Biological Analysis for Valley Center Municipal Water District Water Master Plan Capital Improvement Plan

Valley Center, California

May 15, 2020

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List of Acronyms and Abbreviations

AG	Agriculture
AG-A	Abandoned Agriculture
AGI	Intensive Agriculture
CAGN	coastal California gnatcatcher
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFG	California Fish and Game
CIP	Capital Improvements Plan
CLOW	Coast Live Oak Woodland
CLOW-D	Disturbed Coast Live Oak Woodland
CMP	Corrugated Metal Pipe
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	San Diego County
CRPR	California Rare Plant Rank
CSCT	Coastal Sage Chaparral Transition
CSS	Coastal Sage Scrub
CSS-D	Disturbed Coastal Sage Scrub
CWA	Clean Water Act
DEV	Developed
DH	Disturbed Habitat
District	Valley Center Municipal Water District
EOW-D	Disturbed Engelmann Oak Woodland
ESA	Endangered Species Act
EW	Eucalyptus Woodland
LBVI	Least Bell's Vireo
MBTA	Migratory Bird Treaty Act
MFS	Mule Fat Scrub
NNG	Non-native Grassland
NNV	Non-Native Vegetation
NNW	Non-native Woodland
O-CLOW	Open Coast Live Oak Woodland
O-CLOW-D	Disturbed Open Coast Live Oak Woodland
ORC	Orchard/Vineyard

Projects	Valley Center Municipal Water District Water Master Plan Capital Improvement Plan Projects
Report	Biological Resources Report
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SAWRF	Southern Arroyo Willow Riparian Forest
SCLORF	Southern Coast Live Oak Riparian Forest
SCLORF-D	Disturbed Southern Coast Live Oak Riparian Forest
SMC	Southern Mixed Chaparral
SMC-D	disturbed Southern Mixed Chaparral
SOC	Scrub Oak Chaparral
SRF	State Revolving Fund
SRW	Southern Riparian Woodland
SSARW	Southern Sycamore-Alder Riparian Woodland
SSC	California Species of Special Concern
SWRCB	State Water Resources Control Board
TDI	Tierra Data, Inc.
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VCMWD	Valley Center Municipal Water District
WMP	Water Master Plan
WoUS	Waters of the U.S.

1.0 INTRODUCTION

This Biological Resources Report (Report) summarizes the biological analysis for the Valley Center Municipal Water District (VCMWD or District) draft Water Master Plan (WMP) Capital Improvement Plan (CIP) Projects (Projects; VCMWD 2018) in satisfaction of the requirements of the State Water Resources Control Board (SWRCB) State Revolving Fund (SRF) Financial Assistance Application.

The Report assess biological resources and sensitive resources with potential to occur that could be impacted or affected by the proposed Projects, and to provide a report that meets the requirements of the California Environmental Quality Act (CEQA) and SWRCB under its SRF program (i.e. a "CEQA Plus" analysis). The SWRCB is required to comply with CEQA when funding a project; however, the SRF Program receives partial funding from the U.S. Environmental Protection Agency, and as a result of this federal nexus, all projects pursuing SRF financing must also comply with requirements of the federal authorities and environmental statutes, in this case the federal Endangered Species Act (ESA) and Migratory Bird Treaty Act (MBTA).The SWRCB (pers. comm. 2015) requires that the biological resources report contains an effects analysis that reflects the latest data available from the U.S. Fish and Wildlife Service (USFWS), California Natural Diversity Database (CNDDB), and California Native Plant Society (CNPS). To ensure that the analysis assessed all sensitive species within the vicinity of the project, this analysis looks to identify any effects of the project on biological resources within a minimum 3-mile buffer of all project elements.

1.1 Location and Background

Valley Center is an unincorporated community in North San Diego County, situated east of Highway 15, south of Highway 76, and north of Escondido and Highway 78 (Figure 1). In 2010, Valley Center encompassed 27.4 square miles (71 square kilometers) and had a population of 9,277 (U.S. Census Bureau 2019). The District serves the community's water needs in its 100-square mile service area (Figure 2). The San Diego County Water Authority supplies nearly 100% of VCMWD's water which is delivered to 10,086 active water meters across the District via 43 enclosed reservoirs, 121 pumps, and 301 miles of water lines (VCMWD 2019).

1.2 Project Description

The District's Draft WMP outlines a pipeline replacement program that the VCMWD has undertaken to respond to aging infrastructure and an increase in pipe breaks. Spurred by water pipeline bursts along Cole Grade and Valley Center Roads over the last decade, the Draft WMP outlines a plan for infrastructure upgrades across the District, including replacement of high-risk water pipeline sections. Pipe break history and type are the key factors in the prioritization of pipeline upgrade project. The Draft WMP outlines a timeline for replacement of reservoir coatings, pump stations, and pipelines over the next 20 years. Projects from the Draft WMP to be initiated within the next five years can receive environmental reporting now to expedite the project when they occur.

The projects reviewed in this biological report are all high priority sections of pipelines and valves located in areas across Valley Center and were scheduled for work between financial years 2018–2023. The specific sites planned for improvements that were surveyed are listed below and shown in Figure 2. Each project, a description of the proposed work, the approximate cost. and the rationale for each project is provided in Table 1.

1. WSo15b – Old Castle Road Pipeline Replacement
2. MWo15a – Oat Hill Pump Station Discharge Pipeline North
3. DW001 – Gordon Hill Road Pipeline Replacement
4. CV018a – Cougar Pass/Alps Way Culvert Crossing Pipeline Replacement
5. SG022 – Lilac Pala Pump Station Discharge Pipeline
6. CV011 – Cole Grade Road Pipeline Replacement
7. CV017a – Rock Hill Ranch Road Intertie
8. CV012 – Fruitvale Road Pipeline Replacement
9. PD016 – Hell Hole Creek Pipe Joint Repair
10. CV050 Lilac Road Pipeline Upsize

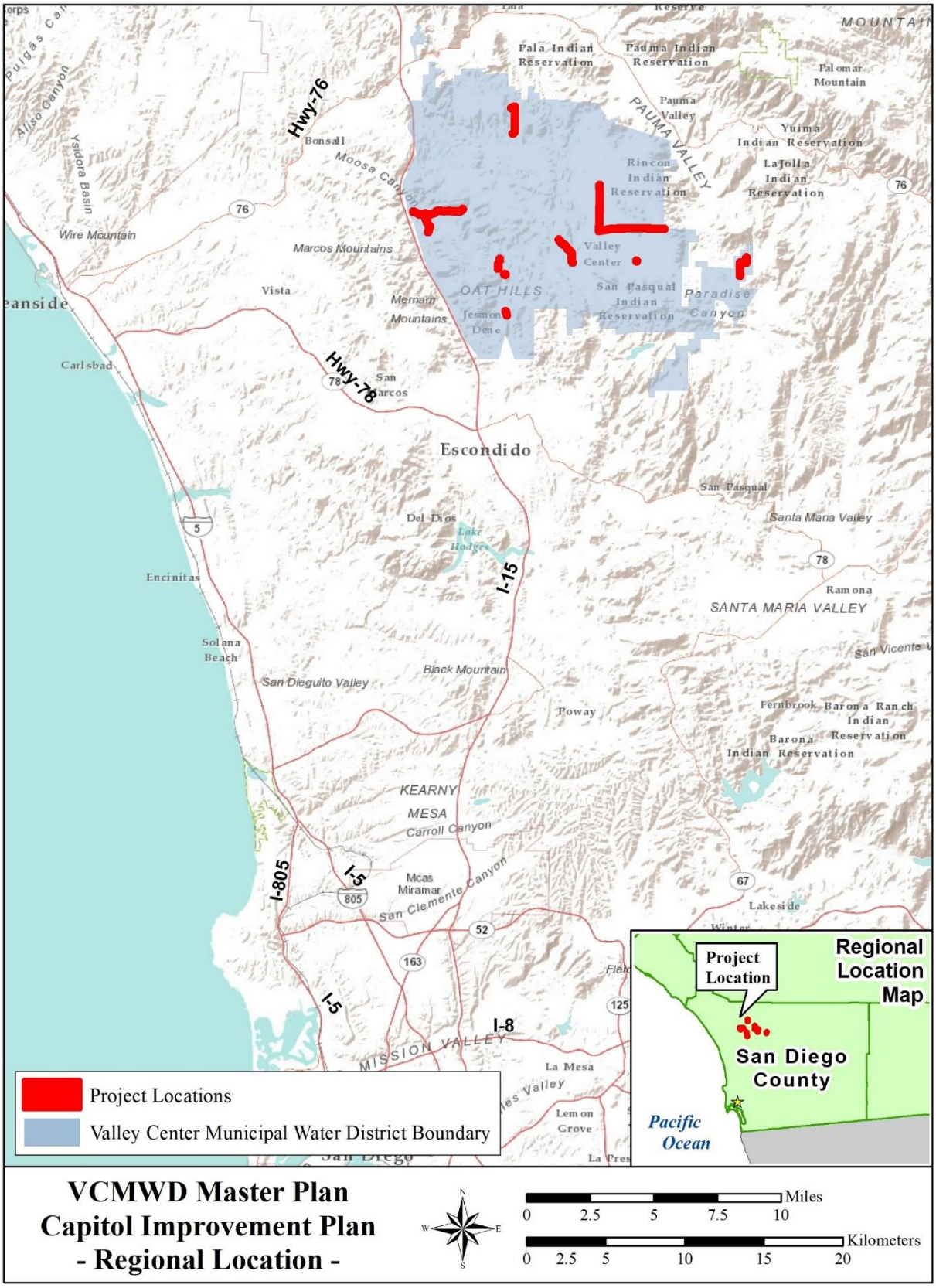
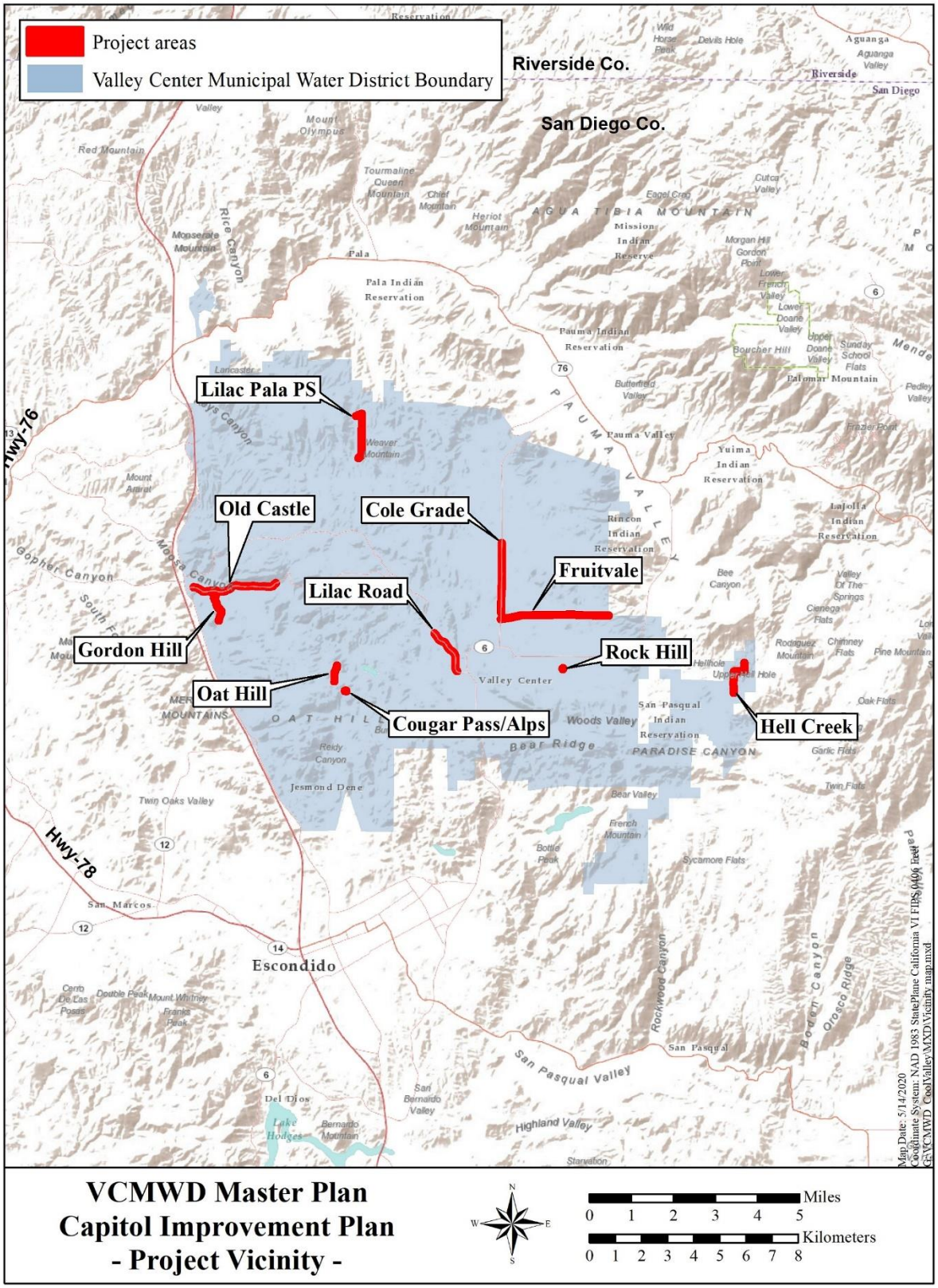


Figure 1. Regional Location.



Map of all the visited locations covered in this report

Figure 2. Valley Center Municipal Water District.

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Table 1. Project Descriptions, Costs and Rationales for the Proposed Projects

Project No.	Project ID	Project Name	Project Description	Approximate Cost	Rationale
1	WSo15b	Old Castle Road Pipeline Replacement	Replace of approximately 10,800 linear feet of 12-inch pipe between Leisure Lane and the VCMWD's Old Castle Pressure Reducing Valve.	$3,240,000	The pipeline has experienced several major line breaks within the last several years and the pipe is approaching the end of its useful life.
2	MW015a	Oat Hill Pump Station Discharge Pipeline North	Replace approximately 2,100 linear feet of 12-inch pipe within unimproved grove road north of the pump station to Faircrest Way including connecting to existing 8-inch and 18-inch pipelines on south and 12-inch connection at Faircrest. One of two sources for the 1793/Meadows Service Zone.	$575,000	This relatively short portion of pipeline has a history of leaking issues, having had at least 5 leaks in the past 8 years causing damage to unimproved roadway
3	DW001	Gordon Hill Pipeline Replacement	Relocate 4,700 linear feet of 12-inch pipe from side lot easements and placing the pipe in the existing improved roadway corridor within Gordon Hill Road between Old Castle and Welk Road.	$500,000	This is a high-pressure pipeline located within private property. Pipe failure will likely result in significant damage to private assets. Steep terrain and private improvements make it difficult to access and maintain this facility in its current location.
4	CV018a	Cougar Pass/Alps Way Culvert Crossing Pipeline Replacement	Replace approximately 330 linear feet of existing 16-inch diameter waterline below two storm drain culverts within Alps Way west of Cougar Pass Road and realign approximately 100 linear feet of existing 8-inch waterline within Cougar Pass Road at Alps Way.	$225,000	These modifications will allow the VCMWD to fully use the capacity of this pipeline. Operations has been limiting the flow rate through this pipe to avoid another blowout like the one that caused major property damage previously
5	SG022	Lilac Pala Pump Station Discharge Pipeline	Replace approximately 6,500 linear feet of 12-inch pipe within unimproved roadways between the Lilac Pala Pump Station and McNally Road.	$1,850,000	This pipeline has experienced deterioration at the pipe joints resulting in several leaks within the past several years
6	CV011	Cole Grade Road Pipeline Replacement	Replace approximately 6,600 linear feet of existing 14-inch pipe within Cole Grade Road between Horse Creek Trail and Pauma Heights Road. The project will be constructed prior to the County's Cole Grade Road widening project.	$4,300,000	The pipeline has experienced several major leaks in the past several years and is approaching the end of its useful life
7	CV017a	Rock Hill Ranch Road Intertie	Within Roundtree Lane west of Queensbridge, connect existing 8-inch steel pipeline to existing 6-inch steel pipeline including 50 linear feet of 8-inch polyvinyl chloride, valves and appurtenances to connect Rock Hill Ranch to Queensbridge.	$125,000	This will improve operational redundancy in an area of very old (1958) pipelines. This is a connecting link of two dead end lines.
8	CV012a	Fruitvale Road Pipeline Replacement	Within Fruitvale between Cole Grade Road and Sunset, Remove and replace approximately 9,400 linear feet of 8-inch pipeline, valves and appurtenances to improve operational redundancy and to minimize customer service interruptions during shutdowns.	$100,000	This will improve operational redundancy in an area of very old (1958) pipelines.
9	PD016	Hell Hole Creek Pipe Joint Repair	Within Hell Creek Road from Santee to terminus, install wrapper plates on all joints in the 5,300 linear feet of 8-inch steel line, serving north portion of 2333/Paradise Service Zone	$775,000	There is no mortar coating remaining on joints leading to joint failure and causing major damage to private roadway.
10	CV050	Lilac Road Pipeline Upsize	Replace approximately 5,900 LF of existing 6-inch pipe within Lilac Road between Hideaway Lake Rd and Betsworth Rd with an 8-inch pipe. The existing pipeline would be separated from the water distribution system and abandoned in place. The new pipeline would be installed within the existing improved Lilac Road corridor.	$2,125,000	The pipeline is undersized for current resource demands, exhibiting low pressure during high usage times for certain residents at higher elevations.

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2.0 METHODS

2.1 Environmental Setting

Tierra Data Inc. (TDI) performed in-house database searches for sensitive species detected in the immediate vicinity of all sites prior to site surveys. TDI accessed the CNDDB (California Department of Fish and Wildlife [CDFW] 2020a) and the USFWS Carlsbad Field Office database for sensitive species in San Diego County (USFWS 2020a) to identify any species or species locations that could be directly or indirectly impacted by the project. The CNDDB was last updated in October 2019; whereas the USFWS Database was last updated on 01 May 2019. As the CNPS shares their data with the CNDDB (CNPS 2020), their latest information is captured by the CNDDB.

The sites, and a 300-foot buffer, were then assessed by foot, where access allowed, by TDI biologists Derek Langsford and Benjamin Van Allen during three days in January and February 2019, with follow-up visits to some changed sites in April and May 2020 (30-31 January, 06 February, 03 April and 01 May; Table 2). The purpose of all site analyses and visits was to determine if any sensitive biological resources pursuant to CEQA, USFWS and CDFW, including sensitive vegetation communities or species, and regulated wetlands, would be affected by the proposed project. The Projects would need to be in compliance with the ESA, California Endangered Species Act (CESA), Clean Water Act (CWA), California Fish and Game (CFG) Code, and provide protection for birds under the MBTA and CFG Code in satisfaction of SWRCB requirements.

Table 2. Biological Surveys dates and times at the Project Locations.

Project ID	Project Name	Survey Date	Survey Time	Conditions
WSo15b	Old Castle Road Pipeline Replacement	1/31/19	11:15 -12:30	Sunny, breezy, around 70°F
MWo15a	Oat Hill Pump Station Discharge Pipeline North	2/6/19	11:50 – 12:50	Clear, breezy around 60°F
DW001	Gordon Hill Pipeline Replacement	1/31/19	10:00-11:00	Sunny, cool, 55°F to 67°F
CV018a	Cougar Pass/Alps Way Culvert Crossing Pipeline Replacement	2/6/19	10:45-11:45	Cool, clear, windy, mid-50s°F
SG022	Lilac Pala Pump Station Discharge Pipeline	1/30/19	15:15-17:35	Cool and clear, mid-60s°F
CV011	Cole Grade Road Pipeline Replacement	1/30/19	12:50-13:40	Cool and clear, mid-60s°F
CV017a	Rock Hill Ranch Road Intertie	1/30/19	11:30-12:00	Partially cloudy, Low 60s°F
CV012a	Fruitvale Road Pipeline Replacement	1/30/19 and 5/1/2020	12:10-12:45 13:45-16:45	Partially cloudy, Low 60s°F Clear, High 70s°F
PD016	Hell Hole Creek Pipe Joint Repair	1/30/19	08:15-11:15	Partially cloudy, Low 60s°F
CV050	Lilac Road Pipeline Upsize	4/3/20	11:45-15:55	Partly cloudy, High 60s°F

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3.0 RESULTS

3.1 Database Searches

Results of the CNDDB and the USFWS database searches for a 3-miles radius from the Project Sites are shown in Figure 3. Species identified within the 3-mile radius are presented in Table 3 and Table 4.

Table 3. Wildlife species identified within the 3-mile radius from the Project Site.

Common Name	Scientific Name	Status (federal/state)
FISH		
Arroyo Chub	*Gila orcuttii*	--/SSC
AMPHIBIANS		
Arroyo Toad	*Anaxyrus californicus*	FE/SSC
Western Spadefoot	*Spea hammondii*	--/SSC
REPTILES		
Coastal Whiptail	*Aspidoscelis tigris stejneger*	--/SSC
Belding's Orange-Throated Whiptail	*Aspidoscelis hyperythra beldingi*	--/WL
Coast Horned Lizard	*Phrynosoma coronatum blainvillei*	--/SSC
Coronado Skink	*Plestiodon skiltonianus interparietalis*	--/WL
Red-Diamond Rattlesnake	*Crotalus ruber*	--/SSC
Two-Striped Garter Snake	*Thamnophis hammondii*	--/SSC
Western Pond Turtle	*Actinemys pallida*	--/SSC
BIRDS		
Swainson's Hawk	*Buteo swainsoni*	BCC/ST
Coastal Cactus Wren	*Campylorhynchus brunneicapillus sandiegensis*	BCC/SSC
Coastal California Gnatcatcher	*Polioptila californica*	FT/SSC
Golden Eagle	*Aquila chrysaetos*	BGEPA, BCC/FP
Least Bell's Vireo	*Vireo bellii pusillus*	FE/SE
Southern California Rufous-Crowned Sparrow	*Aimophila ruficeps canescens*	--/WL
Yellow-Breasted Chat	*Icteria virens*	--/SSC
MAMMALS		
Dulzura Pocket Mouse	*Chaetodipus californicus femoralis*	--/SSC
San Diego Woodrat	*Neotoma lepida intermedia*	--/SSC
Stephens' Kangaroo Rat	*Dipodomys stephensi*	FE/ST
Northwestern San Diego Pocket Mouse	*Chaetodipus fallax fallax*	--/SSC
Pallid Bat	*Antrozous pallidus*	--/SSC
Pocketed Free-Tailed Bat	*Nyctinomops femorosaccus*	--/SSC
Western Mastiff Bat	*Eumops perotis californicus*	--/SSC

FE = federal listed as endangered, FT = federal listed as threatened, BGEPA = Bald and Golden Eagle Protection Act, BCC = USFWS Bird of Conservation Concern, SE = State listed as Endangered, ST = State listed as Threatened, FP = Fully Protected, SSC = California Species of Special Concern, WL = CDFW Watch List

Table 4. Plant species identified within the 3-mile radius from the Project Site.

