Interstate 15 Express Lanes Project Southern Extension (ELPSE) NES

Natural Environmental Study

Including Focused Studies for Special-Status Species and a Delineation of Federal and State Jurisdictional Waters

Cities of Lake Elsinore, Corona, and unincorporated Riverside County, California

DISTRICT 8 – RIV–15 PM 20.3 TO PM 40.1

EA: RIV 08-0J0820 / ID: 08-18000063

October 2023

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STATE OF CALIFORNIA
Department of Transportation
Riverside County Transportation Commission

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Acronyms and Abbreviations

AB	Assembly Bill
BGEPA	Bald and Golden Eagle Protection Act
BIOS	Biogeographic Information and Observation System
BMPs	best management practices
BSA	Biological Study Area
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CETAP	Community and Environmental Transportation Acceptability Process
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CTC	California Transportation Commission
CWA	Clean Water Act
DBESP	Determination of Biologically Equivalent or Superior Preservation
DOT	U. S. Department of Transportation
DPS	distinct population segments
EO	Executive Order
ELPSE	Express Lanes Project Southern Extension
EPA	U.S. Environmental Protection Agency
ESU	evolutionary significant unit
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FT	federally threatened
FTIP	Federal Transportation Improvement Program
GPS	global positioning system
HCP	Habitat Conservation Plan
HUC	Hydrologic Unit Code
I-	Interstate
JPR	Joint Project Review
LBV	least Bell's vireo
LOD	limits of disturbance
MBTA	Migratory Bird Treaty Act
MSHCP or the Plan	Western Riverside County Multiple Species Habitat Conservation Plan
NEPA	National Environmental Policy Act of 1969
NES	Natural Environment Study
NHD	National Hydrography Dataset
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act

OHWM	Ordinary High-Water Mark
PAD	Passage Assessment Database
PM	Post Mile
PQP	Public/Quasi-Public
Project	I-15 Express Lanes Project Southern Extension
RCA	Western Riverside County Regional Conservation Authority
RCHCA	Riverside County Habitat Conservation Agency
RCTC	Riverside County Transportation Commission
ROW	right of way
RSS	Riversidian Sage Scrub
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Boards
SBKR	San Bernardino kangaroo rat
SCAG	Southern California Association of Government's
SCS	Sustainable Communities Strategy
SKR	Stephens' kangaroo rat
SR-	State Route
SSC	species of special concern
SWANCC	*Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*
SWRCB	State Water Resources Control Board
SWFL	southwestern willow flycatcher
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WDR	Waste Discharge Requirements
WL	Watch List

Summary

This Natural Environmental Study (NES) provides an evaluation of the biological and aquatic resources potentially affected by the I-15 Express Lanes Project Southern Extension (Project). This report has been prepared to support documentation for compliance with the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP or the Plan), with the California Environmental Quality Act (CEQA), the Federal Endangered Species Act (FESA), and the California Endangered Species Act (CESA), as well as to support the regulatory permitting processes for the U.S. Army Corps of Engineers (USACE), Clean Water Act (CWA) Section 404, Regional Water Quality Control Board (RWQCB), CWA Section 401, Porter-Cologne Water Quality Control Act, and California Department of Fish and Wildlife (CDFW)/California Department of Fish and Game (CDFG) Code Section 1600.

The Riverside County Transportation Commission (RCTC), in cooperation with the California Department of Transportation (Caltrans), is proposing to develop a tolled express lane network to meet existing and future travel demand, enhance mobility, and afford greater user flexibility on Interstate 15 (I-15) in Riverside County. The primary component of the Project would be the addition of two tolled express lanes[1] in both the northbound (NB) and southbound (SB) directions within the median of I-15 from State Route (SR-) 74 (Central Avenue) (post mile [PM] 22.3) in the city of Lake Elsinore, through the unincorporated Riverside County community of Temescal Valley to El Cerrito Road (PM 38.1) in the city of Corona for a distance of approximately 15.8 miles (**Appendix A, Figures 1** and **2**). The Project would also add a SB auxiliary lane between both Main Street (PM 21.2) Off-Ramp and SR-74 (Central Avenue) On-Ramp (approximately 0.75 mile), and SR-74 (Central Avenue) Off-Ramp and Nichols Road On-Ramp (PM 23.9) (approximately one mile). Along with the lane additions, which extend from PM 21.2 to PM 38.1, the Project would include widening of up to 15 bridges; potential construction of noise barriers, retaining walls, and drainage systems; and implementation of electronic toll collection equipment and signs. In addition, due to the SB express lanes access between the Cajalco Road and Weirick Road interchanges, the SB I-15 Weirick Road off-ramp would be configured as a dual lane exit. Associated improvements, including advance signage and transition striping, would extend two miles from each end of the project limits to PM 20.3 in the south and PM 40.1 in the north. The proposed lane additions and supporting infrastructure are expected to be constructed primarily within the existing state right of way (ROW) with the majority of the improvements occurring within the existing I-15 median (**Appendix A, Figure 3**). The Project is intended to improve and manage traffic operations, congestion, and travel times along the corridor.

