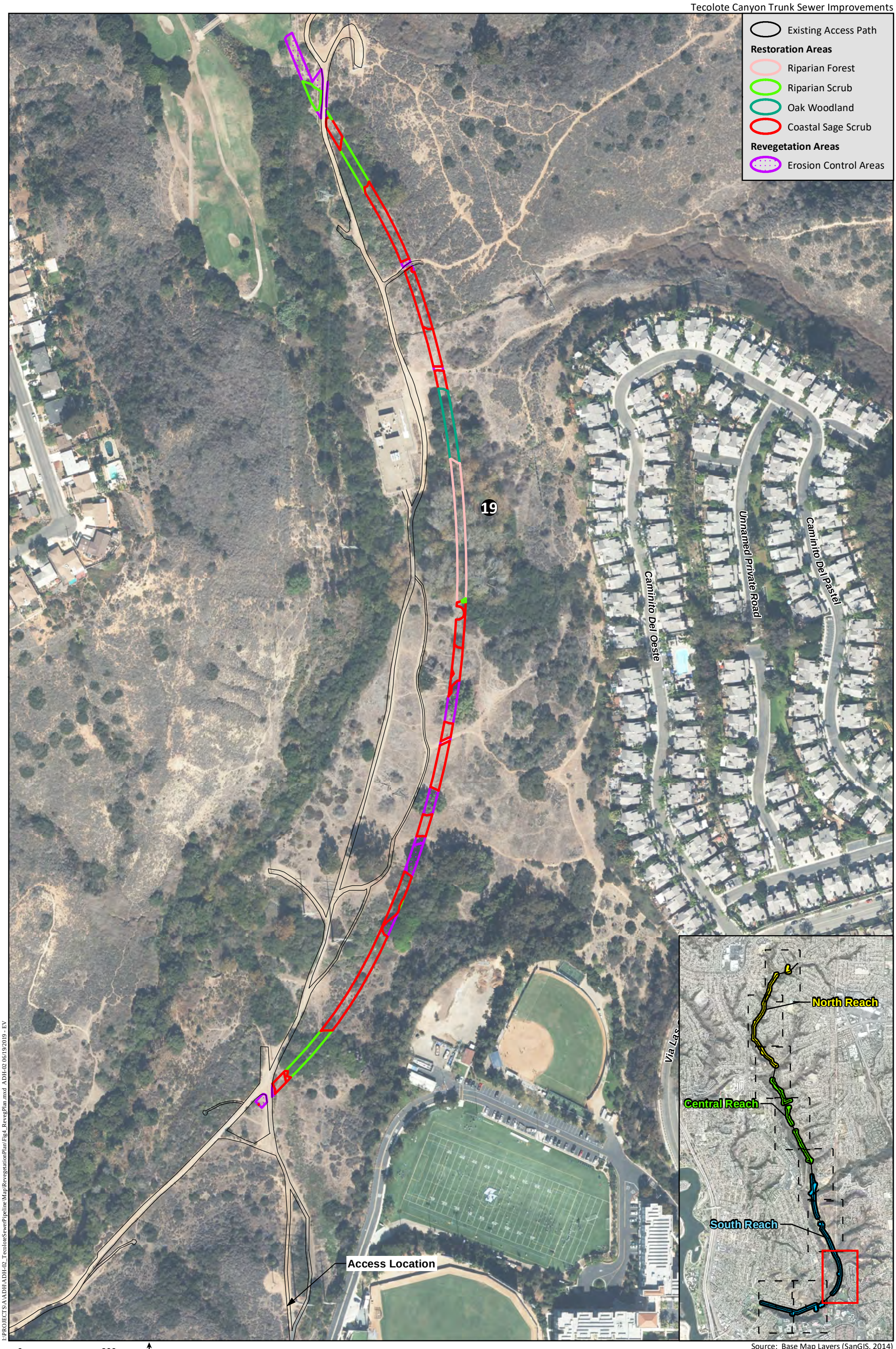
Source: Base Map Layers (SanGIS, 2014)