Common Name	Scientific Name	Status (federal/state)
Orcutt's Brodiaea	*Brodiaea orcuttii*	--/CRPR 1B.1
Parry's Tetracoccus	*Tetracoccus dioicus*	--/CRPR 1B.2
Payson's Jewelflower	*Caulanthus simulans*	--/CRPR 4.2
Rainbow Manzanita	*Arctostaphylos rainbowensis*	--/CRPR 1B.1
Ramona Horkelia	*Horkelia truncata*	--/CRPR 1B.3
Robinson's Peppergrass	*Lepidium virginicum robinsonii*	--/CRPR 4.3
Delicate Clarkia	*Clarkia delicata*	--/CRPR 1B.2
Felt-Leaved Monardella	*Monardella hypoleuca* ssp*. lanata*	--/CRPR 1B.2
Chaparral Nolina	*Nolina cismontana*	--/CRPR 1B.2
Mesa Horkelia	*Horkelia cuneata* var*. puberula*	--/CRPR 1B.1
Summer Holly	*Comarostaphylis diversifolia* ssp*. diversifolia*	--/CRPR 1B.2
Wart-Stemmed Ceanothus	*Ceanothus verrucosus*	--/CRPR 2B.2

California Rare Plant Rank (CRPR) Status

List 1A = Plants Presumed Extinct in California
List 1B = Plants Rare, Threatened or Endangered in California and Elsewhere
List 2 = Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
List 3 = Plants About Which We Need More Information, A Review List
List 4 = Plants of Limited Distribution, A Watch List

CRPR status is followed by threat code (e.g. CRPR 1B.2)

.1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 = Fairly endangered in California (20-80% occurrences threatened)
.3 = Not very endangered in California (<20% of occurrences threatened)

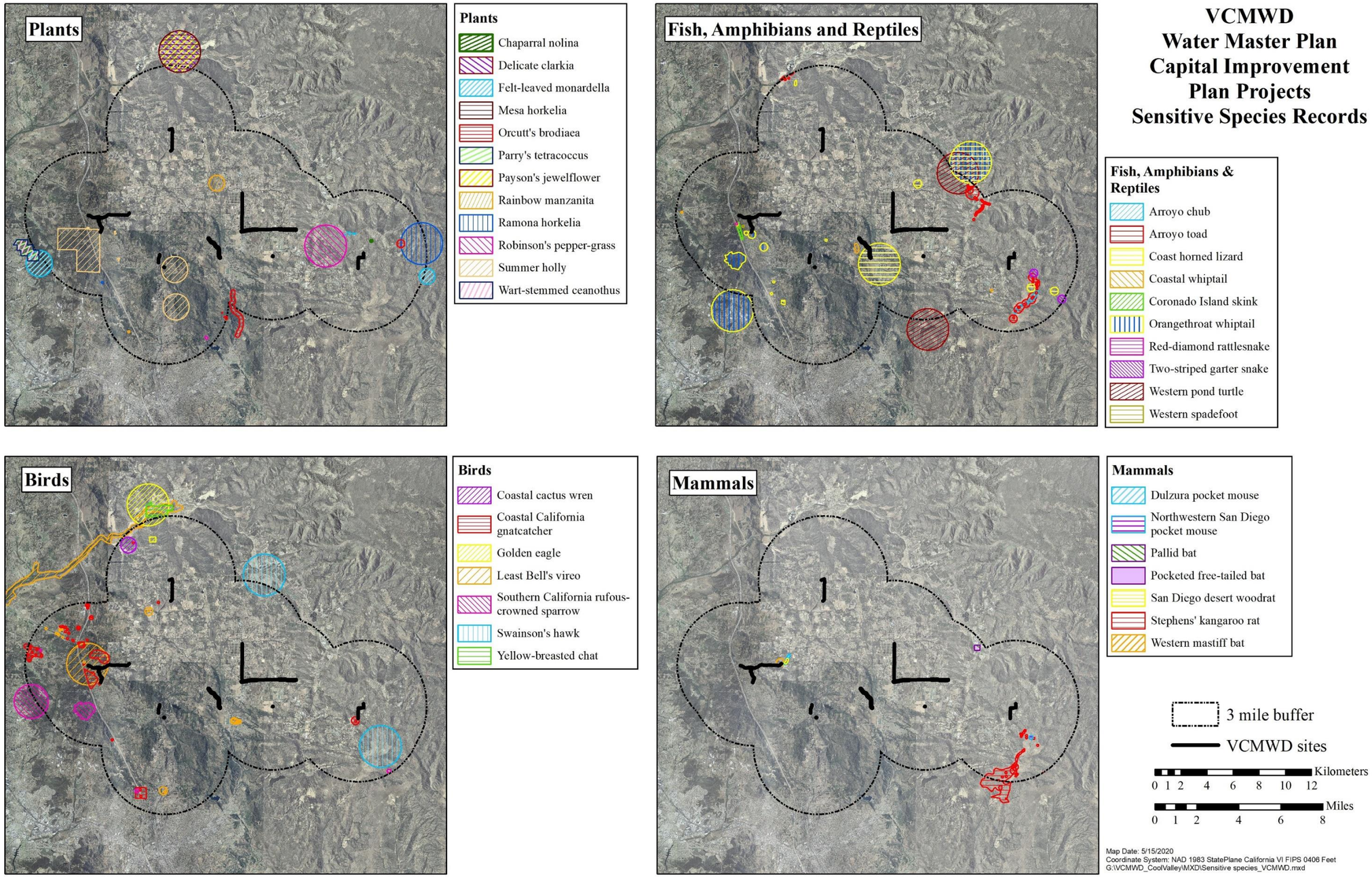

Figure 3. U.S. Fish and Wildlife Service and California Natural Diversity Database Data for Sensitive Species Occurring within 3 Miles of the Proposed Projects.

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3.2 Vegetation Communities

The 10 project sites support 28 vegetation communities/cover types (Table 5). Habitat code designations for each vegetation community are per Holland (1986) and/or Oberbauer et al. (2008). Mitigation ratios are those typically applied for projects under CEQA.

Table 5. Vegetation Communities/Cover Types Found at the Project Sites.

Vegetation Community/Cover Type	Abbreviation	Holland Code	Mitigation Ratio
Wetlands			
Southern Coast Live Oak Riparian Forest	SCLORF	61310	No net loss
Southern Arroyo Willow Riparian Forest	SAWRF	61320	
Southern Sycamore-Alder Riparian Woodland	SSARW	62400	
Southern Riparian Woodland	SRW	62500	
Mule Fat Scrub	MFS	63310	
High Sensitivity Uplands			
Coast Live Oak Woodland	CLOW	71160	3:1
Coast Live Oak Woodland - Disturbed	CLOW-D	71160	
Open Coast Live Oak Woodland	O-CLOW	71161	
Open Coast Live Oak Woodland - Disturbed	O-CLOW-D	71161	
Engelmann Oak Woodland	EOW	71180	
Engelmann Oak Woodland - Disturbed	EOW-D	71180	
Open Engelmann Oak Woodland	O-EOW-D	71181	
Moderate Sensitivity Uplands			
Coastal Sage Scrub	CSS	32500	2:1
Coastal Sage Scrub - Disturbed	CSS-D	32500	
Coastal Sage Chaparral Transition	CSCT	37G00	
Low Sensitivity Uplands			
Southern Mixed Chaparral-	SMC	37120	1:1
Southern Mixed Chaparral-Disturbed	SMC-D	37120	
Scrub Oak Chaparral	SOC	37900	
Other			
Eucalyptus Woodland	EW	79100	None
Non-Native Grassland	NNG	42200	
Non-Native Vegetation	NNV	11000	
Non-Native Woodland	NNW	79000	
Extensive Agriculture	AGE	18300	
Intensive Agriculture	AGI	18300	
Abandoned Agriculture	AG-A	None	
Developed	DEV	12000	
Disturbed Habitat	DH	11300	
Orchard/Vineyard	ORC	18100	

3.3 Flora

Lists of the plant species observed at each site during the site visits are presented in Appendix A. The native species present were generally common species associated with native habitats in the region. Typical Coastal Sage Scrub (CSS) species such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and laurel sumac (*Malosma laurina*), and chaparral species such as chamise (*Adenostoma fasciculatum*), Ramona lilac (*Ceanothus tomentosus*), and black sage (*Salvia mellifera*) were common but the majority of the lands have been developed or are in agriculture. Some annual species may not have been detected because of the early time of year of the site visits.

3.3.1 Sensitive Flora

The study areas support a wide variety of habitats, but the alignments are mostly in developed or disturbed areas associated with roads. Four sensitive plant species were detected. Off the road along the Gordon Hill alignment (DW001), a single summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*; California Rare Plant Rank [CRPR] 1B.2) was observed. The shrub was approximately 25 feet downslope from the edge of the road and would not likely to be impacted.

The Lilac Road Pipeline Upsize (CV050) alignment passed near to a number of roadside. Englemann oak (*Quercus engelmannii*; CRPR 4.2) trees.

At the southern end of the Cole Grade Road alignment (CV011), west of Cole Grade Road and north of Horse Creek Trail is an area with some Coastal Sage Chaparral Transition (CSCT) and CSS. A portion of the CSS is a revegetated slope that is a fill slope for Cole Grade Road. The revegetation effort included San Diego County viguiera (*Bahiopsis laciniata*; CRPR 4.3) which is prevalent on the fill slope. Below the fill slope the CSS supports another species with a CRPR, ashy spike-moss (*Selaginella cinerascens*; CRPR 4.1). A similar situation occurs on the west side of Cole Grade Road at the intersection Fruitvale Road where the slope that supports Cole Grade Road appears to have been similar treated and supports many San Diego County viguiera.

3.4 Fauna

A small number of wildlife species were observed during the site visit. Minimal activity was detected because of the time of year (mid-winter for all but one site). A list of animals observed or noted on the sites is provided in Appendix C.

3.4.1 Sensitive Fauna

An orange-throated whiptail (*Aspedoscelis hyperythra*; CDFW Watchlist [WL]) was observed in the CSS in the northwest corner of Cole Grade Road and Fruitvale Roads.

3.5 Site Descriptions, Sensitive Habitats/Species by Location

3.5.1 WSo15b – Old Castle Road Pipeline Replacement

3.5.1.1 Site Description

The pipeline alignment (total length 10,800 feet) is within the right-of-way (ROW) of Old Castle Road either under asphalt or in Disturbed Habitat (DH) beside Old Castle Road (Figure 4).

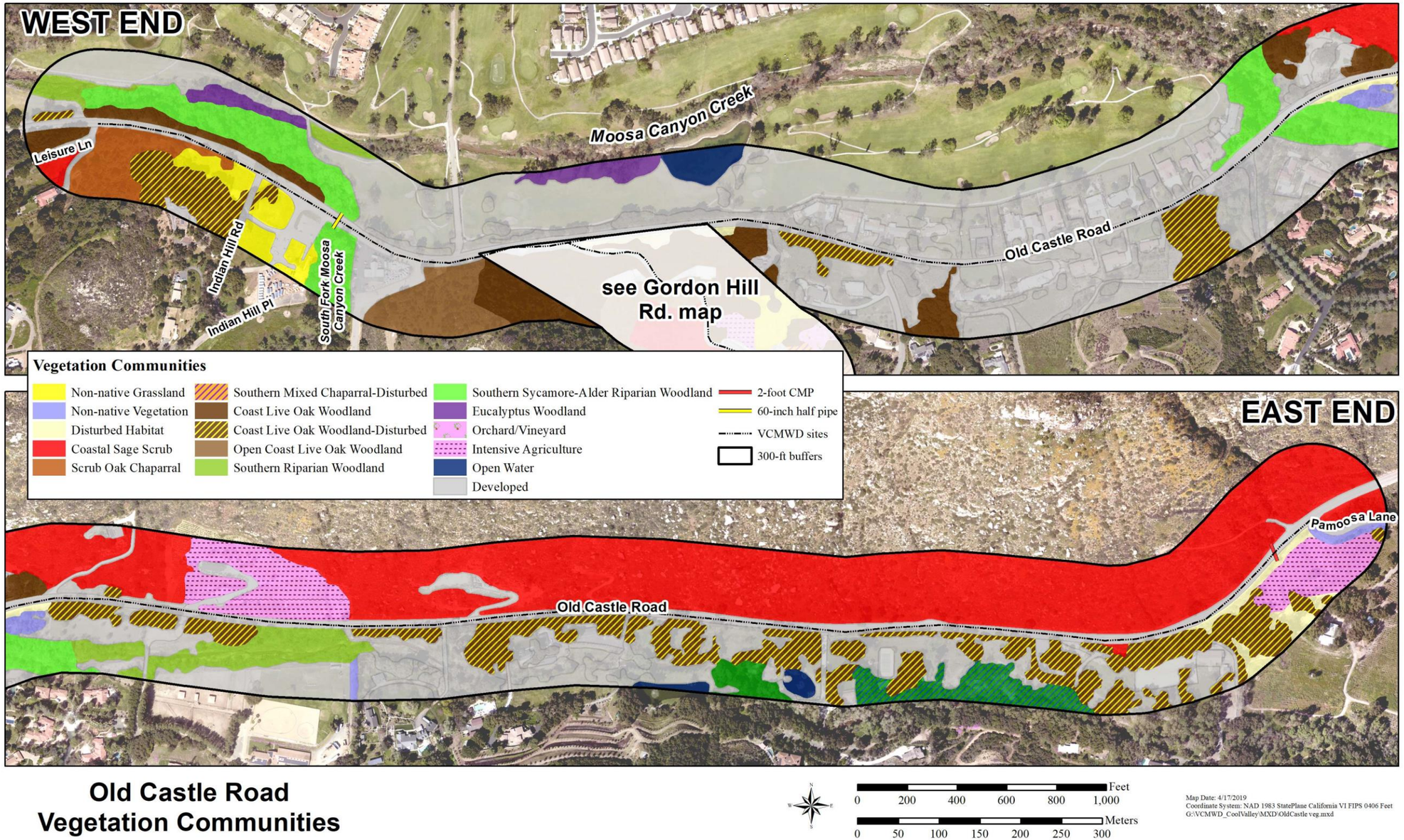

Figure 4. Old Castle Road Vegetation Communities.

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Beginning at the eastern end near Pamoosa Lane. the proposed alignment and study, the first 350 feet of old Castle Road is bordered on both sides by CSS. Approximately 220 (north side of Old Castle Road) to 250 feet southwest of Pamoosa Lane, a drainage carried by a 24-inch Corrugated Metal Pipe (CMP) crosses under the road from northeast to southwest. From Pamoosa Lane to the 4,230-foot mark of the proposed alignment the habitat north of the alignment is CSS on a steep and rocky slope, while the area to the south of the alignment is lower than the road and covered by mostly properties that have been developed (DEV) among the coast live oaks that border Moosa Canyon Creek to the south. As a result, these areas south of Old Castle Road are considered to support disturbed Coast Live Oak Woodland (CLOW-D). At 4,070 feet the habitat on the left transitions to Southern Riparian Woodland (SRW) which remains adjacent to the alignment until it is replaced by CLOW-D again at the 4,390-foot mark. On the north side of the alignment the CSS gives way to recently planted groves, identified as Intensive Agriculture (AGI), DH, and DEV up to the 5,200-foot mark. Beyond this mark the nature of the landscape begins to change considerably as the alignment of Old Castle Road drops towards Moosa Canyon Creek. At 5,625 feet Old Castle Road crosses the Creek as a 150-foot span concrete top bridge over Southern Arroyo Willow Riparian Forest (SAWRF) habitat.

Beyond this bridge the alignment continues along in Old Castle Road with residential development tucked between patches of CLOW on the south side and golf course residences on the north side until the alignment crosses south fork of Moosa Canyon Creek with a 6-foot half pipe culvert design at 9,729-feet. Southern Sycamore-Alder Riparian Woodland (SSARW) occurs in the riparian area of both Moosa Creeks in this area and is adjacent to the alignment from 9,680 to 9,820 feet after which the Moosa Creeks become one. Moosa Canyon Creek continues to stay close to the road until the alignment ends at 10,850-feet at the intersection of Old Castle Road and Leisure Lane.

3.5.1.2 Sensitive Habitats/Species/Wetlands

The natural habitats adjacent to Old Castle Road are considered sensitive by USFWS and CDFW and include the riparian woodlands (SSARW, SAWRF, and SRW) and uplands (CSS, Coast Live Oak Woodland [CLOW]).

TDI biologists did not observe any species of conservation concern during the survey; however, resource database searches (Figure 3) indicate that the federally and state endangered Least Bell's Vireo (LBVI; *Vireo bellii pusillus*) can breed along Moosa Canyon Creek (main and south forks) in and around the project study area. CSS is the habitat of the federally threatened and California Species of Special Concern (SSC) coastal California gnatcatcher (CAGN; *Polioptila californica californica*); however, databases show no detections along the alignment in the east but does show locations on the slopes of hills in the west. The location is in the east of the species' range and the very open vegetation on steep slopes is not typically occupied by the species. Additionally, there are records of SSC Western mastiff bat (*Eumops perotis Californicus*), San Diego desert woodrat (*Neotoma lepida intermedia*), and Dulzura pocket mouse (*Chaetodipus californicus femoralis*) in the vicinity of the eastern end of the alignment at Pamoosa Lane.

Only one sensitive plant species, summer holly (CRPR 1B.2), has been detected in the vicinity of this project but not proximal to it (Figure 3).

The drainages crossing the alignment under Old Castle Road are likely jurisdictional under the CWA to the U.S. Army Corps of Engineers (USACE) and CFG code to CDFW.

3.5.2 MW015a – Oat Hill Pump Station Discharge Pipeline North

3.5.2.1 Site Description

The 2,100-foot pipeline alignment follows a private unpaved road (DH) that runs north from Meadow Glen Way East, through private properties, and then along private driveways (DEV) to Faircrest Way (Figure 5).

Beginning at the south side of the project alignment, approximately 640 feet north of Meadow Glen Way E, the immediate vicinity includes Southern Mixed Chaparral (SMC) to the southwest and Eucalyptus Woodland (EW) to the southeast with Non-native Grasslands (NNG) in all directions north (Figure 5). 200-feet more to the north, the proposed alignment comes within approximately 60 feet of EW running along a ditch line east of the alignment. At 540-feet from the start of the alignment it runs through a likely property

boundary line supporting SMC then passes by more NNG and open disturbed land before reaching an ephemeral tributary of Moosa Creek at 840-feet. The alignment passes along a narrow unpaved access goes for 200 feet between riparian areas with Southern Coast Live Oak Riparian Forest (SCLORF) to the east and a finger of SRW to the southwest for approximately 200 ft emerging at 1,040-feet after crossing the creek which passes through two 24-inch CMPs, Beyond the riparian area the alignment again passes through NNG and DEV land until the 1,300-foot mark, where it crosses Meadow Glen Way E North Extension then passes through SMC with a scattering of CLOW-D near the road. At approximately 1,430-feet it emerges from this and return to open land with DEV, DH, and some disturbed Southern Mixed Chaparral (SMC-D) to the west and Orchard (ORC), DEV, and DH to the east until the alignment ends 2,030-feet from the start at a private road.

3.5.2.2 Sensitive Habitat/Species

The natural habitats adjacent to the Oat Hill alignment that are considered sensitive by USFWS and CDFW include the riparian woodlands (SCLORF, SRW) and uplands (SMC, CLOW).

TDI biologists did not observe any habitats or species of high conservation concern during the survey, and no records of any sensitive animal species in the vicinity were found on natural history databases (Figure 3); however, delicate clarkia (*Clarkia delicata*; CRPR 1B.2) has been detected relatively close to the site. This species is found in openings or at the edge of woodlands or chaparral stands and could be in the chaparral close to the south of the alignment or along the riparian corridor that runs through the middle of the alignment.

The drainage crossing under the Oat Hill alignment may carry water that is jurisdictional under the CWA to the USACE and CFG code to CDFW.

3.5.3 DW001 – Gordon Hill Pipeline Replacement

3.5.3.1 Site Description

The 4,700-foot pipeline alignment follows an easement road through a dedicated open space, crosses private property, then follows Gordon Hill Road down to Old Castle Road (Figure 6).

Beginning at Welk View Drive at the south end of Gordon Hill, the immediate vicinity on each side of the initial paved portion of the easement is CSS within a protected Open Space Easement associated with the Lawrence Welk Resort Mountain Villas Project which lies immediately south of Welk View Drive (Figure 5). Moving uphill through the CSS, the habitat transitions to SMC at approximately 560-feet from Welk View Drive. Upon reaching 950-feet, the SMC ends as the alignment enters a private property supporting an avocado grove (ORC). It them passes through open DH until it reaches Gordon Hill Road at 1,280-feet. The alignment continues along Gordon Hill Road to the 2,500-foot mark, when the habitat to the left becomes abandoned orchard (AG-A) and to the right grades into Scrub Oak Chaparral (SOC) on the descending slope to the right. At 2,750-feet the habitat on each side of the road descends past CLOW-D above and to the left and AGI below and to the right. At 3,090-feet the CLOW-D gives way to CSS. The alignment winds along Gordon Hill road with CSS to the left and AGI to the right until the 4,185-foot mark, when CLOW appears on either side of the alignment and remains until it ends at the intersection of Gordon Hill and Old Castle Roads at 4,650-feet.

3.5.3.2 Sensitive Habitat/Species

Gordon Hill

TDI biologists identified one individual of summer holly in the SOC shortly after the 2,500-foot mark. This CRPR 1B.2 (rare, threatened, or endangered in California and elsewhere) plant grows approximately 25 to 30 feet away from and 10 to 15 feet downslope of the alignment. Natural resource database check show that the CDFW summer holly habitat in the database ends at least 800 feet south of the identified individual but is adjacent to SOC habitat on the west side of the alignment.