Biological Study Areas (BSAs) were developed for the Project to address potential direct and indirect effects. Direct effects are evaluated within the Project's limits of disturbance (LOD). The LOD represents the area proposed for direct impact, including permanent, temporary, and shading effects. The BSA includes a survey area consisting of buffer surrounding the LOD. The size of the buffer depends on the biological resource (e.g., a 50-foot buffer surrounding the LOD was used as the BSA for jurisdictional resources [i.e., waters and wetlands]; a 100-foot buffer for rare plants, bats, and fairy shrimp; a 300-foot

[1] Express lanes are traffic lanes that are separated from general purpose lanes where users are charged a toll to use the lanes.

buffer for least Bell's vireo and southwestern willow flycatcher; and a 500-foot buffer for burrowing owl and general biological resources, such as vegetation mapping and wildlife corridors).

The Project is identified in the MSHCP as a Planned Road and a Covered Activity (MSHCP Volume I, Section 7.3.5). Portions of the Project lie both inside and outside of Criteria Areas. Coverage under the MSHCP provides an expedited process for biological resource permitting and approvals, as well as compensatory mitigation under CEQA. For those MSHCP covered resources, no additional mitigation or requirements beyond those necessitated by the MSHCP would be applied to the Project.

Habitat evaluations were performed for special-status species, including Narrow Endemic and Criteria Area plant species, Riverside fairy shrimp (*Streptocephalus woottoni*), vernal pool fairy shrimp (*Branchinecta lynchi*), San Diego fairy shrimp (*Branchinecta sandiegonensis*), burrowing owl (*Athene cunicularia*), least Bell's vireo (*Vireo bellii pusillus*; LBV), southwestern willow flycatcher (*Empidonax traillii extimus*; SWFL), and species not adequately covered by the MSHCP. Focused surveys for these special-status species were performed in 2020 and 2021 where suitable habitat occurred and access was available. In addition, a review of riparian/riverine and vernal pool resources was performed, and a Federal and State jurisdictional waters and wetlands delineation was conducted. During the spring of 2020, focused studies for SWFL and LBV were conducted in the Temescal Wash and associated tributaries. Surveys were conducted in 2020 and 2021 for rare plants, fairy shrimp, burrowing owl, and special-status bats where access was available. Focused surveys were negative for all Narrow Endemic and Criteria Area plant species, fairy shrimp, and SWFL. LBV was detected during surveys and 11 use areas were identified for LBV during 2020 surveys. Suitable habitat occurs for Crotch bumble bee (*Bombus crotchii*) and monarch butterfly (*Danaus plexippus* pop. 1) within the BSA, but not within the limits of disturbance (LOD). Measures to avoid indirect effects on these species will be implemented as a part of the Project.

MSHCP riparian/riverine resources are present within the Project's study area and are proposed for removal. The Build Alternative would result in impacts on 7.15 acres of riparian/riverine resources, with 2.26 acres of this being riparian vegetated acreage and the remaining 4.89 acres being riverine.

The Build Alternative would result in the permanent removal of 0.01 acre of federal jurisdictional non-wetlands and temporary impacts on 2.51 acres of federal jurisdictional non-wetlands and 0.03 acre of federal jurisdictional wetlands, along with an additional 0.20 acre of non-wetland RWQCB jurisdictional waters of the State. In addition, the Build Alternative would result in the permanent removal of 0.07 acre state streambeds, temporary impacts on 3.82 acres of state streambeds, and shading impacts on 1.00 acre. A total of 2.26 acres of CDFW riparian would be affected by the project (<0.01 acre permanent, 1.80 acre temporary, and 0.46 acre shading effects). Authorization under Section 404 of the CWA Nationwide Permit and Water Quality Certification under Section 401 of the CWA (and a Porter-Cologne Water Quality Control Act permit for impacts on state waters only) would be required, as would a CDFW 1602 Streambed Alteration Agreement (refer to Chapter 5).