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-6


Existing Access Path
Restoration Areas
Riparian Forest
Riparian Scrub
Oak Woodland
Coastal Sage Scrub
Revegetation Areas
Erosion Control Areas
19
Caminito Del Oeste
Unnamed Private Road
Caminito Del Pastel
Via Las
Access Location
North Reach
Central Reach
South Reach
0
200 Feet
N
Source: Base Map Layers (SanGIS, 2014)
I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

Source: Base Map Layers (SanGIS, 2014)

I:\PROJECTS\AVADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-8

Existing Access Path

Restoration Areas

Riparian Forest

Riparian Scrub

Oak Woodland

Coastal Sage Scrub

Chaparral

Revegetation Areas

Erosion Control Areas

Sky Street

Sparks Avenue

Gardena Place

Bonus Drive

Goldboro Street

Gasconade Avenue

Georgetown Avenue

Access Location

Gardena Avenue

20

Everview Road

Plainview Road

Elevation Road

Cushman Avenue

Marian Way

North Reach

Central Reach

South Reach

0 200 Feet

N

Source: Base Map Layers (SanGIS, 2014)

I:\PROJECTS\A\ADH\ADH-02_TecoloteSewerPipeline\Map\RevegetationPlan\Fig4_RevegPlan.mxd ADH-02 06/19/2019 - EV

HELIX Environmental Planning

Restoration/Revegetation Plan

Figure 4-9

Appendix E

Tecolote Canyon Trunk Sewer Improvement Project Mitigation Ledger

Tecolote Canyon Trunk Sewer Improvement Project

Project	Tecolote Canyon Trunk Sewer Improvement Project	**Program**	No
Canyon	Tecolote	**Start Date**	
Facility		**End Date**	
Watershed	Penasquitos	**Impacts**	1.541
Project Type	CIP Project	**Mitigation**	3.101
Funder			
Description	Impacts and related off-site mitigation only are displayed. See final BTR for total impacts and mitigation amounts including on-site mitigation.		

Impacts

Habitat	Position	Tier	USACE	RWQCB	CDFW	City	MHPA	Coastal	Impact Date	Acres
Coast Live Oak Woodland (CLOW)	Upland	I	✗	✗	✗	✓	✓	✗		0.1600
Disturbed Diegan Coastal Sage Scrub (DCSS-D)	Upland	II	✗	✗	✗	✓	✓	✗		0.1900
Disturbed Southern Mixed Chaparral (SMC-D)	Upland	IIIA	✗	✗	✗	✓	✓	✗		0.0300
Maritime Succulent Scrub (MSS)	Upland	I	✗	✗	✗	✓	✓	✗		0.1500
Non-Native Grassland (NNG)	Upland	IIIB	✗	✗	✗	✓	✓	✗		0.2200
Poison Oak Scrub (POS)	Upland	IIIA	✗	✗	✗	✓	✓	✗		0.0010
Disturbed Oak Riparian Forest (ORF-D)	Wetland	W	✗	✗	✓	✓	✓	✗		0.4500
Disturbed Southern Riparian Forest (SRF-D)	Wetland	W	✗	✗	✓	✓	✓	✗		0.1100
Disturbed Southern Willow Scrub (SWS-D)	Wetland	W	✗	✗	✓	✓	✓	✗		0.1150
Mule Fat Scrub (MFS)	Wetland	W	✗	✗	✓	✗	✓	✗		0.0150
Streambed (STREAMBED)	Wetland	W	✓	✓	✗	✗	✓	✗		0.0700
Streambed (STREAMBED)	Wetland	W	✗	✗	✓	✗	✓	✗		0.0300
									Total:	1.5410

Mitigation

Mitigation Site	Mitigation Type	Mitigation Habitat	Impact Habitat	Acres
Canyon View (Penasquitos Upland)	**Upland Restoration**	**Coastal Sage Scrub (CSS)**	**Non-Native Grassland (NNG)**	**0.1100**
Central Tecolote Enhancement/Mitigation	**Upland Restoration**	**Coast Live Oak Woodland (CLOW)**	**Coast Live Oak Woodland (CLOW)**	**0.0300**
Central Tecolote Enhancement/Mitigation	**Upland Restoration**	**Diegan Coastal Sage Scrub (DCSS)**	**Disturbed Diegan Coastal Sage Scrub (DCSS-D)**	**0.1900**
Central Tecolote Enhancement/Mitigation	**Upland Restoration**	**Maritime Succulent Scrub (MSS)**	**Maritime Succulent Scrub (MSS)**	**0.0100**