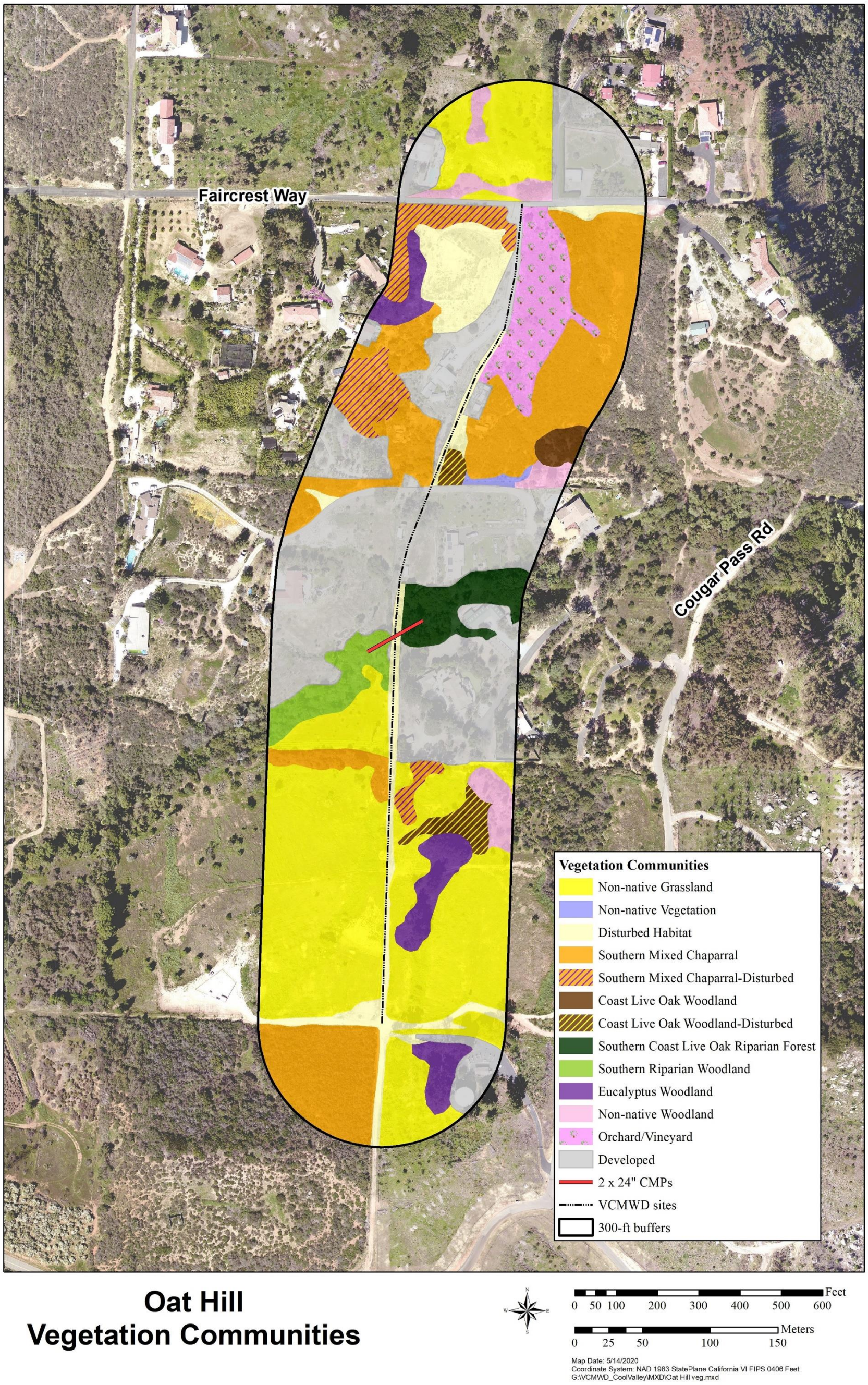

Figure 5. Oat Hill Pump Station Discharge Pipeline North Vegetation Communities.

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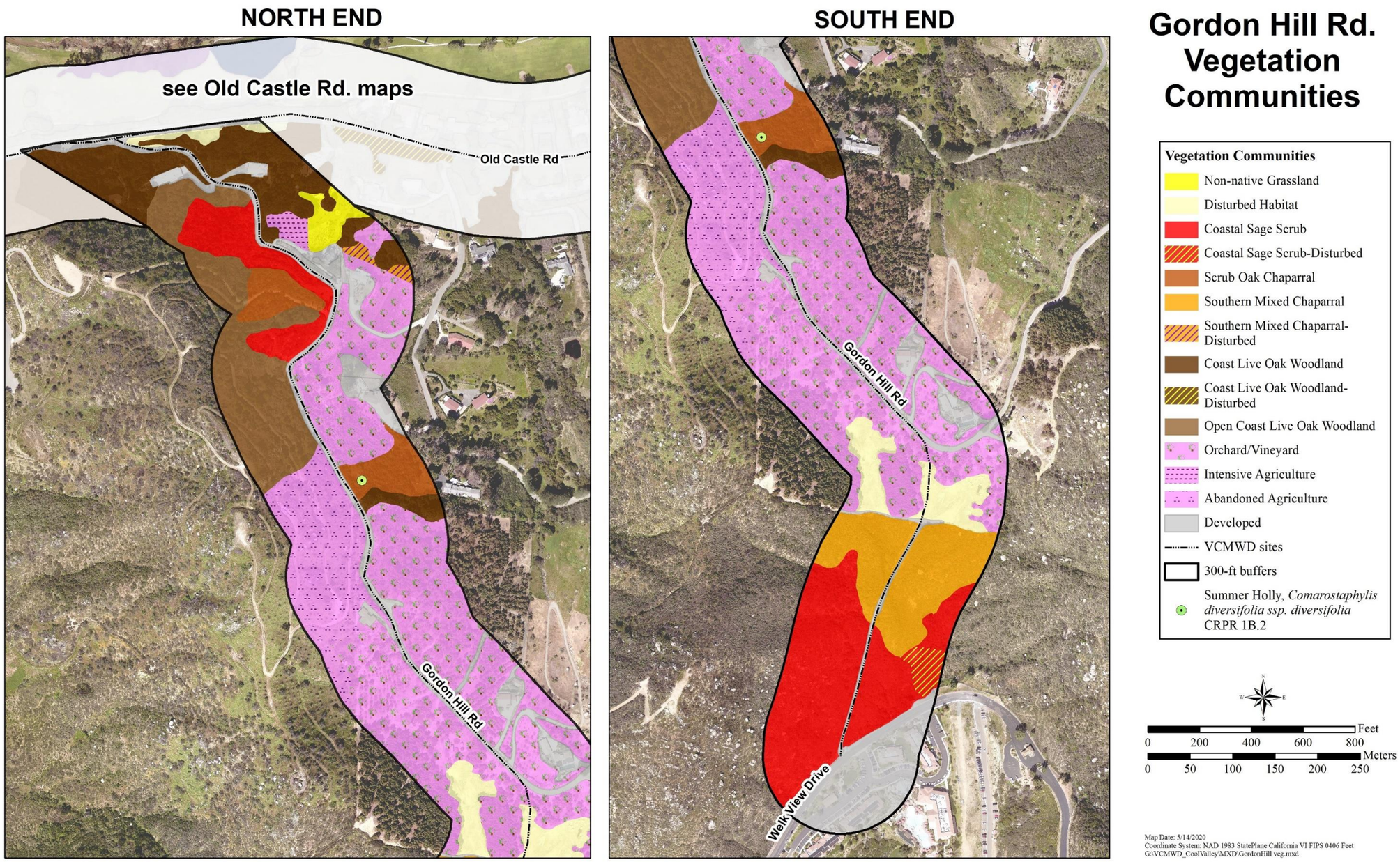

Figure 6. Vegetation Communities at Gordon Hill Road.

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LBVI breeding habitat, likely along lower Moosa Creek is marked as occurring in all but the very southeast of the alignment (Figure 3) but is again unlikely to breed along the alignment itself. CAGN is identified in the vicinity of the southern half of the alignment (Figure 3) with detections occurring in the dedicated open space and slopes to the south. Presence of CAGN could affect this project's timing of implementation.

The CDFW WL Belding's orange-throated whiptail is also likely to occur along the first few hundred feet of the alignment based on natural resource database records while the CDFW WL Coronado skink (*Plestiodon skiltonianus interparietalis*), also found nearby according to the CNDDB (Figure 3), is less likely because of its affinity for moist habitats.

No potential WoUS or CDFW streambeds cross this alignment.

3.5.4 CV018a – Cougar Pass/Alps Way Culvert Crossing Pipeline Replacement

3.5.4.1 Site Description

The entirely of the Cougar Pass/Alps Way proposed alignment is approximately 250 feet long (Figure 7). Immediately around the alignment, the features of interest all involve the drainage of a small creek which eventually feeds into Escondido Creek. A very Disturbed Wetland (DW) area with a few cattails lies at the uphill side of a 24-inch CMP culvert under the road, while the downhill side opens into a forested riparian gully with SRW directly along the drainage and SOC on the east facing slope of the gully. Other than these habitats everything adjacent to the alignment is DEV, DH, Non-Native Vegetation (NNV), or AG-A.

3.5.4.2 Sensitive Habitat/Species

The natural habitats adjacent to the Alps Way Culvert Crossing Pipeline Replacement alignment that are considered sensitive by USFWS and CDFW include the SWR, DW, and SOC.

TDI biologists did not observe any sensitive species, however, natural history database searches indicated that the entire area around the alignment is within an area that has records of summer holly (Figure 3).

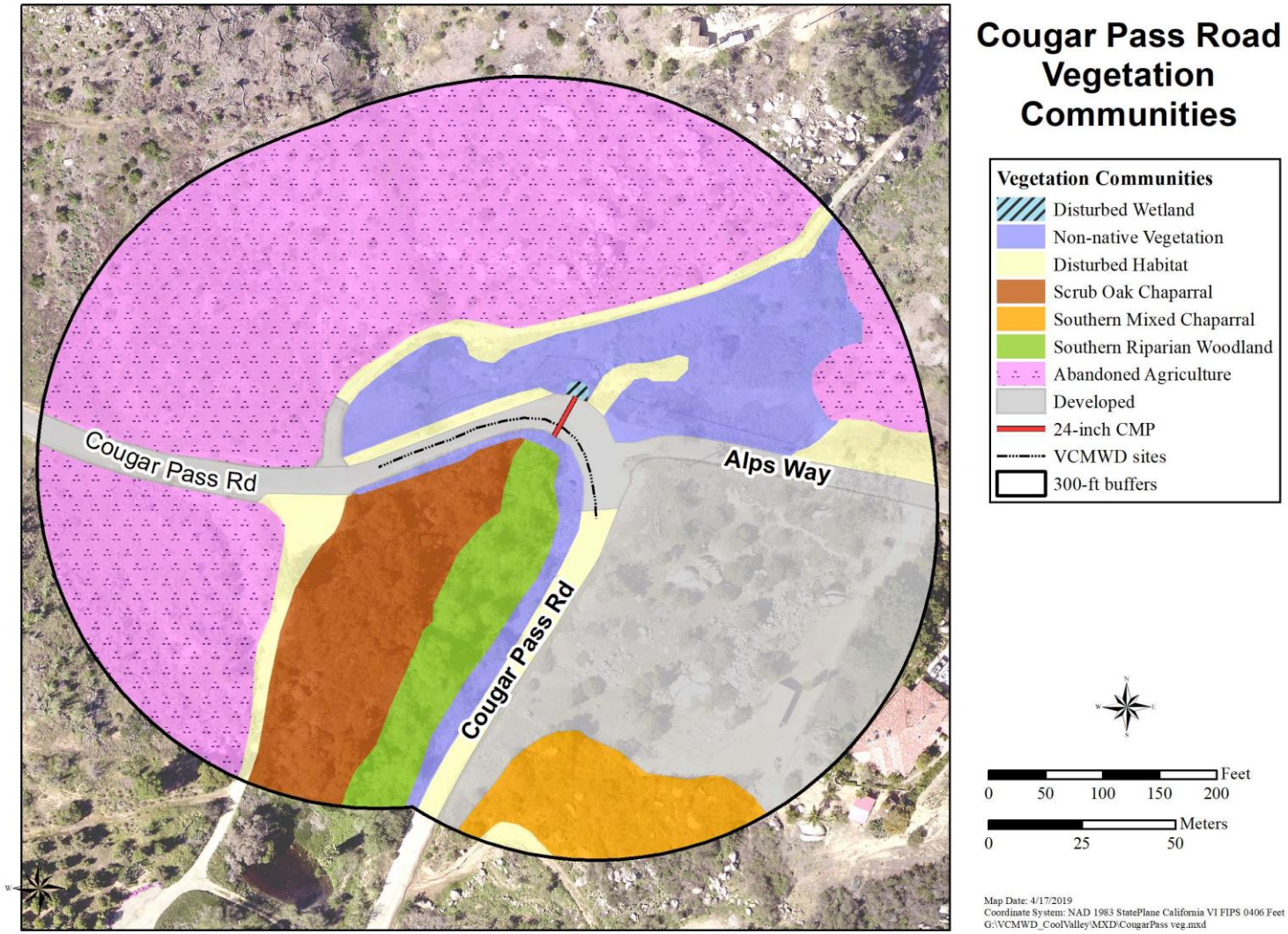

Figure 7. Cougar Pass Road Vegetation Communities.

3.5.5 SG022 – Lilac Pala Pump Station Discharge Pipeline

3.5.5.1 Site Description

Beginning at Old Lilac Road in the south, the alignment tracks to the northeast from the road along the northwest DEV portion of pump station (Figure 8). From the pump station, the alignment continues up a hill through CSS until the it turns to the north at 575-feet. The alignment continues through CSS until it crosses the access road it began on at 760 feet. Heading north and down a slope the alignment passes through disturbed Open Coast Live Oak Woodland (O-CLOW-D) until the 1,150-foot mark. The alignment then continues onto a dirt road and passes a narrow strip of CLOW-D before coming to a 24-inch CMP crossing under the dirt road at 1,175 feet and taking an ephemeral stream towards a main tributary of the San Luis Rey River. The alignment continues along the dirt road with O-CLOW-D to the east and some disturbed Coastal Sage Scrub (CSS-D) and DH to the west until the 1,570-foot mark where another 24" CMP is crossed. The road become increasingly poorly maintained and passes through CSS from here to the 1,825-foot mark where it merges with a higher quality dirt road bordered by NNG on the right and CSS on the left until the 2,470-foot mark. The alignment then crosses a low point in the terrain filled with CSS-D then continues along the dirt road bordered by NNV and NNG until it reaches the edge of a riparian area at 3,040 feet. From here it passes through a small patch of CSS, then SCLORF around a substantial perched perennial stream, roughly five feet wide, fed primarily by agricultural runoff. After climbing a cactus rich embankment of CSS, the alignment continues along the edge of an orchard (ORC) until reaching Santa Catalina Road at the 4,070-foot mark. The alignment crosses the road, then climbs an embankment covered in CSS-D, from the top of the embankment at 4,145 feet until 4,620 feet the alignment passes through an agricultural (AG) property. The alignment then passes through a low area of primarily CSS with a small amount of Mule Fat Scrub (MFS) until the 4,750 mark, when it comes back up into an ORC. The alignment passes through the tree of the orchard until the 5,265-foot mark when the path crosses a small stream over a 24-inch CMP and passes into a line of CLOW. Once emerging from the CLOW at the 5,360 foot mark the alignment passes onto the large yard of a private residence, continues onto the residence's driveway, turns hard left/west as the driveway turns, then continues until the end of the driveway as it meets West Lilac Road at the 6,460-foot mark.

3.5.5.2 Sensitive Habitat/Species

The natural habitats along and adjacent to the alignment that are considered sensitive by USFWS and CDFW include the riparian habitats SCLORF and MFS and the upland CSS and CLOW habitats. Natural history database searches did not uncover any additional records of species of high conservation concern.

The alignment crosses three 24" CMPs and an open 5' wide channel which may carry water that is jurisdictional under the CWA to the USACE and CFG code to CDFW.

3.5.6 CV011 – Cole Grade Road Pipeline Replacement

3.5.6.1 Site Description

Beginning at the south end of the alignment at the intersection of Cole Grade Road and Horse Creek Road the immediate area to the south is all DEV (Figure 9). However, the area to the west heading north is a vacant lot filled with native vegetation. On the south side of a small ephemeral drainage that comes out of culvert at the base of the fill slope of Cole Grade Road to the at 180 feet the habitat is CSCT, and its north side, the habitat transitions to CSS until 610-feet from the start of the alignment. Immediately adjacent to Cole Grade Road a 260-foot long stretch of San Diego County viguiera forms a near monoculture between 10 and 30-feet wide on the fill slope of Cole Grade Road, centered on the ephemeral drainage west of the alignment. From 350-feet the alignment continues north through DEV and AG until the 1090-foot mark when it passes into a grove of oaks (CLOW-D) on either side of the road. At 1,140-feet, with the oaks still on each side of the road, Cole Grade Road crosses a 36-inch CMP culvert taking an ephemeral drainage from the CLOW-D east of the alignment to the CLOW-D west of it. At approximately 1,560 feet the alignment leaves the CLOW-D and is bordered again by AG and DEV, but with some oaks still along the road.

The alignment continues north in this setting until approximately 3,840 feet along, when a patch of CSS-borders the east side of the alignment until the 4,090-foot mark, at this point the CSS-D disappears on the east side of the alignment but appears on the west side of the alignment until the 4,165-foot mark. The alignment then continues past DEV and AG until SMC appears again on the east side of the road at 5,230 feet until it occurs as only remnant on the side of the road after 5,440 feet.

These remnants and occasional oaks continue until the 6,060-foot mark, when a large abandoned orchard (now cleared and DH) appears on the west side of the alignment. The alignment continues along the abandoned orchard and a mix of AG and DEV until it reaches another remnant patch of SMC at approximately 8,150 feet. The alignment leaves this patch at 8,250 feet and continues along the abandoned orchard and a wooded yard (DEV) until it ends at Cool Valley Road after 8,740 feet.

3.5.6.2 Sensitive Habitat/Species

The natural habitats adjacent to the Cole Grade Pipeline Replacement alignment that are considered sensitive by USFWS and CDFW include the upland habitats of CSCT, CSS and CLOW.

TDI biologists observed two sensitive plant species in or adjacent to the CSS encountered near the southern end of the alignment. San Diego County viguiera appears 70 feet into the alignment coming from the south on the west side of Coal Grade Road. This CNPS 4.3 plant (limited distribution) may have been planted along the roadway intentionally given its history as a planted flower and position along the road, but it is also adjacent to habitat it naturally occurs in. Within the CSS and near the ephemeral drainage the TDI biologists also observed Ashy Spike Moss, a CNPS 4.1 plant (limited distribution) plant. No records of special interest species in the area were found on natural history databases.

The alignment crosses a 36” CMPs which may carry water that is jurisdictional under the CWA to the USACE and CFG code to CDFW.

3.5.7 CV017a – Rock Hill Ranch Road Intertie

3.5.7.1 Site Description

This site appears to be a point location (Figure 10). In the immediate vicinity of the point the habitat consists of bare ground (DH), NNG, NNW and DEV. Further from the immediate center of the Rock Hill project area a patch of SRW occurs approximately 150 feet to the northwest.

3.5.7.2 Sensitive Habitat/Species

The natural habitats in the Rock Hill Ranch Road Intertie alignment study area considered sensitive by USFWS and CDFW include the wetland habitat of SRW made up of sycamore trees adjacent to a drainage ditch in the field.

TDI biologists observed a likely raptor nest in a Eucalyptus tree (*Eucalyptus* sp.) immediately adjacent to the proposed project area. It was approximately the size of a red-shouldered hawk (*Buteo lineatus*) nest and multiple red-shouldered hawks were observed flying and calling in the area during the site visit, however, the nest did not appear to be active during the site visit and was likely in some need of repair. No other sensitive species were observed or found on natural history database searches near this alignment

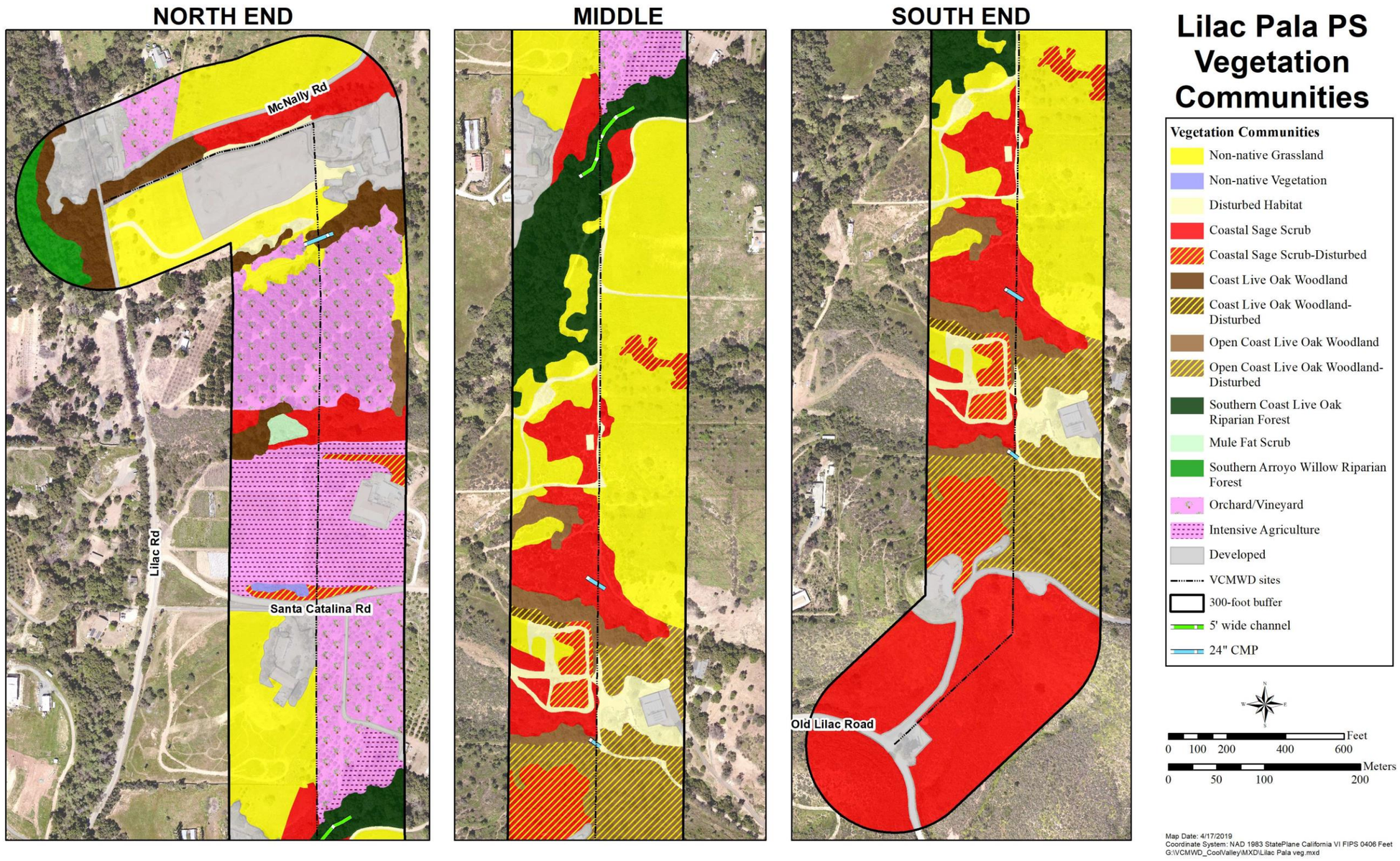

Figure 8. Lilac Pala Pump Station Vegetation Communities.