MSHCP cores are located within the study area: Proposed Existing Core C (Lake Mathews/Estelle Mountain), Proposed Extension of Existing Core 2, Proposed Core 1, Proposed Linkage 1, Proposed Linkage 2, Proposed Constrained Linkage 3, Proposed Constrained Linkage 5, and Proposed Constrained

Linkage 6. The Project would not appreciably affect the ability of the cores and linkages to function as needed for the MSHCP due to the project design.

There is potential for the Project to impact non-listed special-status plants and wildlife. Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina;* California Rare Plant Rank [CRPR] 1B.2, MSHCP Covered Species) was found within the BSA. Thirty-four species of non-listed, special-status animals were initially determined to have potential for occurrence in the study area based on known range and the presence of suitable habitat (Appendix B). These include arroyo chub (*Gila orcuttii*), coast range newt (*Taricha torosa torosa*), western spadefoot (*Scaphiopus hammondii*), California glossy snake (*Arizona elegans occidentalis*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), Belding's orange-throated whiptail (*Aspidocelis hyperythrus beldingi*), California legless lizard (*Anniella stebbinsi*), red-diamond rattlesnake (*Crotalus ruber*), Coronado skink (*Eumeces skiltonianus interparietalis*), coast western patch-nosed snake (*Salvadora hexalepis virgultea*), San Diego coast horned lizard (*Phrynosoma coronatum blainvillii*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus hudsonius*), golden eagle (*Aquila chrysaetos*), peregrine falcon (*Falco peregrinus anatum*), burrowing owl, long-eared owl (*Asio otus*), loggerhead shrike (*Lanius ludovicianus*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), grasshopper sparrow (*Ammodramus savannarum*), yellow warbler (*Setophaga petechia*), yellow-breasted chat (*Icteria virens*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), western red bat (*Lasiurus blossevillii*), western yellow bat (*Lasiurus xanthinus*), pocketed free-tailed bat (*Nyctinomops* [=*Tadarida*] *femorosaccus*), big free-tailed bat (*Nyctinomops macrotis*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), Dulzura pocket mouse (*Chaetodipus californicus femoralis*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), San Diego desert woodrat (*Neotoma lepida intermedia*), and American badger (*Taxidea taxus*). Twenty-two of these species are fully covered under the MSHCP, and twelve are not covered under the MSHCP or require additional study under the Plan. Of these, Belding's orange-throated whiptail, yellow-breasted chat, and yellow warbler were observed, all of which are fully covered under the MSHCP. With the exception of burrowing owl, presence/absence surveys were not required for any of these species as a part of the environmental review process. A focused survey was conducted for burrowing owl, which is a Covered species requiring additional study under the Plan (see Chapter 4 for details). Surveys were conducted in 2020 and 2021, and no burrowing owls were detected.

Critical Habitat for coastal California gnatcatcher and San Diego ambrosia occurs within the wildlife and rare plant BSA, respectively. However, the Critical Habitat for these species was designated as excluded within the Plan boundary. Refer to Chapter 5 for details.

Table S-1 lists the biological resources that could be affected by the Build Alternative; the MSHCP coverage for these species; the impact type; the avoidance, minimization, and mitigation measures; and any required compensatory measures. The No-Build Alternative has not been included in Table S-1.

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
Riversidian Sage Scrub	Fully covered	3.33	128.58	0.07	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans**	None
Chaparral	Fully covered	0.00	1.49	0.00	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans**	None
Native Grasslands	Fully covered	0.00	0.31	0.00	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans**	None
Wildflower Fields	Fully covered	0.09	2.29	0.00	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans**	None
Riparian Sensitive Natural Communities[1]	Not covered	None	2.29	0.18	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans**	None
Protected Trees	Not covered	None	Up to three oak trees	None	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans**	Measure **BIO-19, Oak Tree Management**