Mitigation Site	Mitigation Type	Mitigation Habitat	Impact Habitat	Acres
Central Tecolote Enhancement/Mitigation	Upland Restoration	Poison Oak Scrub (POS)	Disturbed Southern Mixed Chaparral (SMC-D)	0.0300
Central Tecolote Enhancement/Mitigation	Upland Restoration	Poison Oak Scrub (POS)	Poison Oak Scrub (POS)	0.0010
Central Tecolote Enhancement/Mitigation	Wetland Enhancement	Riparian Forest (RF)	Mule Fat Scrub (MFS)	0.0150
Central Tecolote Enhancement/Mitigation	Wetland Enhancement	Riparian Forest (RF)	Disturbed Southern Riparian Forest (SRF-D)	0.2200
Central Tecolote Enhancement/Mitigation	Wetland Enhancement	Riparian Forest (RF)	Disturbed Southern Willow Scrub (SWS-D)	0.0472
Central Tecolote Enhancement/Mitigation	Wetland Enhancement	Riparian Forest (RF)	Disturbed Oak Riparian Forest (ORF-D)	0.2828
El Cuervo Norte	Wetland Creation/Restoration	Riparian Forest (RF)	Disturbed Southern Willow Scrub (SWS-D)	0.0830
El Cuervo Norte	Wetland Enhancement	Riparian Forest (RF)	Disturbed Southern Willow Scrub (SWS-D)	0.0110
El Rancho (Penasquitos Enhancement)	Wetland Enhancement	Riparian Forest (RF)	Disturbed Oak Riparian Forest (ORF-D)	0.6172
Los Penasquitos North	Wetland Creation/Restoration	Southern Willow Scrub (SWS)	Disturbed Southern Willow Scrub (SWS-D)	0.0320
Los Penasquitos North	Wetland Creation/Restoration	Southern Willow Scrub (SWS)	Mule Fat Scrub (MFS)	0.0150
Otay Mesa Mitigation Bank	Upland Bank	Maritime Succulent Scrub (MSS)	Coast Live Oak Woodland (CLOW)	0.2900
Otay Mesa Mitigation Bank	Upland Bank	Maritime Succulent Scrub (MSS)	Non-Native Grassland (NNG)	0.1100
Otay Mesa Mitigation Bank	Upland Bank	Maritime Succulent Scrub (MSS)	Maritime Succulent Scrub (MSS)	0.2900
Rose Canyon Wetland and Upland	Wetland Creation/Restoration	Riparian Forest (RF)	Disturbed Oak Riparian Forest (ORF-D)	0.0496
Rose Canyon Wetland and Upland	Wetland Creation/Restoration	Riparian Forest (RF)	Disturbed Oak Riparian Forest (ORF-D)	0.4004
Rose Canyon Wetland and Upland	Wetland Creation/Restoration	Riparian Forest (RF)	Disturbed Southern Riparian Forest (SRF-D)	0.0020
Rose Canyon Wetland and Upland	Wetland Creation/Restoration	Riparian Forest (RF)	Streambed (STREAMBED)	0.0300

Mitigation Site	Mitigation Type	Mitigation Habitat	Impact Habitat	Acres
Rose Canyon Wetland and Upland	Wetland Enhancement	Riparian Forest (RF)	Disturbed Southern Willow Scrub (SWS-D)	0.0568
Tecolote Canyon Wetland and Upland	Wetland Creation/Restoration	Riparian Forest (RF)	Disturbed Southern Riparian Forest (SRF-D)	0.1080
Tecolote Canyon Wetland and Upland	Wetland Creation/Restoration	Riparian Forest (RF)	Streambed (STREAMBED)	0.0700

Total: 3.101

Permits

Jurisdiction	Permit	Permit Number	Recieved	Submit Date	Approval Date	Expiration Date