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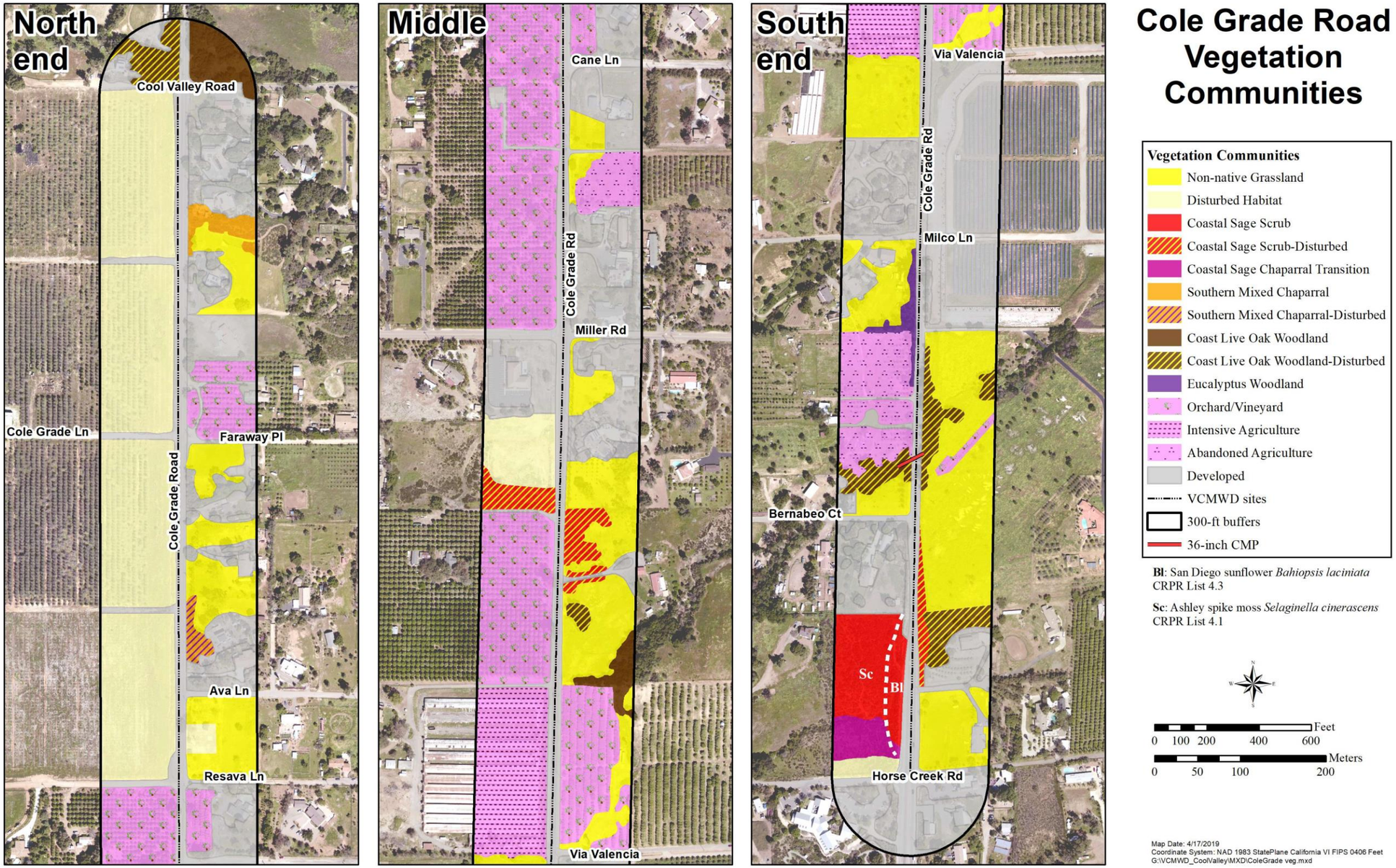

Figure 9. Cole Grade Road Vegetation Communities.

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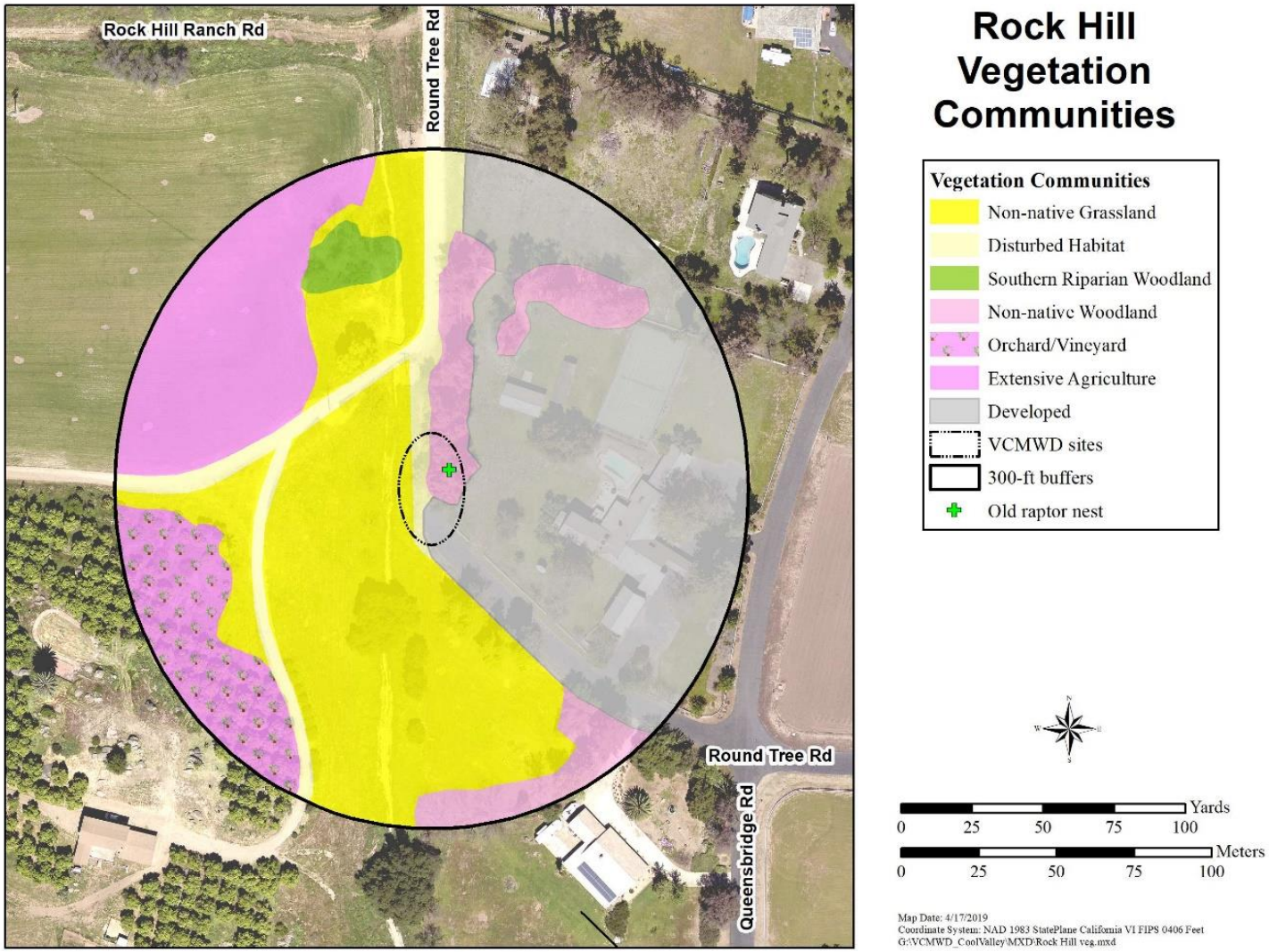

Figure 10. Rock Hill Vegetation Communities.

3.5.8 CV012a – Fruitvale Road Pipeline Replacement

3.5.8.1 Site Description

Beginning at the intersection of Sunset Road and Fruitvale Road, the project alignment heads west (Figure 11). At Sunset and Fruitvale Roads, the landscape slopes downward to the east with the habitat immediately to the northeast is SMC on the Rincon Reservation and to the southeast is a swath of NNG. Moving to the west the road passes between residential and ranchette properties bordered or screened with NNV. On the north side of the road a few planted coast live oaks extend out from the NNV apparently over the pipe alignment, and at approximately 290 feet west, a much larger live oak tree grows out beyond the NNV, adjacent to the north side of the road. At the 1,965-foot mark the alignment passes a small patch of remnant disturbed SMC that fronts the property for 100 feet on the south side of the road. The alignment passes maintained residential properties until it reaches a steep bare earth slope on the north side of the road at 3,500 feet supporting SMC which is kept fire-cleared beside the road. The buffered SMC extends until the 3,820-foot mark when the SMC becomes more disturbed and the alignment crosses a 36" CP carrying a drainage that heads northwest. Remnant SMC then starts on the south side along the road whereas an NNG field opens to the north as Mactan Road is approached. From Mactan Road the alignment goes through developed residential properties to the 4,580-foot mark, but soon reaches a SCLORF corridor with a 36-inch CMP crossing at 4,690 feet (Figure 11). The SCLORF continues along the alignment until approximately the 4,850-foot mark. From here the alignment continues west along DEV, fields of NNG and NNV to the north, but passes disturbed Southern Coast Live Oak Riparian Forest (SCLORF-D) at approximately 5,200 feet to the south. The alignment then passes by a small DEV lot on the south after which the road passes through another SCLORF corridor and over a 48-inch CMP culvert under the road at 5,544 feet. At 5,575 feet the SCLORF gives way to the homes, yards, fallow fields, orchards, a few small culverts, an unused raptor nest in a tall eucalyptus, and other agricultural operations along Fruitvale Road until on the south side, Valley Center Primary School, ballfields, and an abandoned olive orchard extends to the end of the alignment at the intersection with Cole Grade Road (13,550 feet). A 36-inch culvert crosses Cole Grade Road from the north side of Fruitvale Road into some CSS-D west of Cole Grade Road where the 36-inch pipe outfalls. CSS-D continues on the north side of the driveway into a Church parking lot beyond Cole Grade Road.

3.5.8.2 Sensitive Habitat/Species

The natural habitats adjacent to the Fruitvale Road Pipeline Replacement alignment that are considered sensitive by USFWS and CDFW include two SCLORF riparian habitat corridors connected by CMPs under the road as well as the CSS immediately west of Cole Grade Road, and SMC east of Macton Road and the eastern terminus of the alignment.

TDI biologists observed a Belding's orange-throated whiptail in the CSS west of Cole Grade Road and two raptor nest in eucalyptus trees along the alignment. One, just 100 foot south of the alignment 1,000 feet east of Pleasant Knoll Lane appeared unused but could be occupied in future years. A second, just east of Macton Road, was 500 feet north of Fruitvale Road and contained chicks. Some of the larger oak trees away from the road could also support raptor nests. No records of any sensitive species in the vicinity were found on natural history databases.

The alignment crosses two 36" pipes, a 48' CMP, plus other smaller pipes which may carry water that is jurisdictional under the CWA to the USACE and CFG code to CDFW.

3.5.9 PD016 – Hell Hole Creek Pipe Joint Repair

3.5.9.1 Site Description

Beginning at the intersection of Santee Lane and Hell Creek Road SMC is to the south of Santee Lane and heading north along the project alignment (Figure 12). The alignment quickly passes past a small patch of NNG from approximately 50 to 125 feet to the west and a developed parcel with eucalyptus trees to the east. From there the alignment stays straight while Hell Creek Road veers east. An open DH area is encountered until 315 feet into the alignment. From the end of this cleared area the alignment heads downslope through CSCT habitat until 530 feet into the alignment where Hell Creek road returns to the

alignment. SMC-D occurs to the west while the private property to the east has been cleared. SMC and CLOW dominate until the alignment reaches the edge of the riparian woodland around Hell Creek at 1,125 feet. At 1,100 feet, a 12" CMP under the road drains a swale under Hell Creek Road and into Hell Creek, at 1,275 feet Hell Creek itself crosses Hell Creek Road in double 60-inch concrete pipes. To the west of the alignment this riparian corridor continues until the 1,375 mark and contains SAWRF around Hell Creek itself with CLOW on each side. Further north, until the alignment turns 90-degrees to the east at 2,666 feet, SMC occurs to the west and a mix of SMC-D and DEV and properties of residents occurs on the east. An 18-inch CMP pipe at 2,135 feet drains a swale under Hell Creek Road ultimately into Hell Creek. This pattern continues with the SMC now on the north and the DEV property on the south until the 3,040-foot mark. SMC lines the road and alignment on both sides from then on until it turns to the north again at approximately the 4,000-foot mark. The alignment then heads north along Hell Creek Road with SMC on both sides until the 4,960-foot mark when it comes along the DEV property of a residence to the west and a road exiting to the east. The alignment ends shortly after 5,075 feet from the Santee Lane.

3.5.9.2 Sensitive Habitat/Species

The natural habitats adjacent to the Hell Hole Creek Pipe Joint Repair alignment that are considered sensitive by USFWS and CDFW include the riparian SAWRF, and upland CSCT, SMC and CLOW.

TDI biologists did not observe any habitats or species of high conservation concern during the survey. However, natural history database searches revealed records of California gnatcatcher (*Polioptila californica*) breeding history at the very southern tip of the project area.

The alignment crosses a 12" and 18' CMP which may carry water that is jurisdictional under the CWA to the USACE and CFG code to CDFW. Hell Creek is certain to be jurisdictional.

3.5.10 CV050 Lilac Road Pipeline Upsize

3.5.10.1 Site Description

Starting at the intersection of Hideaway Lake Road and Lilac Road the pipeline alignment heads south through maintained residential, orchard, and ranchettes with the occasional live oak along the road among non-native and disturbed habitats (Figure 13). At approximately 1,480 feet, a single, small, Engelmann oak tree occurs roadside on the east, in front of a row of eucalyptus. At approximately 1895 feet, some unmaintained land occurs to the north supporting NNG but with some live oak trees, an Engelmann oak, and a few buckwheat. Approaching Via Piedra, a patch of buckwheat dominated CSS occurs along the west side of the road. The alignment then runs past a row of six closely spaced houses on the west side of Lilac Road and larger plots of land with remnants of native habitat to the east. At 2,660 feet a patch of D-CSS occurs past a small berm of DH habitat to on the east side of the road. The alignment then passes by a moderately wooded horse ranch on the west side of the road. The majority of these trees are non-native, but at approximately 3,400 feet another individual Engelmann oak grows in an area left by surrounding development to the east . At 3,585 feet the alignment has passed by large lot rural properties and a patch of disturbed SMC begins on the slope down from the east side of the Lilac Road. The D-SMC patch continues along the road until the 3,935-foot mark when it gives ends but on the other side of the entry to a property, a large patch of high quality SMC spreads east from the road and is part of a canyon that is part of Keys Creek County Preserve. At 4,085 feet the native shrubland nearer the road becomes disturbed as the alignment crosses over an 18-inch culvert with live oaks growing at both ends on both sides of the road, densely enough on the east side to become CLOW with some mulefat (*Baccharis salicifolia*) and a willow (*Salix* sp.) growing away from the outfall. South of this culvert Engelmann oaks become visible scattered through the landscape among ranchettes but remain well off the road until the 4,785-foot mark where a large Engelmann oak grows on the immediate west side of Lilac Road. Immediately beyond the Engelmann oak, at 4,810 feet, Lilac Road passes over another 18-inch culvert. Beyond the 18-inch culvert the alignment runs between the VCMWD-owned land on the east side of the road and residences and a church with maintained vegetation on the west side. The VCMWD-owned land that is mostly NNG contains a number of mature stands of CLOW, but none come close to the alignment. The NNG of the VCMWD property runs along the east side of the alignment edged with planted live oak and Torrey pine (*Pinus torreyana*) trees until the end of this alignment at the intersection with Betsworth Road. After Betsworth Road both sides of the road are dominated by NNG with intermittent NNW and EW at the edges.

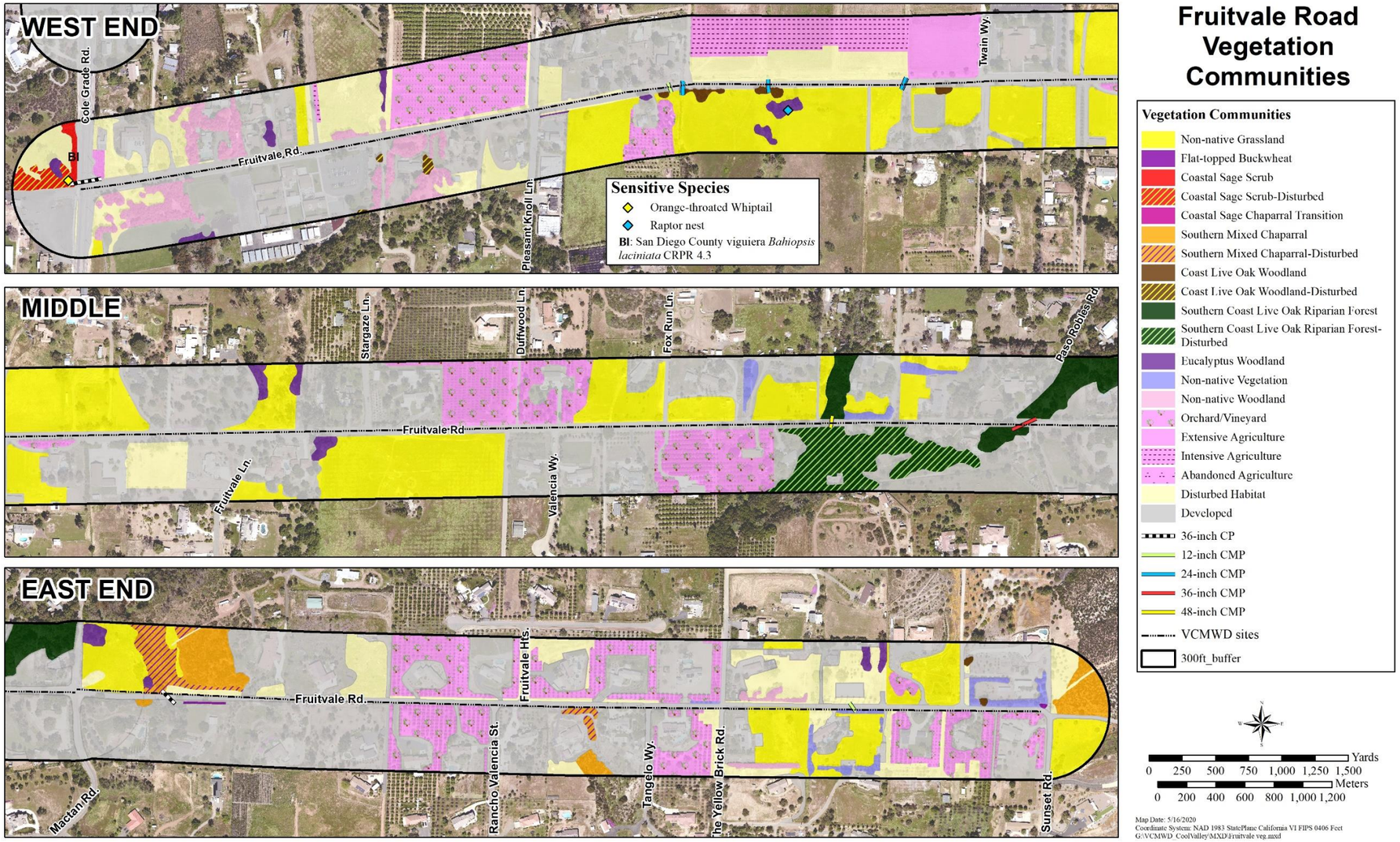

Figure 11. Fruitvale Road Vegetation Communities.