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
MSHCP Riparian/Riverine[1]	Covered - Section 6.1.2	0.07	5.62	1.46	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-15, DBESP; ; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings; BIO-22, Temescal Wash – Biological Monitoring; BIO-24, Waste Management; BIO-26, Bat Management Plan;** and **BIO-28, Nesting Bird Management Plan**	Measures **BIO-15 (Determination of Biologically Equivalent or Superior Preservation [DBESP]), BIO-16, Riparian/Riverine Compensation; BIO-17, Compensatory Mitigation;**
Habitat Connectivity	N/A	N/A	N/A	N/A	**BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-18, Night Lighting Management;** and **BIO-20, Wildlife Undercrossings**	Measures **BIO-15, DBESP; BIO-16, Riparian/Riverine Compensation; BIO-17, Compensatory Mitigation;**
Threatened and Endangered Plants	N/A	None	None	None	None	None
Non-Listed Special-Status Plants	N/A	None	None	None	None	None
Listed Fairy Shrimp[1]	Covered - species survey requirement	Absent	Absent	Absent	None; species is absent.	None
Quino Checkerspot Butterfly	Fully covered	13.84	226.45	0.29	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10,**	None

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
					Revegetation; BIO-11, Access; BIO-22, Temescal Wash – Biological Monitoring;	
Crotch Bumble Bee	Not covered	None	None	None	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-30, Insect Measures**	None
Monarch Butterfly	Not covered	None	None	None	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-30, Insect Measures**	None
Arroyo Toad	Fully-covered	None	2.65	0.22	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-20, Wildlife Undercrossings; BIO-22, Temescal Wash – Biological Monitoring;** and **BIO-24, Waste Management**	None
Least Bell's Vireo[1]	Covered[1]-species survey requirement	0.00	2.76	0.19	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings; BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-22, Temescal Wash – Biological Monitoring; BIO-24, Waste Management;** and **BIO-28, Nesting Bird Management Plan**	Measures **BIO-15, DBESP; BIO-23 LBV Habitat Compensation; BIO-29, MSHCP Species Conservation;**

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
Southwestern Willow Flycatcher[1]	Covered[1]-species survey requirement	None	None	None	None	None
Tricolored Blackbird	Fully-covered	None	3.38	0.19	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings;BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-24, Waste Management;** and **BIO-28, Nesting Bird Management Plan**	None
Coastal California Gnatcatcher	Fully-covered	3.33	129.15	0.07	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-18, Night Lighting Management; BIO-24, Waste Management;** and **BIO-28, Nesting Bird Management Plan**	None
Stephens' Kangaroo Rat (SKR)	Fully covered	13.84	225.80	0.47	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings;** and **BIO-24, Waste Management**	None
San Bernardino Kangaroo Rat (SBKR)	Fully covered	13.67	190.46	0.47	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings;** and **BIO-24, Waste Management**	None

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
Mountain Lion	Fully covered	13.85	234.19	0.66	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings;** and **BIO-24, Waste Management**	None
Non-MSHCP Special-Status Mammals (Dulzura pocket mouse and American badger)	Not covered	Up to 13.84	226.76	0.47	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14,** and **BIO-18, Night Lighting Management**	None
Non-MSHCP Special-Status Reptiles[2]	Not covered	Up to 13.84	Up to 226.76	Up to 0.51	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14,** and **BIO-18, Night Lighting Management**	None
Burrowing Owl	Covered – species survey requirement	20.65	93.83	0.41	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-18, Night Lighting Management; BIO-24, Waste Management;** and **BIO-25, Burrowing Owl Management Plan**	None

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
Long-Eared Owl	Not covered.	None	0.41	0.04	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-18, Night Lighting Management; BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-24, Waste Management; BIO-25, Burrowing Owl Management Plan;** and **BIO-28, Nesting Bird Management Plan**	None
Grasshopper Sparrow[3]	Not yet fully covered[3]	10.51	96.34	0.22	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-18, Night Lighting Management; BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-24, Waste Management;** and **BIO-28, Nesting Bird Management Plan**	None
Special-Status Bats	Not covered	0.01 (roosting)	6.41 (roosting)	0.34 (roosting)	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-18, Night Lighting Management; BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-24, Waste Management;** and **BIO-26, Bat Management Plan**	None

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
Non-Listed MSHCP-Fully Covered Animal Species	Fully covered	13.85	234.19	0.66	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-15, DBESP; BIO-16, Riparian/Riverine Compensation; BIO-17, Compensatory Mitigation; BIO-18, Night Lighting Management; BIO-19, Oak Tree Management; BIO-20, Wildlife Undercrossings; BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-22, Temescal Wash – Biological Monitoring;** and **BIO-28, Nesting Bird Management Plan**	None

[1] Requires evaluation under Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools of the MHSCP, to be met.
[2] California glossy snake, coastal whiptail, California legless lizard, Coronado skink, and coast western patch-nosed snake.
[3] Species-specific conservation objectives that need to be met before this is a MSHCP fully covered species.