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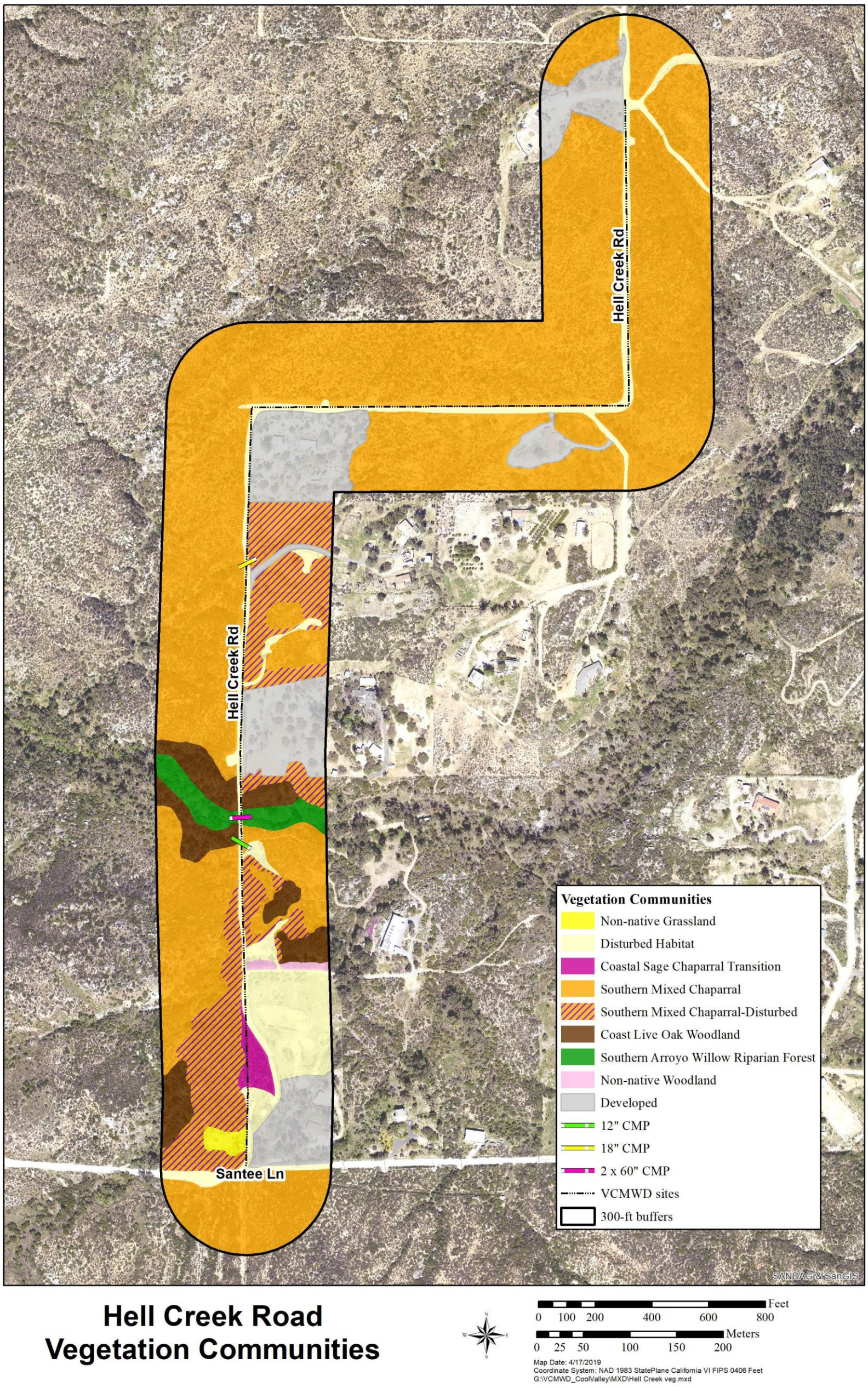

Figure 12. Hell Creek Road Vegetation Communities.

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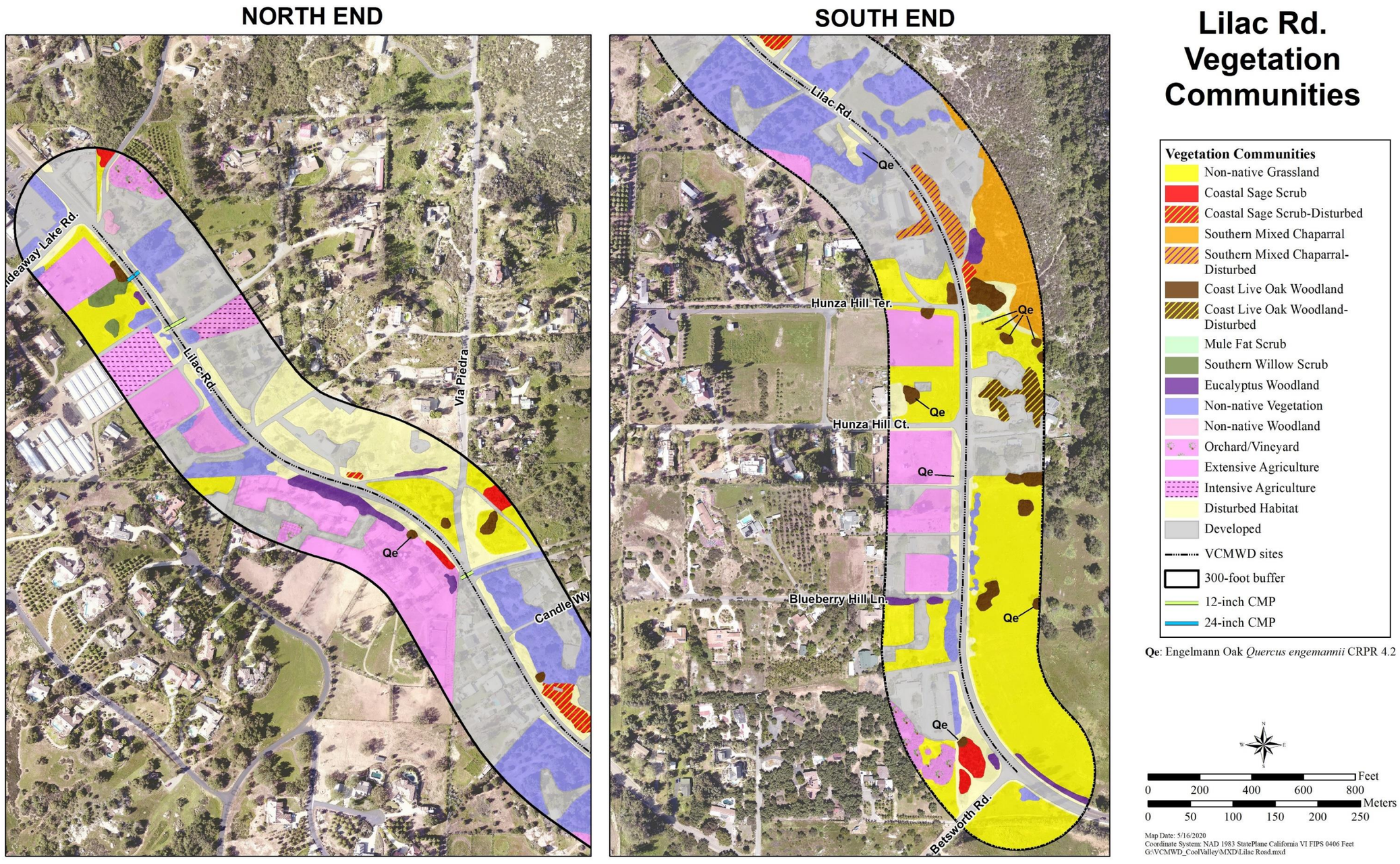

Figure 13. Lilac Road Vegetation Communities

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3.5.10.2 Sensitive Habitat/Species

Two Engelmann oaks grow adjacent to the west side of Lilac Road along this alignment. There are also Engelmann oaks in surrounding lands, none of which would be affected. The Torrey pines have clearly been planted roadside. Most of the native habitat patches within the survey area that are proximal to the road and alignment are too small or disturbed to support sensitive species. High quality habitats away from the alignment (Keys Creek County Preserve) could support Coast Horned Lizard (*Phrynosoma blainvillii*; SSC) and potentially other sensitive species, though none are likely to be listed as endangered or threatened under the federal ESA and/or CESA.

3.6 Critical Habitat

Designated Critical Habitat (DCH) occurs for one species through which an alignment runs (USFWS 2019b). DCH for CAGN occurs in the alignment in the very western portion of the alignment for Old Castle Road Phase 2 (WSo15b) and Gordon Hill (DW001) (USFWS 2015). The southern end of the Gordon Hill project is along an easement within a dedicated and protected open space associated with the adjacent Lawrence Welk Resort. DCH for three other species occurs within 3 miles of some of the sites. The San Luis Rey River Valley arcs around the north of the Valley Center community and contains DCH for 4 species. To the north and west along the San Luis Rey River is DCH for the CAGN on slopes above the river, and within the river, for the federal-listed as endangered arroyo toad (*Anaxyrus californicus*) and the federal- and state-listed endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and LBVI. To the north east the river supports DCH for the arroyo toad and southwestern willow flycatcher.

3.7 Jurisdictional Areas

Potentially jurisdictional drainages cross the alignments either in conduits (CMPs or Concrete Pipes) under roads (at Old Castle Road, Oat Hill, Gordon Hill, Cougar Pass/Alps Way, Lilac Pala, Cole Grade, Fruitvale, Hell Creek, and Lilac Road), under bridges (Old Castle Road), or as open channels (Lilac Pala). Many are likely jurisdictional to the USACE, CDFW, and Regional Water Quality Control Board (RWQCB), and receive additional water from the agricultural operations so common in the project vicinities. The most significant drainages are under the bridge over Moosa Canyon Creek on which Old Castle Road is carried as well as the large pipes that carry South Fork Moosa Creek under Old Castle Road. If impacts to the pipes, the creek under the bridge, or the open channel cannot be avoided through design, then formal jurisdiction delineation and wetland permitting may be necessary.

3.8 Wildlife Corridors and Linkages

Wildlife movement corridors are areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features such as canyon drainages, ridgelines, or areas with vegetative cover provide corridors for wildlife movement. Wildlife movement corridors are important because they provide access to mates, food, and water; allow the dispersal of individuals away from high population density areas; and facilitate the exchange of genetic traits between populations.

Corridors and Linkages in the Valley Center area are identified in the County of San Diego's (County's) North County Multiple Species Conservation Program Evaluation Model (County 2008). Only five of the ten alignments are within identified linkages and corridors (Old Castle, Gordon Hill, Oat Hill, Cougar Pass/Alps Way, and Hell Creek Road). The alignments are located mostly in or adjacent to existing roads where impacts to wildlife corridors and linkages would not be significant. Only the Oat Hill alignment is not fully within a road or ROW; however, the section of the alignment outside the unpaved access road are mostly cleared and developed private parcels. It is unlikely that the proposed Projects would cause any permanent impacts to the function of these wildlife corridors or linkages.

4.0 PROJECT EFFECTS

Effects are categorized as either direct, indirect, or cumulative.

- *Direct Effects*: A direct effect occurs when the primary effect is loss of a biological resource through direct mortality during clearing and grading and removal of existing habitat, often replacing it with development and landscaping.
- *Indirect Effects*: An indirect effect consists of secondary effects of a project (such as noise, changes in drainage patterns, water quality, lighting, invasive plant species, and barriers to wildlife movement) that leads to habitat degradation and loss of species or habitat. The magnitude of an indirect effect may be the same as a direct impact; however, the effect usually takes a longer time to become apparent.
- *Cumulative Effects*: Although impacts to sensitive biological resources may not be significant when considered independently, when multiple impacts such as from several development projects within an area are combined, they may be cumulatively significant.

The significance of effects to biological resources present or to those with potential to occur was determined based upon the sensitivity of the resource and the extent of the anticipated impacts.

4.1 Thresholds of Significance

Pursuant to Appendix G Section IV of the CEQA Guidelines, a proposed project would result in a significant impact if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by the USFWS or CDFW;

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by USFWS or CDFW;

c) Have a substantial adverse effect on federally protected wetlands as defined by CWA Section 404;

d) Interfere substantially with movement of any native resident, migratory fish or wildlife species, or established native resident or migratory wildlife corridors; or impede use of native wildlife nursery sites;

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state conservation plan.

The proposed projects are planned to occur completely within existing easements and road ROWs. While mostly either DEV or DH, some alignments pass through habitat that was either restored over or which has established over the alignments after the pipes were placed. In addition, effects could occur to adjacent sensitive resources without avoidance and minimization measures. Major concerns would be potential effects on oak trees with canopies extending over potential work areas and roots extending into the alignment, bird nests if work occurs during the bird-breeding season and impacts to drainage features, if unavoidable. Staging would be in paved areas (DEV) or cleared areas with no habitat value (DH). All work associated with the projects near sensitive habitat would be separated from said habitat with orange fencing defining work limits to the maximum extent feasible.

4.2 Direct Effects

4.2.1 Vegetation Communities

While most alignments are in DEV (roads) or DH adjacent (within ROWs) and no direct effects would occur, in some alignments, habitat has grown over the alignment and effects would occur from accessing the pipelines or appurtenances.

The southern portion of the Gordon Hill alignment is within a narrow easement with limited working widths that could result in effects on adjacent CSS and SMC.

The Lilac Pala Pump Station Discharge Pipeline alignment does not follow roads for a significant portion of its alignment and passes through CSS and Open Coast Live Oak Woodland (O-CLOW) in the south, SCLORF in its middle section and some CSS in the north where no road is evident. Effects would appear to be unavoidable to replace this water line. Direct effects would occur to CSS and to O-CLOW-D.

At Hell Creek, all but one short section is within Hell Creek Road. In the south, where Hell Creek Road curves around a knoll, the alignment remains straight and passes through DH but heads down a slope of CSCT before reentering the road. Direct effects would occur to CSCT.

4.2.2 Sensitive Plants

No federal- or state-listed species were detected on any of the alignments, but four other sensitive plant species were detected within the study areas. One summer holly was detected on the Gordon Hill alignment, but it was more than 20 feet downslope of Gordon Hill Road and should not be affected.

Engelmann oak trees were detected at the Lilac Road alignment adjacent and within 300-feet of Lilac Road. This species has a low sensitivity ranking (CRPR 4.2) which means that effects would not be significant and would be offset by restoration of the area to include the species if effects cannot be avoided.

San Diego County viguiera (CRPR 4.3) and ashy spike-moss (CRPR 4.1) were detected at Cole Grade Road but were in habitat adjacent to the road. Further south, the species was also found immediately east of Cole Grade Road at Fruitvale Road. The species was likely in the plant mix that restored a fill slope during past improvements to Cole Grade Road. Neither locations are likely to be affected by the replacement of the water line in the roadways. Any effect would not be significant because of their low CRPR. No other sensitive plant species were detected, and none are expected to be affected (Appendix B)

4.2.3 Sensitive Animals

No federal- or state-listed species or otherwise sensitive animals were detected along the alignments during surveys other than a Belding's orange-throated whiptail (CDFW WL) east of Cole Grade road and Fruitvale Road, though LBVI and CAGN could use habitat proximal to two alignments (Old Castle and Gordon Hill).

As two alignments pass though some suitable habitat that could support listed species (Appendix D) there might be a direct or indirect effect to those species if they occur within said habitat without avoidance measures. Most other sensitive species have a relatively low sensitivity rating, and because the alignments are long and narrow, and when passing though habitat, habitat into which those species can move is immediately adjacent, so impacts would not be significant.

4.2.4 Migratory Bird Treaty Act and California Fish and Game Code

The MBTA prohibits taking any migratory bird, part, nest, or eggs and is implemented using Section 10.12 of the USFWS's MBTA regulations which defines "take" as to: pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities. A take does not include habitat destruction or alteration, as long as there is not a direct taking of birds, active nests, eggs, or parts thereof. The USFWS is currently considering exempting incidental take, if the take is not the purpose of the action.

Pursuant to Section 3503, 3503.5, 3505 and 3513 of the CFG Code, it is unlawful to take, possess, or needlessly destroy the active nest or eggs of any bird. The CFG Code defines “take” as to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.

Vegetation clearing will occur and tree trimming is likely to be needed during implementation of some of the projects. To comply with the MBTA and CFG Code, clearing for any of these projects should only occur outside the bird-breeding season (01 February through 15 September; i.e. only between 16 September and 31 January).. If clearing is planned to occur during the bird-breeding season, nesting bird clearance surveys would be required, and clearing could only occur if no active nests were found or noise/visual barriers were erected until after the young birds have fledged.

4.2.5 Jurisdictional Areas

A number of drainage features cross the alignments, mostly in CMPs and Concrete Pipes, but the Lilac Pala Pump Station Discharge Pipeline crosses an open channel drainage within SCLORF. Unless avoided, effects on jurisdictional features would require permitting from the USACE, CDFW, and RWQCB. Formal Jurisdictional Delineation would be required for any crossing of a drainage if a pipe or channel could not be avoided. Impacts would require acquisition of a USACE CWA Section 404 Nationwide 12 Permit, a RWQCB CWA Section 401 Water Quality Certification, and a CDFW CFG Code 1602 Streambed Alteration Agreement. These permits can take up to a year to obtain after an application is submitted to the permitting agencies.

4.3 Indirect Effects

Indirect effects can occur to vegetation communities or their potential use by listed or sensitive species including raptors and nesting birds. Indirect effects include decreased surface water quality, construction noise, colonization of non-native plant species, and human and pet intrusion into habitat.

While every effort will be made to limit indirect effects by restricting activity to developed or disturbed portions of the Project sites to the maximum extent feasible, construction only occurring during daylight hours, and work will be managed by VCMWD, so potential indirect impacts from the Project are only expected to occur from other factors.

The majority of the project noise will come from clearing, excavating, and loading with heavy equipment, Noise is typically only considered a problem when sound levels reach 60dBAleq (60dB averaged over an hour) for listed species.

Since no federal- or state-listed species were detected and none are expected to occur in or in habitat adjacent to the alignments, no indirect effects are expected to species listed under the federal and state ESAs. Indirect effects from noise on species with SSC status (coast horned lizard, Bell’s sage sparrow, southern California rufous-crowned sparrow) would not be expected to substantially reduce the number, or restrict the range, of these species to a level affecting the species’ population stability in the region. As a result, there would be no substantial effect on these species and no mitigation is required.

4.4 Cumulative Effects

With direct impacts to vegetation communities being mitigated by restoration of the affected habitats to replace those resources and/or purchase of credits in a mitigation bank to offset temporal effects, a no - net-loss of habitat will occur and as a result, no cumulative effects would occur.

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5.0 POTENTIAL AVOIDANCE / MITIGATION MEASURES

Mitigation Measures to reduce potential effects to be low levels of significance are identified for each project alignment in Table 6.

5.1 Vegetation

While the work is expected to be mostly within roadways or adjacent DH, general avoidance of impacts to sensitive areas and resources should occur by putting Environmentally Sensitive Area (ESA) fencing (orange snow fencing) around sensitive areas to avoid impacts to proximal sensitive habitats. If impacts to these or other sensitive habitats are unavoidable, mitigation would be required in the form of habitat restoration of temporary impacts or acquisition of credits from a mitigation bank. Direct impacts to sensitive vegetation communities would occur at Lilac Pala PS Discharge Pipeline, and Hell Creek. Indirect impacts to vegetation from needing extra width for the work could occur at Oat Hill, Gordon Hill, Lilac Pala PS Discharge Pipeline where easements have been impinged upon by adjacent vegetation. At Gordon Hill the habitat for the first 950 feet is within a protected biological open space easement meaning impacts must be restored to their former condition to make the preserved resources whole. Other impacts to sensitive vegetation would either need restoration, if part of a larger block of sensitive habitat of conservation value, or purchase of mitigation bank credits if not. All restoration would require a restoration plan with 24 months of maintenance and monitoring after installation.

5.2 Native trees

If cutting of branches or excavation under the canopy of an oak or other native tree is required, the District should consult a certified arborist to advise on best approach to working under the canopy or within the rootzones of such trees. If impacts cannot be avoided and the tree is severely damaged or removed, it must be replaced in place, or in another portion of a restoration area.

5.3 Nesting Birds

Avoidance of direct impacts to native nesting birds is required by the MBTA and CFG code and would most easily be mitigated by working outside of the bird-breeding season. Raptors can breed between February 1st and September 15th. Songbirds most often breed between March 1st and August 31st. If work must occur during the bird breeding season, the project area and a buffer from it must be checked by a qualified biologist within three days before starting work to ensure no nests of MBTA/CFG Code-protected birds are directly impacted and no sensitive bird nests are indirectly impacted.

If LBVI or CAGN habitat would be affected during their breeding seasons (LBVI: March 15 to September 15; CAGN: February 15 to August 31) an evaluation should be made by a qualified biologist to determine if the habitat is occupied by the species. LBVI has potential to occur at the west end of the Old Castle Road project while CAGN has potential to be in the vicinity of the Gordon Hill Phase II project. If habitat within 300 -feet of the project alignment is occupied, a USFWS permitted biologist shall perform surveys to determine if a nest is in the project vicinity and could be affected by the project. The USFWS-permitted biologist shall make recommendations to avoid impacts or reduce effects to below a level of significance.

5.4 Drainages

The project alignment crosses potentially jurisdictional drainages. If any impacts to these drainages, then jurisdictional delineation for potential waters of the US (WoUS) or State will be required. If impacts cannot be avoided then permitting for impacts to WoUS or CDFW wetlands would be required from the USACE, RWQCB, and CDFW. Of particular concern are the open channel and shallow pipes at the Lilac Pala PS project and the shallow pipes at the Hell Creek Project.

5.5 Indirect Effects

To ensure all indirect effects are avoided or remain below a level of significance, the following list of Standard BMPs should be applied to limit indirect impacts (adapted from San Diego Association of Governments 2003: MHCP Volume II, Appendix B).

1. For each project, a qualified biologist shall conduct a training session for all project personnel prior to proposed activities. At a minimum, the training shall include a description of any species of concern and its habitats, the general provisions of the protective laws, the need to adhere to the provisions of the laws, the penalties associated with violating the provisions of the laws, the general measures that are being implemented to conserve sensitive species as they relate to the project, and the access routes to and from project site boundaries within which the project activities must be accomplished.
2. A water pollution and erosion control plan shall be developed that describes sediment and hazardous materials control, dewatering or diversion structures, fueling and equipment management practices, and other factors deemed necessary by reviewing agencies. Erosion control measures shall be monitored on a regularly scheduled basis, particularly during times of heavy rainfall. Corrective measures will be implemented in the event erosion control strategies are inadequate. Sediment/erosion control measures will be continued at the project site until the restoration efforts are successful at soil stabilization.
3. The footprint of disturbance shall be minimized to the maximum extent feasible. Access to sites shall be via pre-existing access routes to the greatest extent possible.
4. The upstream and downstream limits of project disturbance plus lateral limits of disturbance on either side of a stream shall be clearly defined and marked in the field and reviewed by the biologist prior to initiation of work.
5. Projects should avoid the placement of equipment and personnel within a stream channel or on sand and gravel bars, banks, and adjacent upland habitats used by sensitive species.
6. Projects that cannot be conducted without placing equipment or personnel in sensitive habitats should be timed to avoid the breeding season of the sensitive species of concern.
7. When steam flows must be diverted, the diversions shall be conducted using sandbags or other methods requiring minimal instream impacts. Silt fencing or other sediment trapping materials shall be installed at the downstream end of construction activity to minimize the transport of sediments off-site. Settling ponds where sediment is collected shall be cleaned out in a manner that prevents the sediment from re-entering the stream. Care shall be exercised when removing silt fences, as feasible, to prevent debris or sediment from returning to the stream.
8. Equipment storage, fueling, and staging areas shall be located on upland sites with minimal risks of direct drainage into riparian areas or other sensitive habitats. These designated areas shall be located in such a manner as to prevent any runoff from entering sensitive habitat. All necessary precautions shall be taken to prevent the release of cement or other toxic substances into surface waters. All project related spills of hazardous materials shall be reported to appropriate entities including but not limited to applicable jurisdiction, USFWS, CDFW, RWQCB, and shall be cleaned up immediately and contaminated soils removed to approved disposal areas.
9. Erodible fill material shall not be deposited into water courses. Brush, loose soils, or other similar debris material shall not be stockpiled within the stream channel or on its banks.
10. A qualified project biologist shall monitor construction activities throughout the duration of the projects to ensure that all practicable measures are being employed to avoid incidental disturbance of habitat and any sensitive species outside the project footprint. The project biologist should be empowered to halt work activity if necessary and to confer with staff from the District to ensure the proper implementation of species and habitat protection measures.

Table 6. Project Direct Impact Mitigation Measures

MM No.	Mitigation Measure	WS015b	MW015a	DW001	CV018a	SG022	CV011	CV017a	CV012a	PD016	CV050
		Old Castle Road	**Oat Hill**	**Gordon Hill**	**Cougar Pass/Alps Way**	**Lilac Pala**	**Cole Grade Road**	**Rock Hill**	**Fruitvale Road**	**Hell Creek Road**	**Lilac Road**
1	While the work is expected to be mostly within roadways or DH adjacent, general avoidance of impacts to sensitive areas and resources by putting Environmentally Sensitive Area fencing around sensitive areas is recommended to avoid impacts to proximal sensitive habitats. If impacts to these or other sensitive habitats occur, mitigation would be required in the form of habitat restoration of temporary impacts or acquisition of credits from a mitigation bank.	Habitats to be fenced include CLOW, CSS, SRW, SAWRF and SSARW, as needed.	Habitats to be fenced include SCLORF, SRW, CLOW-D and SMC, as needed.	Habitats to be fenced include CLOW, CLOW-D, CSS, SMC, SOC, as needed.	Habitats to be fenced include SRW, DW, and SOC, as needed.	Habitats to be fenced include SCLORF, CLOW, CLOW-D OCLOW, OCLOW-D, and CSS, as needed.	Habitats to be fenced include CLOW-D, CSS, SMC and SMC-D, as needed.	N/A	Habitats to be fenced include SCLORF and SCLORF-D, as needed.	Habitats to be fenced include CLOW, SAWRF, CSCT, and CSS, as needed.	Habitats to be fenced include SMC and CSS, as needed.
2	If cutting of branches or excavation under the canopy of an oak or other native tree is required, impacts would be avoided by consulting an arborist to advise on safely working under the canopy or within the rootzones of such trees.	Where CLOW, CLOW-D, SAWRF or SSARW are adjacent to work.	Where CLOW-D, SCLORF or SRW are adjacent to work.	Where CLOW or CLOW-D are adjacent to work.	N/A	Where alignment passes through SCLORF, CLOW or CLOW-D and where they are adjacent to work.	Where CLOW-D is adjacent to work.	N/A	Where SCLORF and SCLORF-D are adjacent to work.	Where CLOW and SAWRF are adjacent to work.	Where CLOW, live oaks and Engelmann oaks are adjacent to work.
3	Avoidance of direct impacts to native nesting birds is required by the MBTA and CFG Code and would most easily be mitigated by working outside of the bird-breeding season. Raptors breed between February 1st and September 15th. Songbirds breed between March 1st and August 31st. If work must occur during the breeding season, the project area and a buffer from it must be checked by a qualified biologist within three days before starting work to ensure no nests of MBTA birds are directly impacted and no sensitive bird nests are indirectly impacted.	Work near either fork of Moosa Canyon Creek will require consultation with a qualified biologist to determine whether official surveys for LBVI will be required.	Per MM 3	Any part of the project within the Open Space (north of Welk View Drive) will require consultation with a qualified biologist to determine whether surveys for CAGN will be required.	Per MM 3	In addition, work during the songbird breeding season where the alignment passes through CSS will require consultation with a qualified biologist to determine whether surveys for CAGN will be required.	Per MM 3 though the developed nature and traffic on Cole Grade Road make birds nesting adjacent in alignment very unlikely.	Per MM 3	Per MM 3	Per MM 3	Per MM 3
4	The project alignment crosses potentially jurisdictional drainages. If any impacts to these drainages or others found during work are planned during the project, then jurisdictional delineation for potential WoUS or State will be required. This could result in permitting requirements for impacts to WoUS or CDFW wetlands from the USACE, RWQCB, and CDFW.	Both forks of Moosa Canyon Creek and another small drainage near Pamoosa Lane.	A 5' wide drainage passes through 2 x 24" CMPs under the alignment. MM will apply if impacts cannot be avoided.	N/A	N/A - a 24' CMP carries storm water under Cougar Pass Road, but it is not jurisdictional.	Three 24" CMPs carry water under the alignment and a 5' WoUS/ streambed crosses it within the SCLORF: All would need evaluation for jurisdiction.	A 36" CMP carrying water under Cole Grade Road `	N/A	A 36" and 48" CMP, and a 36 CP caries water under Fruitvale Road and should be evaluated for jurisdiction.	Hell Creek passes through 2x 60" CPs under the alignment, two additional drainages pass through a 12" and 18" CMP.	Lilac Road passes over several drainage pipes from 12" to 36" but none are expected to be jurisdictional.

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11. The removal of native vegetation shall be avoided and minimized to the maximum extent practicable. Temporary impacts shall be returned to pre-existing contours and revegetated with appropriate native species. All restoration plans shall be prepared and implemented consistent with appropriate Restoration/Revegetation Guidelines.
12. Exotic species that prey upon or displace target species of concern should be permanently removed from the site.
13. To avoid attracting predators of sensitive species, the project sites shall be kept as clean of debris as possible. All food related trash items shall be enclosed in sealed containers and regularly removed from the site(s). Pets of project personnel shall not be allowed on-site where they may come into contact with any sensitive species.
14. Construction employees shall strictly limit their activities, vehicles, equipment, and construction materials to the proposed project footprint and designated staging areas and routes of travel. The construction area(s) shall be the minimal area necessary to complete the project and shall be specified in the construction plans. Construction limits will be fenced with orange snow screen. Exclusion fencing should be maintained until the completion of all construction activities. All employees shall be instructed that their activities are restricted to the construction areas.
15. Any habitat destroyed that is not in the identified project footprint shall be compensated at a minimum ratio of 5:1.
16. If dead or injured listed species are located, initial notification must be made within three working days, in writing, to the USFWS Division of Law Enforcement in Torrance, California and by telephone and in writing to the applicable jurisdiction, Carlsbad Field Office of the USFWS, and CDFW.
17. The USFWS and CDFW shall have the right to access and inspect any sites of approved projects including any restoration/enhancement area for compliance with project approval conditions including these BMPs.
18. Any planting stock to be brought onto the site for landscaping or ecological restoration shall first be inspected by a qualified pest inspector to ensure it is free of pest species that could invade natural areas, including but not limited to Argentine ants, fire ants, and other insect pests. Any planting stock found to be infested with such pests shall not be allowed on the project site or within 300 feet of natural habitats. The stock shall be quarantined, treated, or disposed of according to best management principles by qualified experts in a manner that precludes invasions into natural habitats.
19. All mitigation sites shall be conserved through fee title acquisition or conservation easement and shall be recorded shall be provided prior to land disturbance.
20. Any project landscaping shall not include species identified as an invasive non-native plant species as identified by the California Invasive Plant Council at http://www.cal-ipc.org/paf/.

Provided that the potential direct and indirect effects are identified and either avoided or minimized and mitigated, the roped projects would not have a significant effect on biological resources, included all federal and state listed species that have potential to occur at the sites.

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6.0 CONCLUSION

The ten initial projects of the VCMWD WMP CIP include projects throughout the 100-square mile District's water distribution system. The projects range from local connections (CV017a Rock Hill Ranch Road Intertie) to long distance pipeline replacement (WS015b Old Castle Road Pipeline Replacement). The locations and alignments are all within VCMWD easements or in road ROWs with many being in pavement (Old Castle Rd, CV011a Cole Grade Road, CV012a Fruitvale Road) or the DH on the road shoulders (CV018a Cougar Pass/Alps Way, CV050 Lilac Road). Other projects run along a mixture of paved or unpaved roads adjacent to sensitive habitat (DW001 Gordon Hill, MW015a Oat Hill, PD016 Hell Creek Road), while yet others have easements through habitat that has extended over the VCMWD easements (SG022 Lilac Pala).

Sensitive habitats that would be impacted include CSS, SMC, and CLOW. Others that could be affected include various riparian habitats (SCLORF, SAWRF, SSARW) if impacts cannot be avoided. No federal or state-listed animal species are expected to occur within the alignments, but indirect effects could occur to LBVI (Old Castle Road at Moosa Creek and South Fork Moosa Creek) or CAGN (Gordon Hill north of Welk View Drive) if project implementation occurs during the species respective breeding seasons (CAGN - February 15-August 31; LBVI - March 15 through September 15). Other animal species with lesser sensitivity ratings, including Belding's orange-throated whiptail, would not be affected significantly as project impacts are small and temporary in nature. Only one sensitive plant species was detected in, or immediately adjacent to the alignments (Engelmann oak CRPR 4.2 at Lilac Road) but three other sensitive plant species were detected in proximity to other alignments. One summer holly (CRPR 1B.2) was detected in SOC about 25 feet from Gordon Hill Road. At Cole Grade Road, two low CRPR species were in habitat west of the southern portion of the alignment. Several San Diego viguiera (CRPR 4.3) were on a fill slope to Cole Grade Road and presumably were in the mix of plants used during restoration of the fill slope as this is to the east of its natural distribution and they are not found I adjacent CSS habitat. Ashy spike moss (CRPR 4.1) was in the CSS just to the west of the fill slope. Neither species would be affected by the Cole Grade Road Pipeline Replacement. Similarly, San Diego County viguiera occurs west of Cole Grade Road at the intersection with Fruitvale Road but would not be affected by the Fruitvale Road Pipeline Replacement.

Most alignments have the potential to have birds protected by the MBTA and CFG Code nest in or adjacent to work areas during the bird -breeding season (January 15 through September 15).

Potentially jurisdictional drainages occur at several alignments with most being in CMPs under roads or easements, though Moosa Canyon Creek is bridged by Old Castle Road, and the open channel of a perched drainage crosses the alignment at the Lilac Pala PS alignment. Any project that cannot avoid impacts to drainages will be required to be evaluated for jurisdiction, and if USACE and CDFW jurisdiction would be impacted, a CWA 404 permit from the USACE, a CWA 401 Certification from RWQCB, and a CDFW CFG Code 1602 Streambed Alteration Agreement may be needed. As existing pipes are either above or below the drainage pipes, and under open drainages, impacts are expected to be avoided.

Effects will be reduced to less than significant through a combination of measures detailed in this report (Section 5 and Table 6). Habitat impacts will be avoided to the maximum extent feasible, and minimized and mitigated, if not avoided. Mitigation will be in the form of restoration of habitat through implementation of a restoration plan or purchase of credits from a mitigation bank. Impacts to native tree branches or roots will only be allowed after consultation with a Certified Arborist and implementation of recommendations to minimize effects on the trees. Any habitat impacted along the easement in the dedicated open space on the Gordon Hill alignment will be required to be restored to bring the open space back to full function. Impacts to listed birds (LBVI or CAGN) will be avoided by either avoiding work during their breeding seasons near occupied habitat or applying mitigation measures (e.g. temporary barriers) to limit impacts during their breeding seasons. Impacts to jurisdictional drainages will either be avoided or permitted by USACE, RWQCB, and CDFW. Impacts to birds protected by the MBTA and CFG Code will be avoided by timing work outside the bird-breeding season or having pre-construction clearance surveys.

The analysis demonstrates that the proposed Projects can be implemented without significant effects on biological resources provided impacts are avoided or minimized and mitigated as described above. With described measures above, the Projects would have no direct or indirect effect on any species listed under the ESA or CESA, or on other sensitive species identified as potentially occurring within the Project sites. With direct and indirect effects being small or avoided and mitigated, no cumulative effects would occur and the Projects would be in compliance with CEQA and all federal and state regulations.

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APPENDIX A. PLANT SPECIES OBSERVED IN THE STUDY AREA

WSO15B – OLD CASTLE ROAD PIPELINE REPLACEMENT

FAMILY	SCIENTIFIC NAME	COMMON NAME	HABITAT(S)‡
ANGIOSPERMS – MONOCOTS			
Agavaceae	*Yucca schidigera*	Mojave yucca	CSS
Poaceae	*Arundo donax*	giant reed	SSARW
	Bromus sp.*	brome grass	CSS, CLOW-D
	*Pennisetum setaceum**	fountain grass	CSS, CLOW-D
ANGIOSPERMS – DICOTS			
Anacardiaceae	*Malosma laurina*	laurel sumac	CSS, CLOW-D
	*Schinus molle**	Peruvian pepper	DEV
	Toxicodenron diversilobum	poison oak	SSARW
Amaranthaceae	*Amaranthus albus**	pigweed	DH
Asteraceae	*Artemisia californica*	California sagebrush	CSS
	Baccharis salicifolia	mule fat	SSARW
	Brickellia californica	California brickelbush	CSS
Brassicaceae	*Brassica nigra**	black mustard	CSS, DH
Cucurbitaceae	*Marah macrocarpa*	chilicothe	CSS
Fabacaeae	*Acmispon glaber*	deerweed	CSS
Fagaceae	*Quercus agrifolia*	coast live oak	CLOW, CLOW-D, OCLOW, SSARW
Nycatiginaceae	*Mirabilis laevis*	wishbone bush	CSS
Plantaginaceae	*Keckiella antirrhinoides*	bush penstemon	CSS
Platanaceae	*Platanus racemosa*	California sycamore	SSARW
Polygonaceae	*Eriogonum fasciculatum*	California buckwheat	CSS
Rosaceae	*Heteromeles arbutifolia*	toyon	CLOW-D, SSARW
Salicaceae	*Salix* sp.	willow	SSARW
Solanaceae	*Nicotiana glauca**	tree tobacco	CLOW-D

‡ Habitat acronyms: CLOW=Coast Live Oak Woodland, DEV=Developed, DH = Disturbed Habitat, CSS = Coastal Sage Scrub, SSARW = Southern Sycamore-Alder Riparian Woodland, -D = disturbed.
*non-native species

MW015A – OAT HILL PUMP STATION DISCHARGE PIPELINE NORTH

FAMILY	SCIENTIFIC NAME	COMMON NAME	HABITAT(S)‡
ANGIOSPERMS – MONOCOTS			
Agavaceae	*Hesperoyucca whipplei*	chaparral yucca	SMC
	Yucca schidigera	Mojave yucca	SMC
Poaceae	*Avena* sp.*	wild oat	NNG
	Bromus sp.*	brome grass	NNG
	*Bromus madritensis**	foxtail chess	DH
ANGIOSPERMS – DICOTS			
Anacardiaceae	*Malosma laurina*	laurel sumac	SMC
	Rhus ovata	sugarbush	SMC
	*Schinus molle**	Peruvian pepper	DEV
Asteraceae	*Artemisia californica*	California sagebrush	NNG
Boraginaceae	*Phacelia cicutaria*	Caterpillar phacelia	SMC
Brassicaceae	*Brassica nigra**	black mustard	DH
Cucurbitaceae	*Marah macrocarpa*	chilicothe	SMC
Ericaceae	*Xylococcus bicolor*	mission manzanita	SMC
Fagaceae	*Quercus agrifolia*	coast live oak	SCORF, CLOW, CLOW-D
	Quercus berberidifolia	scrub oak	SMC
Geraniaceae	*Erodium botrys*	long beak filaree	DH
Lamiaceae	*Salvia mellifera*	black sage	SMC
Myrtaceae	*Eucalyptus globulis**	Blue gum	EW, DEV
Pinaceae	*Pinus* sp.*	pine	DEV
Polygonaceae	*Eriogonum fasciculatum*	California buckwheat	SMC
Rhamnaceae	*Ceanothus crassifolius*	hoary leaf ceanothus	SMC
	Ceanothus tomentosus	Ramona lilac	SMC
Rosaceae	*Adenostoma fasciculatum*	chamise	SMC
	Cercocarpus betuloides	Mountain mahogany	SMC
	Heteromeles arbutifolia	toyon	SMC
Salicaceae	*Salix* sp.	willow	SCLORF, SRW
Solanaceae	*Nicotiana glauca**	tree tobacco	DH

‡ Habitat acronyms: CLOW = Coast Live Oak Woodland, DEV=Developed, DH = Disturbed Habitat, NNG=Non-native grassland SMC=Southern Mixed Chaparral, SCLORF = Southern Coast Live Oak Riparian Forest, SRW= Southern Riparian Woodland -D = disturbed.
*non-native species

DW001 – GORDON HILL PIPELINE REPLACEMENT

FAMILY	SCIENTIFIC NAME	COMMON NAME	HABITAT(S)‡
ANGIOSPERMS – MONOCOTS			
Agavaceae	*Hesperoyucca whipplei*	chaparral yucca	CSS, SMC
Poaceae	*Arundo donax*	giant reed	DH
	*Bromus diandris**	ripgut brome	CSS, DH
	Bromus sp.*	Brome grass	CSS, CLOW
ANGIOSPERMS – DICOTS			
Adoxaceae	*Sambucus nigra*	blue elderberry	SMC
Aizoaceae	*Carpobrotus edulis*	hottentot fig	CLOW-D
Anacardiaceae	*Malosma laurina*	laurel sumac	CSS, SMC
	Rhus ovata	sugarbush	CSS, SMC
Amaranthaceae	*Amaranthus albus**	pigweed	DH
Asteraceae	*Artemisia californica*	California sagebrush	CSS
	Baccharis pilularis	coyote bush	CSS, SMC
	Hazardia squarrosa	Saw-toothed goldenbush	CSS
	Isocoma menziesii	Menzies' goldenbush	CSS
	Pseudognaphalium beneolens	cudweed	DH
Boraginaceae	*Phacelia cicutaria*	Caterpillar phacelia	CSS
Caprifoliaceae	*Lonicera subspicata*	southern honeysuckle	SMC, CSS
Cucurbitaceae	*Marah macrocarpa*	chilicothe	CSS
Ericaceae	*Comarostaphylis diversifolia* ssp. *diversifolia* (CRPR 1B.2)	Summer holly	SOC
Fabacaeae	*Acmispon glaber*	deerweed	CSS
	*Melilotus alba**	white sweetclover	CSS
	Salvia mellifera		
Fagaceae	*Quercus agrifolia*	coast live oak	SMC, CLOW, CLOW-D
	Quercus berberidifolia	scrub oak	SOC, CSS
Grossulariaceae	*Ribes speciosum*	fuchsia-flowered gooseberry	CSS, SMC
Lamiaceae	*Salvia apiana*	white sage	CSS
	Salvia mellifera	black sage	CSS, SMC
Nycatiginaceae	*Mirabilis laevis*	wishbone bush	CSS
Phyrmaceae	*Diplacus aurantiacus*	sticky monkeyflower	SMC
Plantaginaceae	*Keckiella antirrhinoides*	bush penstemon	CSS
Polygonaceae	*Eriogonum fasciculatum*	California buckwheat	CSS, CLOW
Rhamnaceae	*Rhamnus crocea*	spiny redberry	CSS, CLOW
Rosaceae	*Adenostema fasciculatum*	chamise	SMC

‡Habitat acronyms: CLOW=Coast Live Oak Woodland, CSS = Coastal Sage Scrub, DEV=Developed, DH = Disturbed Habitat, SOC=scrub oak chaparral, SMC=Southern Mixed Chaparral, -D = disturbed.
*non-native species

CV018A – COUGAR PASS/ALPS WAY CULVERT CROSSING PIPELINE REPLACEMENT

FAMILY	SCIENTIFIC NAME	COMMON NAME	HABITAT(S)‡
ANGIOSPERMS – MONOCOTS			
Poaceae	*Avena* sp.*	wild oat	DH
	*Bromus madritensis**	foxtail chess	DH, DEV
	*Cortadera jubata**	Pampas grass	DW, SRW
	*Pennisetum setaceum**	fountain grass	DEV
ANGIOSPERMS – DICOTS			
Aizoaceae	*Carpobrotus edulis**	hottentot fig	NNV, DH, DEV
Anacardiaceae	*Malosma laurina*	laurel sumac	SOC, DEV
	Rhus ovata	sugarbush	SOC
Amaranthaceae	*Amaranthus albus**	pigweed	DH, DEV
Asteraceae	*Hazardia squarrosa*	Saw-toothed goldenbush	DEV
	Heterotheca grandiflora	Telegraph weed	DEV
	Isocoma menziesii	Menzies' goldenbush	DEV
	*Silybum marianum**	milk thistle	DEV
Brassicaceae	*Brassica nigra**	black mustard	DH
Chenopodiaceae	*Salsola tragus**	Russian thistle	DH
Fabacaeae	*Acmispon glaber*	deerweed	DEV
	*Melilotus alba**	white sweetclover	DH
Fagaceae	*Quercus agrifolia*	coast live oak	SRW
	Quercus berberidifolia	scrub oak	SOC
Rosaceae	*Adenostema fasciculatum*	chamise	SOC
	Cercocarpus betuloides	mountain mahogony	SOC
Salicaceae	*Salix laevigata*	polished willow	SRW, DW
Solanaceae	*Nicotiana glauca**	tree tobacco	DH, NNV
Typhaceae	*Typha* sp.	cattail	DW, SRW

‡Habitat acronyms: DEV=Developed, DH = Disturbed Habitat, DW=Disturbed Wetland, NNV=Non-native Vegetation, SOC=scrub oak chaparral, SRW=Southern Riparian Woodland, -D = disturbed.
*non-native species