Permits, reviews, and approvals necessary for the Project are listed and described in Table S-2.

Table S-2. Permits and Approvals

Agency	Permit/Approval	Status
California Department of Fish and Wildlife	1602 Streambed Alternation Agreement	Application to be submitted during the plans, specifications and estimate (PS&E) phase
	Joint Project Review (JPR) for MSHCP Consistency	To provide request to CDFW for concurrence with MSHCP consistency prior to final approval of the CEQA/NEPA document
Regional Water Quality Control Board	Porter-Cologne Act and CWA Section 401 Water Quality Certification	Application to be submitted during PS&E
U.S. Army Corps of Engineers	CWA Section 404 Nationwide Permit	Application to be submitted during PS&E
Regional Conservation Authority (RCA)	JPR for MSHCP Consistency	To provide request to RCA for MSHCP consistency determination prior to final approval of the CEQA/NEPA document
U.S. Fish and Wildlife Service (USFWS)	Federal Endangered Species Act Section 7 consultation/ JPR for MSHCP consistency	To provide request to USFWS for concurrence with MSHCP consistency prior to final approval of the CEQA/NEPA document

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1 Introduction

In cooperation with Caltrans, the RCTC, is proposing to develop a tolled express lane network on I-15 in Riverside County. The primary component of the Project would be the addition of two tolled express lanes in both the NB and SB directions within the median of I-15 from SR-74 in the city of Lake Elsinore, through the unincorporated Riverside County community of Temescal Valley to El Cerrito Road in the city of Corona for a total distance of approximately 15.8 miles (**Appendix A, Figures 1 and 2**). The Project would also add a SB auxiliary lane between both Main Street Off-Ramp and SR-74 On-Ramp (approximately 0.75 mile), and SR-74 Off-Ramp and Nichols Road On-Ramp (approximately 1 mile). Along with the lane additions the Project would include widening of up to 15 bridges; potential construction of noise barriers, retaining walls, and drainage systems; and implementation of electronic toll collection equipment and signs. In addition, due to the SB express lanes access between the Cajalco Road and Weirick Road interchanges, the SB I-15 Weirick Road off-ramp would be configured as a dual lane exit. Associated improvements, including advance signage and transition striping, would extend 2 miles from each end of the project limits to PM 20.3 in the south and PM 40.1 in the north. The proposed lane additions and supporting infrastructure are expected to be constructed primarily within the existing state right of way (ROW) with the majority of the improvements occurring within the existing I-15 median (**Appendix A, Figure 3**).

1.1 Project History

1.1.1 Project Purpose

The purpose of the Project is to:

- Improve and manage traffic operations, congestion, and travel times along the corridor
- Expand travel mode choice along the corridor
- Provide an option for travel time reliability
- Provide a cost-effective mobility solution
- Expand and maintain compatibility with the express lane network in the region

1.1.2 Project Need

Existing traffic volumes often exceed current highway capacity along several segments of I-15 between SR-74 (Central Avenue) and El Cerrito Road. Due to forecasted population growth, and the continued development to support the projected growth in the region, the I-15 corridor is expected to continue to experience increased congestion and longer commute times that are projected to negatively affect traffic operations along the freeway mainline.

The adopted Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan (RTP) Growth Forecast estimates a 36.7 percent increase in population in Riverside County between 2015 and 2040. SCAG's recently adopted Connect SoCal (2020–2045 RTP/Sustainable Communities Strategy [SCS]) Growth Forecast estimates a 38.3 percent increase in population in Riverside County

between 2020 and 2045, with the number of households and employment increasing by approximately 30.5 and 34.02 percent, respectively. In the City of Corona, the 2020–2045 RTP/SCS Growth Forecast estimates an 11.6 percent increase in population from 2016 to 2045 and an 11.7 percent increase in households. According to the same source, the City of Lake Elsinore is projected to see a 76.8 percent increase in population. This projected growth is expected to place a high demand on existing transportation facilities and services.

Currently, north-south mobility options for motorists are limited through this portion of Riverside County. Besides local streets, the only parallel route for motorists is I-215, which is over 10 miles east of I-15 and generally serves a different region within Riverside County.