SG022 – LILAC PUMP STATION DISCHARGE PIPELINE

FAMILY	SCIENTIFIC NAME	COMMON NAME	HABITAT(S)‡
GYMNOSPERMS			
Pteridaceae	*Pellaea andromedifolia*	coffee fern	CLOW-D
ANGIOSPERMS – MONOCOTS			
Agavaceae	*Hesperoyucca whipplei*	chaparral yucca	CSS
	Arundo donax	giant reed	SCLORF
Poaceae	*Bromus* sp.*	Brome grass	NNG, CLOW-D
ANGIOSPERMS – DICOTS			
Anacardiaceae	*Malosma laurina*	laurel sumac	CLOW-D
	Toxicodenron diversilobum	poison oak	CLOW-D
Asteraceae	*Artemisia californica*	California sagebrush	CSS, CLOW-D
	Eriopyllum confertiflorum	golden yarrow	CSS, CLOW-D
	Hazardia squarrosa	Saw-toothed goldenbush	CSS
	Pseudognaphalium beneolens	cudweed	DH
	*Sonchus asper**	Spiny sowthistle	DH
	Silybum marianum	milk thistle	DEV
Boraginaceae	*Phacelia campanula*	desert bells	CSS
Brassicaceae	*Brassica nigra**	black mustard	DH
	Nastirtium officionale	watercress	SCLORF
Caprifoliaceae	*Lonicera subspicata*	southern honeysuckle	CSS
	Dudleya pulverulenta	chalk lettuce	CSS
Cucurbitaceae	*Marah macrocarpa*	chilicothe	CSS
	Lupinus hirsutissimus	stinging lupine	CSS
Euphorbiaceae	*Euphorbia albomarginata*	rattlesnake sandmat	CSS
Fagaceae	*Quercus agrifolia*	coast live oak	CLOW, OCLOW, CLOW-D, OCLOW-D, SCLORF
Lamiaceae	*Salvia apiana*	white sage	CSS
Malvaceae	*Sidalcea malviflora*	checker bloom	CSS
Nycatiginaceae	*Mirabilis laevis*	wishbone bush	CSS
Oxalidaceae	*Oxalis californica*	California wood sorrel	CSS
Polygonaceae	*Eriogonum fasciculatum*	California buckwheat	CSS
Rhamnaceae	*Rhamnus crocea*	spiny redberry	CSS
Rosaceae	*Heteromeles arbutifolia*	toyon	CSS
Rubiaceae	*Galium angustifolium*	narrow-leaved bedstraw	CSS
Solanaceae	*Nicotiana glauca**	tree tobacco	DH

‡Habitat acronyms: CLOW=Coast Live Oak Woodland, CSS=Coastal Sage Scrub, DEV=Developed, DH = Disturbed Habitat, SCLORF= Southern Coast Live Oak Riparian Forest, -D = disturbed.
*non-native species

CV011 - COLE GRADE ROAD PIPELINE REPLACEMENT

FAMILY	SCIENTIFIC NAME	COMMON NAME	HABITAT(S)‡
GYMNOSPERMS			
Selaginaceae	*Selainella cinerascens* (CRPR 4.1)	Ashy spike moss	CSS
		mosses, liverworts	CSS
		ferns	CSS.CSCT
ANGIOSPERMS – MONOCOTS			
Agavaceae	*Hesperoyucca whipplei*	chaparral yucca	CSS
Poaceae	*Bromus* sp.*	Brome grass	NNG
ANGIOSPERMS – DICOTS			
Anacardiaceae	*Malosma laurina*	laurel sumac	CSS, CSCT
	Rhus ovata	sugarbush	CSS, CSCT
Asteraceae	*Artemisia californica*	California sagebrush	CSS
	Bahiopsis laciniate (CRPR 4.3)	San Diego sunflower	CSS
	Encelia californica	California brittlebush	CSS
	Hazardia squarrosa	Saw-toothed goldenbush	CSCT
	*Logfia gallica**	narrowleaf cottonrose	CSS
	Pseudognaphalium beneolens	cudweed	CSCT
	*Sonchus asper**	Spiny sowthistle	DH
	Stephanomeria diegensis	San Diego wreathplant	CSS
Brassicaceae	*Brassica nigra**	black mustard	DH, CSCT
Caprifoliaceae	*Lonicera subspicata*	southern honeysuckle	CSCT
Cucurbitaceae	*Marah macrocarpa*	chilicothe	CSCT
Fagaceae	*Quercus agrifolia*	coast live oak	CLOW, CLOW-D
Lamiaceae	*Salvia apiana*	white sage	CSS
	Salvia mellifera	Black sage	CSS, CSCT
Plantaginaceae	*Keckiella antirrhinoides*	bush penstemon	CSCT
Polygonaceae	*Eriogonum fasciculatum*	California buckwheat	CSS
Rosaceae	*Adenostoma fasculatum*	chamise	CSCT, SMC-D
Solanaceae	*Nicotiana glauca**	tree tobacco	DH

‡Habitat acronyms: DEV=Developed, DH = Disturbed Habitat, CSS = Coastal Sage Scrub, CSCT = Coastal Sage Chaparral Transition, CLOW=Coast Live Oak Woodland, -D = disturbed.
*non-native species

CV017A – ROCK HILL RANCH ROAD INTERTIE

FAMILY	SCIENTIFIC NAME	COMMON NAME	HABITAT(S)‡
ANGIOSPERMS – MONOCOTS			
Poaceae	*Bromus madritensis**	foxtail chess	NNG
	*Bromus madritensis**	foxtail chess	NNG
	*Hordeum murinum**	foxtail barley	DH
ANGIOSPERMS – DICOTS			
Anacardiaceae	*Schinus molle**	Peruvian pepper	NNV
	Toxicodenron diversilobum	poison oak	NNV
Asteraceae	*Heterotheca grandiflora*	telegraph weed	DH
	Metricaria discoidea	pineapple weed	DH
	*Senecio vulgaris**	common groundsel	DH
Brassicaceae	*Brassica nigra**	black mustard	NNG
Chenopodiaceae	*Salsola tragus**	Russian thistle	NNG
Fabacaeae	*Vicia sp.**	vetch	DH
Fagaceae	*Quercus agrifolia*	coast live oak	NNV, NNG
Geraniaceae	*Erodium cicutaria**	heron's bill	DH
Lamiaceae	*Lamium amplexicaule**	henbit nettle	DH
Malvaceae	*Malva parviflora**	cheeseweed	NNG
Myrtaceae	*Eucalyptus globulis**	blue gum	NNV
Plantaginaceae	*Plantago lanceolate**	English plantain	DH
Urticaceae	*Urtica urens**	dwarf nettle	DH

‡Habitat acronyms: DEV=Developed, DH = Disturbed Habitat, NNV=Non-native Vegetation.
*non-native species

CV012A – FRUITVALE ROAD PIPELINE REPLACEMENT

FAMILY	SCIENTIFIC NAME	COMMON NAME	HABITAT(S)‡
ANGIOSPERMS – MONOCOTS			
Agavaceae	*Chorogalum pomeridianum*	wavyleaf soap plant	NNG
	Hesperoyucca whipplei	chaparral yucca	SMC
Poaceae	*Avena* sp.*	wild oat	DH, NNG
	*Arundo donax**	giant reed	CLOW-D
	*Bromus diandrus**	ripgut brome	DH, NNW
	Bromus madritensis ssp. *Rubens**	foxtail chess	CSS, CSS-D, NNG
	*Hordeum murinum**	foxtail barley	DH, NNW
Themidaceae	*Dichelostemma capitatum*	blue dicks	SMC, SMC-D
ANGIOSPERMS – DICOTS			
Apiaceae	*Conium maculatum**	poison hemlock	CSS-D
	Daucus pusillus	American wild carrot	DH
Aizoaceae	*Carpobrotus edulis**	hottentot fig	DH
Anacardiaceae	*Rhus ovata*	sugarbush	SMC
	*Schinus molle**	Peruvian pepper	NNW
	Toxicodendron diversilobum	poison oak	CLOW-D, SCLORF
Asteraceae	*Ambrosia psilostachya*	ragweed	NNG
	Artemisia californica	California sagebrush	CSS
	Bahiopsis laciniata (CRPR 4.3)	San Diego County Viguiera	CSS
	*Carduus pycnocephalus**	Italian thistle	CSS, CSS-D, NNW
	*Centaurea melitensis**	star thistle	DH, NNW
	Corethrogyne filaginifolia	common sandaster	NNG
	Deinandra fasciculata	Clustered tarweed	SMC
	Eriophyllum confertiflorum	yellow yarrow	SMC
	Gutierrezia sarorthrae	matchweed	SMC
	Hazardia squarrosa	saw-toothed goldenbush	SMC
	*Helminthotheca echioides**	bristly ox-tongue	DH
	Isomcoma menziesii	goldenbush	NNG
	*Lactuca serriola**	prickly lettuce	DH
	*Logfia gallica**	narrowleaf cottonrose	NNW
	Pseudognatphalium beneolens	cudweed	CSS-D
	*Sonchus asper**	sowthistle	DH
	*Silybum marianum**	milk thistle	DH
Boraginaceae	*Amsinckia menziesii*	fiddleneck	CSS-D
Brassicaceae	*Brassica nigra**	black mustard	CSS, CSS-D, DH, NNW, NNG
	*Raphanus sativus**	wild radish	NNG
Caryophyllaceae	*Polycarpon tetraphyllum**	Four leaved allseed	DH
Cheopodiaceae	*Salsola tragus**	Russian thistle	DH
Cucurbitaceae	*Marah macrocarpa*	chilicothe	SMC
Ericaceae	*Xylococcus bicolor*	mission manzanita	SMC
Euphorbiaceae	*Croton setiger*	turkey-mullein	DH

Fabaceae	*Acmispon americanus*	American bird's foot trefoil	CSS, NNG
	Acmispon glaber	deer weed	CSS, NNG
	*Trifolium hirtum**	rose clover	NNG
	Vicia sp.	vetch	CLOW-D
Fagaceae	*Quercus agrifolia*	coast live oak	NNV, CLOW-D, SCLORF
	Quercus berberidifolia	scrub oak	SMC, SMC-D
Geraniaceae	*Erodium botrys**	long beak filaree	DH
	Erodium cicutarium	red-stem filaree	NNW
Lamiaceae	*Marrubium vulgare*	horehound	CSS
	Salvia apiana	white sage	CSS
	Salvia colubariae	chia sage	SMC,
	Salvia mellifera	black sage	SMC, DH
Montiaceae	*Claytonia parviflora*	miner's lettuce	NNW
Myrtaceae	*Eucalyptus globulis**	Blue gum	EW, DEV, NNW
Myrsinaceae	*Lysimachia arvensis**	scarlet pimpernel	DH
Oleaceae	*Olea europaea**	olive	CLOW-D, NNW
Onagraceae	*Camissonia* sp.	suncup	CSS,
Plantaginaceae	*Keckiella antirrhinoides*	bush penstemon	CSS-D
	Plantago ovata	desert plantain	NNW, SMC
Platanaceae	*Platanus racemosa*	California sycamore	CLOW-D
Polygonaceae	*Eriogonum fasciculatum*	California buckwheat	CSS, CSS-D, NNG
Polygonaceae	*Rumex crispus*	curley dock	NNG
Rhamnaceae	*Ceanothus crassifolius*	hoary leaf ceanothus	SMC, SMC-D
	Ceanothus tomentosus	Ramona lilac	SMC
Rosaceae	*Adenostoma fasciculatum*	chamise	SMC
Rubiaceae	*Galium aparine*	Common bedstraw	CSS, NNG
Rutaceae	*Citrus sinensis**	orange	DEV
Solanaceae	*Datura wrightii*	Jimsonweed	DH
Urticaceae	*Urtica urens**	annual stinging nettle	CSS

‡Habitat acronyms: CSS = Coastal Sage Scrub, CLOW = Coast Live Oak Woodland, DEV=Developed, DH = Disturbed Habitat, EW=Eucalyptus Woodland, NNG=Non-native Grassland, NNV=Non-native Vegetation, NNW= Non-native Woodland, SMC=Southern Mixed Chaparral, SCLORF = Southern Cost Live Oak Riparian Forest, -D = disturbed.

PD016 – HELL HOLE CREEK PIPE JOINT REPAIR

FAMILY	SCIENTIFIC NAME	COMMON NAME	HABITAT(S)‡
GYMNOSPERMS			
Polypodiaceae	*Polypodium californicum*	California polypody	SAWRF
Pteridaceae	*Pellaea andromedifolia*	coffee fern	SAWRF
ANGIOSPERMS – MONOCOTS			
Agavaceae	*Hesperoyucca whipplei*	chaparral yucca	SMC, NNG, CSCT
Cyperaceae	*Cyperus eragrostis*	Tall flatsedge	SAWRF
	Schoenplectus sp.	bulrush	SAWRF
Juncaceae	*Juncus sp.*	Rush	SAWRF
Poaceae	*Bromus sp.**	brome grass	SMC, NNG, DH
ANGIOSPERMS – DICOTS			
Anacardiaceae	*Rhus ovata*	sugarbush	SMC
Asteraceae	*Artemisia californica*	California sagebrush	SMC, NNG, CSCT
	Artemisia douglasiana	mugwort	SAWRF
	Baccharis sarathroides	broom baccharis	SMC
	Eriopyllum confertiflorum	golden yarrow	CSCT
	Gutierrezia sarothrae	matchweed	SMC, SMC-D
	Hazardia squarrosa	Saw-toothed goldenbush	CSCT
	Pseudognaphalium beneolens	cudweed	DH
	Sonchus oleraceus	Sow thistle	DH
	Xanthium strumarium	rough cockleburr	SAWRF
Brassicaceae	*Brassica nigra**	black mustard	DH
Cactaceae	*Opuntia sp.**		SMC
Caprifoliaceae	*Lonicera subspicata*	southern honeysuckle	SMC, SAWRF
	Symphoricarpos mollis	Creeping snowberry	SAWRF
Ericaceae	*Arctostaphylos glauca*	big berry manzanita	SMC
	Xylococcus bicolor	mission manzanita	SMC
Fabacaeae	*Acmispon glaber*	deerweed	SMC, DH
Fagaceae	*Quercus agrifolia*	coast live oak	CLOW
	Quercus berberidifolia	scrub oak	SMC
Geraniaceae	*Erodium botrys*	long beak filaree	DH
Lamiaceae	*Salvia apiana*	white sage	SMC
	Salvia mellifera	black sage	SMC, CSCT
Phyrmaceae	*Diplacus aurantiacus*	sticky monkeyflower	CSCT
Plantaginaceae	*Keckiella cordifolia*	heart-leaved penstemon	SAWRF
	Penstemon spectabilis	showy penstemon	SMC
Platanaceae	*Platanus racemosa*	California sycamore	SAWRF
Polygonaceae	*Eriogonum fasciculatum var poliofolium*	California buckwheat	SMC, CSCT
Rhamnaceae	*Ceanothus crassifolius*	hoary leaf ceanothus	SMC
	Ceanothus leucodermis	Chaparral whitethorn	SMC
	Ceanothus tomentosus	Ramona lilac	SMC
Rosaceae	*Adenostoma fasciculatum*	chamise	SMC, CSCT
	Cercocarpus betuloides	Mountain mahogany	SMC
	Heteromeles arbutifolia	toyon	SMC
	Rubus usrinus	California blackberry	SAWRF
Rubiaceae	*Galium angustifolium*	narrow-leaved bedstraw	SMC
Salicaceae	*Salix sp.*	willow	SAWRF

‡Habitat acronyms: CSCT = Coastal Sage Chaparral Transition, DH = Disturbed Habitat, NNG=Non-native grassland, SMC=Southern Mixed Chaparral, SAWRF = Southern Arroyo Willow Riparian Forest, -D = disturbed.
*non-native species

CV050 – LILAC ROAD PIPELINE UPSIZE

FAMILY	SCIENTIFIC NAME	COMMON NAME	HABITAT(S)‡
GYMNOSPERMS			
Cupressusaceae	*Cupressus sempivirens**	Italian cedar	DEV
Pinaceae	*Pinus coulteri*	Coulter pine	NNW
	Pinus halpensis	Aleppo pine	NNW
ANGIOSPERMS – MONOCOTS			
Agavaceae	*Agave Americana**	American agave	NNV
	Chorogalum parviflorum	smallflower soap plant	NNG
	Hesperoyucca whipplei	chaparral yucca	SMC
Poaceae	*Avena* sp.*	wild oat	DH, NNG
	*Bromus diandrus**	ripgut brome	DH, NNG
	Bromus madritensis ssp. *Rubens**	foxtail chess	DH
	*Festuca myosuros**	sixweeks rattail grass	DH
	*Hordeum murinum**	foxtail barley	DH, NNG
	*Lamarckia aurea**	goldentop	NNG
	*Pennisetum setaceum**	fountain grass	DH
Themidaceae	*Dichelostemma capitatum*	blue dicks	NNG
ANGIOSPERMS – DICOTS			
Aizoaceae	*Carpobrotus edulis**	hottentot fig	DH
Anacardiaceae	*Malosma laurina*	laurel sumac	CSS, SMC
	Rhus ovata	sugarbush	NNV, SMC
	*Schinus molle**	Peruvian pepper	NNW
	*Schinus terebinthifolius**	Brazilian pepper	DH
	Toxicodendron diversilobum	poison oak	SMC
Arecaceae	*Washingtonia robusta**	Mexican fan palm	NNW
Asteraceae	*Acourtia microcephala*	sacapellote	CSS
	Artemisia californica	California sagebrush	CSS, NNG
	Baccharis pilularis	coyote bush	SMC
	Baccharis salicifolia	mulefat	SWS, MFS
	Corethrogyne filaginifolia	common sandaster	NNG
	*Dimorphotheca sunuata**	African daisy	NNV
	*Erigeron bonariensis**	flax-leaved horseweed	DH
	*Hypochaeris glabra**	smooth cat's ear	DH
	*Metricaria discioidea**	pineapple weed	NNG
	Pseudognatphalium beneolens	cudweed	NNG
	*Sonchus asper**	sowthistle	DH
	*Silybum marianum**	milk thistle	DH
Boraginaceae	*Amsinckia menziesii*	fiddleneck	NNG
	Phacelia cicutaria	caterpillar phacelia	SMC-D
	Plagiobothrys sp.	popcorn flower	SMC
Brassicaceae	*Brassica nigra**	black mustard	NNG
	*Raphanus sativus**	wild radish	DH
	*Sisymbrium irio**	London rocket	DH

Caprifoliaceae	*Lonicera subspicata* var. *denudata*	chaparral honeysuckle	SMC
Cataceae	*Opuntia ficus-indica**	tuna	NNV
Cheopodiaceae	*Chenopodium californicum*	pigweed	DH
	*Salsola tragus**	Russian thistle	DH
Crassulaceae	*Crassula connata*	pigmy weed	DH
	*Crassula ovata**	jade plant	NNV
Cucurbitaceae	*Marah macrocarpa*	chilicothe	NNW
Euphorbiaceae	*Croton setiger*	turkey-mullein	NNG
	*Euphorbia maculata**	spotted spurge	DH
Fabaceae	*Acmispon americanus*	American bird's foot trefoil	DH
	Lupinus sp.*	lupin	DH
	*Medicago polymorpha**	bur clover	DH
Fagaceae	*Quercus agrifolia*	coast live oak	NNW, CLOW
	Quercus berberidifolia	scrub oak	SMC, SMC-D
	Quercus englamenii (CRPR 4.2)	Engelmann oak	CLOW, DEV
Geraniaceae	*Erodium botrys**	long beak filaree	DH
	Erodium cicutarium	red-stem filaree	DH
Hamemelidaceae	*Liquidambar styraciflua**	sweetgum	NNW
Lathraceae	*Lagerstroemia indica**	crepe myrtle	NNW
Malvaceae	*Malva parviflora*	cheeseweed	DH
Montiaceae	*Calandrinia menziesii*	red maids	NNG
Myrtaceae	*Eucalyptus globulis**	Blue gum	EW, DEV, NNW
Myrsinaceae	*Lysimachia arvensis**	scarlet pimpernel	DH
Oleaceae	*Olea europaea**	olive	NNW
Onagraceae	*Camissonia* sp.	suncup	DH
Phytolaccaceae	*Phytolacca Americana**	pokeweed	DH
Plantaginaceae	*Keckiella antirrhinoides*	bush penstemon	SMC
Polygonaceae	*Eriogonum fasciculatum*	California buckwheat	CSS, SMC-D
Rhamnaceae	*Ceanothus tomentosus*	Ramona lilac	SMC
Rosaceae	*Adenostoma fasciculatum*	chamise	SMC, SMC-D
	Heteromeles arbutifolia	toyon	SMC
	*Pyracantha angustifolia**	firethorn	NNV
Rubiaceae	*Galium aparine*	Common bedstraw	NNG
Salicaceae	*Salix* sp.	willow	SWS
Solanaceae	*Nicotiana glauca**	tree tobacco	DH
	Datura wrightii	Jimsonweed	DH
Tamaricaceae	*Tamrisk ramosissima**	saltcedar	SWS
Urticaceae	*Urtica urens**	annual stinging nettle	DH

‡ Habitat acronyms: CSS = Coastal Sage Scrub CLOW = Coast Live Oak Woodland, DEV=Developed, DH = Disturbed Habitat, MFS = Mulefat Scrub, NNG=Non-native grassland, NNV=Non-native Vegetion, SMC=Southern Mixed Chaparral, -D = disturbed.
*non-native species

APPENDIX B. LISTED OR SENSITIVE PLANT SPECIES WITH POTENTIAL TO OCCUR

SPECIES	STATUS	POTENTIAL TO OCCUR
Rainbow manzanita (*Arctostaphylos rainbowensis*)	--/-- CRPR List 1B.1	Very Low. Occurs in moderately tall mixed chaparral. Reported approximately 1 mile NW of Cole Grade Road and 2 miles SW of Lilac Pala PS. Would have been detected on site if present.
Orcutt's brodiaea (*Brodiaea orcuttii*)	--/-- CRPR List 1B.1	Very low. Found in vernally moist grasslands and along vernal pool peripheries. No vernal pools or grasslands occur on sites. Nearest location is along Valley Center Road 3 miles east of Cougar Pass Road.
Payson's jewelflower (*Caulanthus simulans*)	--/-- CRPR 4.2	Low. Found in Chaparral, scrub, pinyon/juniper woodland. Mostly found in Peninsular Mountains to the east; however, detections have been recorded just south of the Lilac Pala PS alignment along Keys Creek.
Wart-stemmed ceanothus (*Ceanothus verrucosus*)	--/-- CRPR 2B.2	None. Evergreen shrub found in coastal chaparral of San Diego County and around Lake Hodges. Distribution is to the west of Valley Center. Would have been detected of present.
Peninsular spineflower (*Chorizanthe leptotheca*)	--/-- CRPR List 4.2	Moderate. Occurs in chaparral openings in moderately tall mixed chaparral in eastern San Diego County. Reported near Hellhole Canyon close to the Hell Creek Rd project.
Summer holly (*Comarostaphylis diversifolia*)	--/-- CRPR List 1B.2	Present. Chaparral and coastal-sage scrub near coast generally with sandy soils. One found at Gordon Hill Phase II. Known from San Marcos Mtns west of I-15.
Delicate clarkia (*Clarkia deilcata*)	--/-- CRPR List 1B.2	Low. Found in chaparral and foothill woodland, often at edges where these habitats border grasslands. Recorded near Cougar Pass/Alps Way and Reidy Canyon alignments.
Narrow-petaled rein-orchid (*Piperia leptopetala*)	--/-- CNPS List 4.3	Low. Generally occurs in montane riparian habitats but may occur in wetter chaparral areas. Potentially suitable habitat occurs on Hell Creek.
Englemann oak (*Quercus engelmannii*)	--/-- CRPR List 4.2	Present. Found in grasslands, chaparral, and woodlands in the foothills from San Diego to Los Angeles County. Databases shows presence in surrounding hills but not in Valley floor. Found at Reidy Canyon.
Palmer's grappling hook (*Harpagonella palmeri*)	--/-- CRPR List 4.2	Very Low. Occurs in open coastal sage scrub or chaparral, as well as on grassy hillsides up to 1500 feet. Tends to be found in association with clay soils, which are not present in Valley Center. Sites are above 1,000 feet.