1.2 Project Description

The RCTC) in cooperation with Caltrans is proposing to construct new lanes along I-15 between PM 21.2 and PM 38.1 in Riverside County, California (**Appendix A, Figures 1** and **2**). The primary component of the I-15 Express Lanes Project Southern Extension (Project) would be the addition of two tolled express lanes[2] in both the NB and SB directions within the median of I-15 from SR-74 (Central Avenue) (PM 22.3) in the City of Lake Elsinore, through the unincorporated Riverside County community of Temescal Valley, to El Cerrito Road (PM 38.1) in the City of Corona, for a distance of approximately 15.8 miles. The proposed Project would also add a SB auxiliary lane between both the Main Street (PM 21.2) off-ramp and SR-74 (Central Avenue) on-ramp (approximately 0.75 mile), and the SR-74 (Central Avenue) off-ramp and Nichols Road on-ramp (PM 23.9) (approximately 1 mile). Along with the lane additions, which would extend from PM 21.2 to 38.1, the proposed Project would include widening of up to 15 bridges; potential construction of noise barriers, retaining walls, and drainage systems; and implementation of electronic toll collection equipment and signs. In addition, due to the SB express lanes access between the Cajalco Road and Weirick Road interchanges, the SB I-15 Weirick Road off-ramp would be configured as a dual lane exit. Associated improvements for the toll lanes, including advance signage and transition striping, would extend approximately 2 miles from each end of the express lane limits to PM 20.3 in the south and PM 40.1 in the north. The proposed lane additions and supporting infrastructure are expected to be constructed primarily within the existing State ROW. This Project is included in the 2019 Federal Transportation Improvement Program (FTIP) as Project ID RIV170901. It is also included in SCAG's *Connect SoCal* 2020–2045 RTP/SCS as Project ID 3160001.

The FTIP and RTP listings for this Project were amended in April 2021 to accurately reflect the scope and limits of the Project as currently proposed. The amended FTIP and RTP listings will state the following:

> *IN WESTERN RIVERSIDE COUNTY – ON I-15, ADD 2 EXPRESS LANES IN EACH DIRECTION, GENERALLY IN THE MEDIAN, FROM SR-74 (CENTRAL AVENUE) (PM 22.3) IN THE CITY OF LAKE ELSINORE TO EL CERRITO ROAD (PM 38.1) IN THE CITY OF CORONA. CONSTRUCT SB AUXILIARY LANE FROM MAIN STREET (PM 21.2) TO SR-74 (CENTRAL AVENUE) (PM 22.3) AND FROM SR-74 (CENTRAL AVENUE) (PM 22.3) TO NICHOLS ROAD (PM 23.9). SIGNAGE AND TRANSITION STRIPING EXTENDS TO PM 20.3 TO THE SOUTH AND PM 40.1 TO THE NORTH.*

[2] Express lanes are traffic lanes that are separated from general purpose lanes where users are charged a toll to use the lanes.

2 Study Methods

2.1 Regulatory Requirements

This Natural Environment Study (NES) describes the existing biological environment of the Project and discusses its effects on biological resources. This section of the NES summarizes the applicable regulations for protecting biological resources that are pertinent to the Project.

2.1.1 Federal Requirements

National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA), as amended, requires all federal agencies to consider environmental factors through a systematic and interdisciplinary approach before committing to a course of action. The NEPA process is a framework for environmental evaluation of federal actions; it is applicable to all Federal Highway Administration (FHWA) actions. The following quotation from NEPA text summarized the law:

> "The Congress ... declares that it is the continuing policy of the federal Government … to use all practicable means and measures, including financial and technical assistance ... to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." (42 USC § 4331)

Clean Water Act Section 404

Clean Water Act Section 404: The discharge (temporary or permanent) of dredged or fill material into waters of the United States, including wetlands, typically requires authorization from the USACE pursuant to Section 404 of the Clean Water Act (CWA).

Waters of the United States: USACE-regulated activities under Section 404 of the CWA involve the discharge of dredged or fill material. These include, but are not limited to, grading, placing riprap for erosion control, pouring concrete, laying sod, and stockpiling excavated material in waters of the United States. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, some drainage channel maintenance activities, constructing temporary mining and farm/forest roads, and excavating without stockpiling.

Wetlands: Normally, three criteria must be satisfied to classify an area as a jurisdictional wetland: (1) a predominance of plant life adapted to living in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology) (USACE 1987; USACE 2008).

Clean Water Act Section 401

Under Section 401 of the CWA, any project activities that involve a discharge of dredge or fill material into waters of the United States shall obtain a certification that the discharge complies with the applicable provisions of the CWA. The State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCB) administer the certification program and regulate, at the state level, all activities that are regulated at the federal level by USACE. Therefore, RWQCB jurisdiction usually coincides with the jurisdictional boundaries for waters of the United States. However, if the aquatic resource is determined not to be a waters of the United States, it may still be subject to SWRCB/RWQCB jurisdiction pursuant to the Porter-Cologne Water Quality Control Act (see Section 2.1.2 below). In circumstances where a proposed project crosses multiple RWQCB jurisdictional boundaries, the SWRCB would generally assume regulatory responsibilities with respect to CWA Section 401 and the Porter-Cologne Water Quality Control Act.

Federal Endangered Species Act

The FESA of 1973 was enacted to conserve species of fish, wildlife, and plants facing extinction, as well as their habitat. Section 7 of FESA requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. Such determinations are made in consultation with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NOAA Fisheries) which share responsibilities for administering FESA. Take of listed species is prohibited by Section 9 of FESA; however, Section 10 and Section 7 include processes whereby take may be allowed. At the conclusion of Section 7 consultation, USFWS will issue a streamlined biological opinion, which will include a statement authorizing take that may occur incidental to an otherwise legal activity (i.e., an incidental take statement). In addition, the Project must be consistent with the terms and conditions of the Multiple Species Habitat Conservation Plan (MSHCP or Plan) (RCIP 2003) and its Implementation Agreement. Any reasonable and prudent measures included under the terms and conditions of the FESA streamlined biological opinion would be consistent with the implementation of the MSHCP and its Implementation Agreement.

Migratory Bird Treaty Act

This treaty with Canada, Mexico, and Japan makes it unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, or kill migratory birds. The law applies to the removal of nests (such as swallow nests on bridges) occupied by migratory birds during the breeding season.

Executive Order 11990 – Protection of Wetlands

This Executive Order (EO) established a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative. The U. S. Department of Transportation (DOT) promulgated DOT Order 5660.1A in 1978 to comply with this direction. On federally funded projects, impacts on wetlands must be identified. Alternatives that avoid wetlands must be considered. If wetland impacts cannot be avoided, then all practicable measures to minimize harm must be included and documented in a specific Wetlands Only Practicable Alternative Finding.

Additional requirement is to provide early public involvement in projects affecting wetlands. FHWA provides technical assistance in the *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (Technical Advisory T 6640.8A) and reviews environmental documents for compliance.

Executive Order 13112 – Invasive Species

On February 3, 1999, President William J. Clinton signed EO 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." FHWA guidance issued August 10, 1999, directs the use of the state's invasive species list, maintained by the Invasive Species Council of California, to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

Under the EO, federal agencies cannot authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless all reasonable measures to minimize risk of harm have been analyzed and considered.

2.1.2 State Requirements

California Environmental Quality Act

CEQA of 1970, as amended, requires public agencies to regulate activities that may affect the quality of the environment so that major consideration is given to preventing damage to the environment. The Governor's Office of Planning and Research publishes, and the California Natural Resources Agency updates, "The Guidelines for the Implementation of the California Environmental Quality Act" which are binding regulations for public agencies' implementation of the act. These guidelines establish an overall process for the environmental evaluation of projects that is similar to that promulgated under NEPA. The Guidelines make provisions for joint NEPA/CEQA documents.

Department of Transportation and California Transportation Commission Regulations to Implement CEQA

CEQA Section 21082 requires that each public agency adopt regulations to implement the act. Caltrans and the California Transportation Commission (CTC) jointly adopted regulations codified in Title 21 California Code of Regulations Chapter 11, which were later amended in 1997 to adopt the State CEQA Guidelines as the two agencies' procedures to implement CEQA, and were further amended in 2004 to clarify the CTC's responsibilities.

Porter-Cologne Water Quality Control Act

The SWRCB and RWQCBs regulate activities that would involve "discharging waste, or proposing to discharge waste, within any region that could affect waters of the State" (California Water Code § 13260[a]), pursuant to provisions of the Porter-Cologne Water Quality Control Act. Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code § 13050 [e]). Such waters may include waters not subject to regulation

under Section 404 (i.e., excluded features), as well as features not regulated by USACE because of a lack of connectivity with a navigable water body or the lack of an Ordinary High-Water Mark (OHWM).