Mesa horkelia (*Horkleia cuneate* var. *puberula*)	--/-- CRPR List 1B.1	Very Low. Found in dry, sandy, coastal chaparral from northern San Diego to San Luis Obispo counties. Recorded in San Luis Rey Valley 3 miles N of the Cole Grade Road alignment.
Ramona horkelia (*Horkellia truncata*)	--/-- CRPR List 1B.3	Low. Typically found on dry red clay in open chaparral. Detected east of Hellhole Canyon Park east of Hell Creek Road.
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	--/-- CRPR List 4.3	Moderate. Found in exposed openings in coastal sage scrub and chaparral. Widely distributed outside of deserts in San Diego County though not in central Valley Center. Suitable habitat present but only reported in east near Hellhole Canyon.
Felt-leaved monardella (*Monardella hypoleuca* ssp. l*anata*)	--/-- CRPR List 1B.2	Low. Found in chaparral and foothill woodland, in areas away from disturbance. Identified in the San Marcos Mtns almost 3 miles to SW of Old Castle/Gordon Hill.
Chaparral nolina (*Nolina cismontana*)	--/-- CRPR List 1B.2	Low. Found in dry chaparral of coastal mountains of San Diego County and Santa Ana Mtns. Recorded at Hellhole Canyon County Park near Hell Creek Road but not detected at this or any alignment.
Parry's tetrococcus (*Tetrococcus dioicus*)	--/-- CRPR List 1B.2	Perennial deciduous shrub found is coastal sage scrub and chaparral. Range is in foot to west. Would have been detected if present.

Status:

California Rare Plant Rank (CRPR)

List 1A = Plants Presumed Extinct in California

List 1B = Plants Rare, Threatened or Endangered in California and Elsewhere

List 2 = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

List 3 = Plants About Which We Need More Information, A Review List

List 4 = Plants of Limited Distribution, A Watch List

State Rank and CRPR is followed by threat code (e.g., State Rank S2.2 or CRPR 1B.2)

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

.2 = Fairly endangered in California (20-80% occurrences threatened)

.3 = Not very endangered in California (<20% of occurrences threatened)

APPENDIX C. ANIMAL SPECIES OBSERVED ON SITE

WSO15B – OLD CASTLE ROAD PIPELINE REPLACEMENT

SCIENTIFIC NAME	COMMON NAME
Birds	
Accipter cooperii	Cooper's Hawk
Buteo lineatus	Red-shouldered Hawk
Buteo jamaicensis	Red-tailed Hawk
Colaptes auratus	Northern Flicker
Corvus brachyrhynchos	American Crow
Aphelocoma californica	California Scrub-Jay
Zenaida macroura	Mourning Dove
Psaltriparus minimus	Bushtit
Baeolophus inornatus	Oak Titmouse
Polioptila caerulea	Blue-gray Gnatcatcher
Geothlypis trichas	Common Yellowthroat
Setophaga coronata	Yellow-rumped Warbler
Melozone crissalis	California Towhee
Mammals	
Otospermophilus beecheyi	California ground squirrel

MWO15A – OAT HILL PUMP STATION DISCHARGE PIPELINE NORTH

SCIENTIFIC NAME	COMMON NAME
Birds	
Buteo jamaicensis	Red-tailed Hawk
Calypte anna	Anna's Hummingbird
Tyrannus vociferans	Cassin's Kingbird
Toxostoma redivivum	California Thrasher
Mimus polyglottos	Northern Mockingbird
Melozone crissalis	California Towhee
Spinus psaltria	Lesser Goldfinch
Mammals	
Otospermophilus beecheyi	California ground squirrel

DW001– GORDON HILL PIPELINE REPLACEMENT

SCIENTIFIC NAME	COMMON NAME
Birds	
Callipepla californica	California Quail
Buteo lineatus	Red-shouldered Hawk
Buteo jamaicensis	Red-tailed Hawk
Selasphorus sasin	Allen's Hummingbird
Calypte anna	Anna's Hummingbird
Colaptes auratus	Northern Flicker
Dryobates nuttallii	Nuttall's Woodpecker
Falco peregrinus	Peregrine Falcon
Sayornis nigricans	Black Phoebe
Corvus brachyrhynchos	American Crow
Aphelocoma californica	California Scrub-Jay
Toxostoma redivivum	California Thrasher
Psaltriparus minimus	Bushtit
Chamaea fasciata	Wrentit
Polioptila caerulea	Blue-gray Gnatcatcher
Setophaga coronata	Yellow-rumped Warbler
Melozone crissalis	California Towhee
Pipilo maculatus	Spotted Towhee
Haemorhous mexicanus	House Finch
Spinus psaltria	Lesser Goldfinch
Mammals	
Otospermophilus beecheyi	California ground squirrel

CV018A – COUGAR PASS/ALPS WAY CULVERT CROSSING PIPELINE REPLACEMENT

SCIENTIFIC NAME	COMMON NAME
Birds	
Buteo jamaicensis	Red-tailed Hawk
Cathartes aura	Turkey Vulture
Calypte anna	Anna's Hummingbird
Corvus brachyrhynchos	American Crow
Aphelocoma californica	California Scrub-Jay
Thryomanes bewickii	Bewick's Wren
Catherpes mexicanus	Canyon Wren
Regulus calendula	Ruby-crowned Kinglet
Setophaga coronata	Yellow-rumped Warbler
Mammals	
Otospermophilus beecheyi	California ground squirrel

SG022 – LILAC PALA PUMP STATION DISCHARGE PIPELINE

SCIENTIFIC NAME	COMMON NAME
Birds	
Accipiter cooperii	Cooper's Hawk
Buteo jamaicensis	Red-tailed Hawk
Zenaida macroura	Mourning Dove
Calypte anna	Anna's Hummingbird
Colaptes auratus	Northern Flicker
Corvus brachyrhynchos	American Crow
Psaltriparus minimus	Bushtit
Chamaea fasciata	Wrentit
Toxostoma redivivum	California Thrasher
Setophaga coronata	Yellow-rumped Warbler
Melozone crissalis	California Towhee
Pipilo maculatus	Spotted Towhee
Mammals	
Otospermophilus beecheyi	California ground squirrel

CV011 – COLE GRADE ROAD PIPELINE REPLACEMENT

SCIENTIFIC NAME	COMMON NAME
Birds	
Buteo jamaicensis	Red-tailed Hawk
Calypte anna	Anna's Hummingbird
Corvus brachyrhynchos	American Crow
Corvus corax	Common Raven
Zonotrichia leucophrys	White-crowned Sparrow
Mammals	
Otospermophilus beecheyi	California ground squirrel

CV017A – ROCK HILL RANCH ROAD INTERTIE

SCIENTIFIC NAME	COMMON NAME
Birds	
Buteo lineatus	Red-shouldered Hawk
Streptopelia decaocto	Eurasian Collared Dove
Calypte anna	Anna's Hummingbird
Sphyrapicus ruber	Red-breasted Sapsucker
Corvus brachyrhynchos	American Crow
Aphelocoma californica	California Scrub-Jay
Turdus migratorius	American Robin
Mimus polyglottus	Northern Mockingbird
Setophaga coronata	Yellow-rumped Warbler
Haemorhous mexicanus	House Finch
Mammals	
Otospermophilus beecheyi	California ground squirrel

CV012A – FRUITVALE ROAD PIPELINE REPLACEMENT

SCIENTIFIC NAME	COMMON NAME
Birds	
Buteo jamaicensis	Red-tailed Hawk
Zenaida macroura	Mourning Dove
Melanerpes formicivorus	Acorn Woodpecker
Dryobates nuttallii	Nuttal’s Woodpecker
Corvus brachyrhynchos	American Crow
Troglodytes aedon	House Wren
Thryomanes bewickii	Bewick’s Wren
Psaltriparus minimusr	Bushtit
Sayornis nigricans	Black Phoebe
Sturnus vulgaris	European Starling
Aphelocoma californica	California Scrub Jay
Mimus polyglottos	Northern Mockingbird
Setophaga petechia	Yellow Warbler
Piranga luduviciana	Western Tanager
Sialia mexicana	Western Bluebird
Melozone crissalis	California Towhee
Spizella passerina	Chipping Sparrow
Chondestes grammacus	Lark Sparrow
Spinus psaltria	Lesser Goldfinch
Haemorhous mexicanus	House Finch
Reptiles	
Aspidoscelis hyperythra beldingi	Belding’s orange-throated whiptail
Sceloperus occidenalis	Western fence lizard
Pituophis catenifer annectens	San Diego gophersnake
Mammals	
Otospermophilus beecheyi	California ground squirrel

PD016 – HELL HOLE CREEK PIPE JOINT REPAIR

SCIENTIFIC NAME	COMMON NAME
Birds	
Callipepla californica	California Quail
Buteo regalis	Ferruginous Hawk
Cathartes aura	Turkey Vulture
Streptopelia decaocto	Eurasian Collared Dove
Zenaida macroura	Mourning Dove
Calypte anna	Anna's Hummingbird
Melanerpes formicivorus	Acorn Woodpecker
Spinus psaltria	Northern Flicker
Dryobates nuttallii	Nuttall's Woodpecker
Tyrannus vociferans	Cassin's Kingbird
Corvus brachyrhynchos	American Crow
Aphelocoma californica	California Scrub-Jay
Corvus corax	Common Raven
Psaltriparus minimus	Bushtit
Melozone crissalis	Oak Titmouse
Sitta carolinensis	White-breasted Nuthatch
Chamaea fasciata	Wrentit
Spinus psaltria	California Thrasher
Mimus polyglottos	Northern Mockingbird
Setophaga coronata	Yellow-rumped Warbler
Melozone crissalis	California Towhee
Pipilo maculatus	Spotted Towhee
Zonotrichia leucophrys	White Crowned Sparrow
Haemorhous mexicanus	House Finch
Mammals	
Otospermophilus beecheyi	California ground squirrel

CV050 – LILAC ROAD PIPELINE UPSIZE

SCIENTIFIC NAME	COMMON NAME
Birds	
Buteo jamaicensis	Red-tailed Hawk
Calypte anna	Anna's Hummingbird
Falco sparverius	American Kestrel
Melanerpes formicivorus	Acorn Woodpecker
Cathartes aura	Turkey Vulture
Corvus brachyrhynchos	American Crow
Aphelocoma californica	California Scrub-Jay
Psaltriparus minimus	Bushtit
Baeolophus inornatus	Oak Titmouse
Catherpes mexicanus	Canyon Wren
Thryomanes bewickii	Bewick's Wren
Troglodytes aedon	House Wren
Sturnus vulgaris	European Starling
Euphagus cyanocephalus	Brewer's Blackbird
Sialia mexicana	Western Bluebird
Piplio maculatus	Spotted Towhee
Melozone crissalis	California Towhee
Melospiza melodia	Song Sparrow
Zonotrichia leucophrys	White-crowned Sparrow
Spinus psaltria	Lesser Goldfinch
Haemorhous mexicanus	House Finch
Reptiles	
Sceloporus occidentalis	Western fence lizard
Mammals	
Thymomys bottae	Botta's pocket gopher
Otospermophilus beecheyi	California ground squirrel
Invertebrates	
Vanessa cardui	Painted lady
Linepithema humile	Argentine ant
Pogonomyrmex sp.	Harvester ants

APPENDIX D. LISTED OR SENSITIVE ANIMAL SPECIES WITH POTENTIAL TO OCCUR

SPECIES	STATUS	POTENTIAL TO OCCUR
VERTEBRATES		
Arroyo chubb (*Gila orcuttii*)	--/SSC	None. Found in habitats characterized by slow-moving water a foot or more in depth in pools, runs, riffles, and edge-water with silt through sand substrates. Only detection in area is to the south on Guejito Creek.
Amphibians		
Arroyo toad (*Anaxyrus californicus*)	FE/SSC	None. Breeds in open-canopy riparian areas with shallow, slowly moving streams, but burrows in adjacent uplands during dry months. Drainage on site is ephemeral. Nearest observation is in San Luis Rey River Valley over 2.5 miles to north and east. Very unlikely species would move though developed landscape to site from breeding areas for aestivation.
Western spadefoot toad (*Scaphiopus hammondii*)	--/SSC	Low. Found in grasslands, scrublands, and woodlands in association with vernal pools or areas of ponding water, which are found in some locations near alignments. Species currently under review for listing by USFWS
Reptiles		
Silvery legless lizard (*Anniella pulchra pulchra*)	--/SSC	Low. 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. Little suitable habitat on sites outside of drainages.
Belding's Orange-throated whiptail (*Aspidoscelis hyperythra beldingi*)	--/WL	Present. Found in CSS west of Cole Grade road at Fruitvale Road. High in some other alignments. Occurs in semi-arid brushy areas typically with loose soil and rocks, including washes, stream sides, rocky hillsides, and coastal chaparral. Habitat on several site is suitable.
Coastal whiptail (*Aspidoscelis tigris stejnegeri*)	--/SSC	Moderate to High. Found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage - chaparral, woodland, and riparian areas throughout San Diego County. Likely in habitats along or adjacent to many alignments.
Southwestern pond turtle (*Actinemys pallida*)	--/SSC	None. Found largely in permanent water, particularly deep ponds with muddy substrates and abundant logs, rocks, or submerged vegetation for cover. Generally require native upland habitat nearby for overwintering. No accessible ponding areas on sites. Nearest known location is in San Luis Rey River 2.5 miles to the east.
Red-diamond rattlesnake (*Crotalus exsul*)	--/SSC	Moderate. Occurs in coastal sage scrub and chaparral with abundant rocky outcrops. Likely at Hell Creek Road site. .

SPECIES	STATUS	POTENTIAL TO OCCUR
Coronado skink (*Plestiodon skiltonianus interparietalis*)	--/WL	Moderate. Found generally in dense vegetation within grassland, woodlands, pine forests, chaparral, especially with open sunny areas and rocky areas near streams. Range is west of Peninsular Ranges from central and northern San Diego County, through Coast Ranges to throughout northern California. Suitable habitats occur at several sites.
Coast horned lizard (*Phrynosoma coronatum blainvillei*)	--/SSC	Low to moderate. Inhabits open areas of sandy soil and low vegetation in valleys, foothills and semiarid mountains. Found in grasslands, coniferous forests, woodlands, sage scrub, and chaparral, with open areas and patches of loose soil and frequently found near ant hills.
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	--/SSC	Low. Found in coastal sage scrub, chaparral, riparian, grasslands, and agricultural fields. Prefers open habitat with friable or sandy soils, burrowing rodents for food, and enough cover to escape being preyed upon. Some suitable habitat found on sites.
Two-striped garter snake	--/SSC	Moderate to High. Found in a variety of habitats (shrublands, woodlands, forests) with permanent or semi-permanent bodies of water in coastal counties from Monterrey Bay through San Diego into Baja. Likely to occur along creeks and valley bottoms at project sites
Birds		
Sharp-shinned hawk (*Accipiter striatus*)	--/SSC	Very Low. Breeds in coniferous forests of northern California and the Sierra Nevada. Limited foraging on site.
Southern California rufous-crowned sparrow (*Aimophila canescens ruficeps*)	--/WL	Moderate. Inhabits coastal sage scrub and open chaparral, particularly where nearby to grassland. Some suitable areas exists on some of the sites.
Bell's sage sparrow (*Amphispiza bellii bellii*)	--/SSC	Moderate to High. Occurs in sunny, dry stands of coastal sage scrub or chaparral. Some suitable habitat present on sites.
Golden eagle (*Aquila chrysaetos*)	BGEPA/FP	Very Low. Forages over grassy, open, shrubby habitats, generally nesting on cliffs and occasionally in trees. Tends to require habitat at a distance from humans. Area mostly too developed for this species except in the Hell Creek area.
Swainson's hawk (*Buteo swainsonii*)	FT, BCC/--	None. Forages in open habitats such as native prairie and grassland in Central Valley and mountain areas of California. Migrates through San Diego County through Anza-Borrego Desert. No known nesting occurs in southern California.
Coastal cactus wren (*Campylorhynchus Brunneicapillus sandiegensis)*	BCC/SSC	None. Uses extensive patches of cactus in CSS and maritime succulent scrub habitats in canyons of southern California. No alignments support extensive cactus patches. Nearest location in database is 3 miles NW of Cole Grade Road in San Luis Rey River valley.

SPECIES	STATUS	POTENTIAL TO OCCUR
Northern harrier (*Circus cyaneus hudsonius*)	--/SSC	Moderate. Typically found in marshlands, but forages over fields, grasslands, and open habitats which are present in several of the alignments.
Yellow warbler (*Dendroica petechia brewsteri*)	BCC/SSC	Moderate. Almost exclusively found in oak and riparian woodlands. Habitat present on several sites
White-tailed kite (*Elanus leucurus*)	--/FP	Moderate. Prefers riparian woodlands and oak or sycamore groves adjacent to grassland where it forages.
Southwestern willow flycatcher (*Empidonax traillii extimus*)	FE/SE	None. Breeds within thickets of willows or other riparian understory usually along streams, ponds, lakes, or canyons. Migrants may be found among other shrubs in wetter areas. Significant known populations within the County only occur on Santa Margarita River and the San Luis Rey River from which it is unlikely to venture when few resources exist on site for the species.
Yellow-breasted chat (*Icteria virens*)	--/SSC	Low to Moderate. Found in dense, relatively wide riparian woodlands and thickets of willows, and dense brush in coastal California, foothills of Sierra Nevada. May be found in willow-dominated portions of Moosa Canyon Creek.
Loggerhead Shrike (*Lanius ludovicianus*)	--/SSC	Moderate. Uncommon year-round resident in grassland, open sage scrub, chaparral and desert scrub. Most common in desert and undeveloped areas west of the mountains.
Coastal California gnatcatcher (*Polioptila californica californica*)	FT/SSC	Low. While some good quality coastal sage scrub habitat is present at Gordon Hill Phase II. none were detected during the site visit.
Least Bell's vireo (*Vireo bellii pusillus*)	FE/SE	Low. Occurs in riparian woodland habitat. Riparian area on sites have few willows and only weak connectivity with river reaches with known populations. Have been detected in Moosa Creek at west end of Old Castle Road
Mammals		
Pallid bat (*Antrozous pallidus*)	--/SSC	Low. Roosts colonially in caves, mines, crevices, and abandoned buildings that do not occur on site but could forage in some areas.
Townsend's big-eared bat (*Corynorhinus townsendii*)	--/SSC	Very Low. Roosts in caves and buildings, but strongly tied to water. Widespread but uncommon through California. Presence negatively correlated with human presence.
Dulzura pocket mouse (*Chaetodipus californicus femoralis*)	--/SSC	Low. Occurs in coastal sage scrub, chaparral, grasslands, and woodland habitats up to 7,900 feet. Some suitable present though little sign of rodent activity detected on sites.
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	--/SSC	Low. Found in sage scrub sage scrub/grassland ecotones, chaparral, and desert scrubs at all elevations up to 6,000 feet site though little sign of rodent activity detected on sites. May be found in habitat adjacent to off-site habitat areas.

SPECIES	STATUS	POTENTIAL TO OCCUR
Stephens' kangaroo rat (*Dipodomys stephensi*)	FE/ST	None. Prefers areas of disturbed or patchy grasslands and open coastal sage scrub. Project site is outside species' known range in San Diego County. No suitable habitat. Nearest known location is in Rancho Guejito to the south.
Spotted bat (*Euderma maculatum*)	--/SSC	Low. Roosts on cliffs and forages in open and dense deciduous and coniferous forests, hay fields, deserts, marshes, riparian areas and dry grasslands.
Western mastiff bat (*Eumops perotis californicus*)	--/SSC	Low. Roost in crevices in cliff faces, which are not found on site. Strongly tied to presence of large (100 feet long or more) ponds for drinking which are not found on sites.
Western red bat (*Lasiurus blossevillii*)	--/SSC	Low. Prefer riparian areas where they roost in tree foliage. May be migratory, with US observations generally occurring in summer. some habitat on sites.
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	--/SSC	Low to moderate. Found in areas of open vegetation, grasslands, and agriculture fields. Unlikely to be able to access through the fencing surrounding the site. Would likely have been detected if present.
San Diego desert woodrat (*Neotoma lepida intermedia*)	--/SSC	Moderate to High. Found in sage scrub or chaparral primarily associated with rock outcroppings, boulders, cacti, or areas of dense undergrowth. Woodrat nests were detected at sites but could not be confirmed to be this subspecies.
Pocketed free-tailed bat (*Nyctinimops femorosaccus*)	--/SSC	None. Prefers desert habitats with high cliffs or rock outcrops. Out of species range. Suitable high rocks not found on sites.
Big free-tailed bat (*Nyctinimops macrotis*)	--/SSC	Low. Occurs in low, rugged canyons, which are only found at Hell Creek Rd. Forages over open water which again is not on sites.
Southern grasshopper mouse (*Onychomys torridus ramona*)	--/SSC	Low. Generally found in desert habitats with loose, friable soils. Less common in coastal scrub and chaparral. Habitat on sites is only moderately suitable. No records in project vicinity.
American badger (*Taxidea taxus*)	--/SSC	Low. Occurs in a variety of scrub habitats, particularly in open areas with friable soils. Require fossorial rodents upon which they prey. Habitat on site is suitable, but burrow would have been detected on sites if present.

Status:

Federal:
FE = Federal Endangered
FT = Federal Threatened
FC = Federal Candidate
BCC = Bird of Conservation Concern
BGEPA = Bald and Golden Eagle Protection Act

State:
SE = State Endangered
ST = State Threatened
FP = Fully Protected
SR = State Rare
SSC = Species of Special Concern