California Fish and Game Code Sections 1600 et Seq. (Streambed Alteration)

Under California Fish and Game Code, Sections 1600-1616, the CDFW has authority to regulate work that would substantially divert or obstruct the natural flow—or substantially change or use any material from the bed, channel, or bank—of any river, stream, or lake. CDFW also has authority to regulate work that would deposit or dispose of debris, water, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. This regulation takes the form of a requirement for a Lake or Streambed Alteration Agreement and is applicable to all projects involving state or local government discretionary approvals.

California Endangered Species Act

CESA (Fish and Game Code § 2050 et seq.) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no state agency consultation procedures under CESA. For projects that affect both a state and federal listed species, compliance with the FESA may satisfy CESA if the CDFW determines that the federal incidental take authorization is "consistent" with CESA under Fish and Game Code § 2080.1. For projects that will result in a "take" of a state-only listed species, Caltrans must apply for an incidental take permit under Fish and Game Code § 2081(b). In addition, the Project must be consistent with the terms and conditions of the MSHCP (RCIP 2003) and its Implementation Agreement. Any reasonable and prudent measures included under the terms and conditions of a CESA permit would be consistent with the implementation measures of the MSHCP and its Implementation Agreement.

Native Plant Protection Act

California's Native Plant Protection Act (NPPA) requires all state agencies to utilize their authority to carry out programs to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notifying CDFW at least 10 days in advance of any change in land use. This allows CDFW to salvage listed plant species that would otherwise be destroyed. Caltrans is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

State Senate Concurrent Resolution No. 17 – Oak Woodlands

State Senate Concurrent Resolution No. 17 – Oak Woodlands requests state agencies having land use planning duties and responsibilities to assess and determine the effects of their decisions or actions within any oak woodlands containing blue, Engelmann, valley, or coast live oak. The measure requests those state agencies to preserve and protect native oak woodlands to the maximum extent feasible or provide replacement plantings where designated oak species are removed from oak woodlands.

California Fish and Game Code Sections 3503, 3503.5, 3505, and 3513 (Bird and Nesting Protections)

California Fish and Game Code Section 3503 states that is it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code or any regulation made pursuant thereto. Section 3503.5 prohibits the take, possessions, or needless destruction of any nests, eggs, or birds of the orders Falconiformes (new world vultures, hawks, eagles, ospreys, and falcons, among others) or Strigiformes (owls). Section 3505 states that it is unlawful to take, sell, or purchase any aigrette or egret, osprey, bird of paradise, goura, numidi, or any part of such a bird. Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the Migratory Bird Treaty Act (MBTA).

California Fish and Game Code Sections 3511 (Birds), 4700 (Mammals), 5050 (Amphibians and Reptiles), and 5515 (Fish) (Fully Protected Species)

These sections list 37 fully protected species and prohibit take or possession at any time of the species listed with few exceptions. The code defines take as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Except for take related to scientific research, all take of fully protected birds is prohibited. The fully protected species lists include fishes, mammals, amphibians and reptiles, and birds that that were determined to be rare or face possible extinction. Many, but not all, of the fully protected species are also listed as protected under FESA and CESA.

State Assembly Bill 498/California Fish and Game Code Section 1797.5

Assembly Bill (AB) 498 was adopted to amend California Fish and Game Code Section 1797.5. It describes the state's policy to promote voluntary protection for functioning wildlife corridors and habitat strongholds in order to enhance the resiliency of wildlife and their habitats to climate change, protect biodiversity, and allow for the migration and movement of species by providing connectivity between habitat lands wherever feasible and practicable. This includes, but is not limited to, acquisition or protection of wildlife corridors through conservation easements; installation of wildlife-friendly or directional fencing; siting of mitigation and conservation banks in areas that provide habitat connectivity; and the provision of roadway wildlife undercrossings, overpasses, culverts, and bridges that allow wildlife movement between habitat areas.

2.1.3 Local and Regional Requirements

Western Riverside County Multiple Species Habitat Conservation Plan

The Western Riverside County MSHCP, a comprehensive regional Habitat Conservation Plan (HCP), was adopted in June 2003 (Dudek & Associates, Inc. 2003). Major participants in the regional planning effort included, but were not limited to, Caltrans, CDFW, USFWS, Riverside County, RCTC, 14 cities, and interested individuals and groups. The RCTC signed the Implementation Agreement on December 15, 2003. This Plan, among other things, provides impact mitigation for future County projects on circulation element roads in the covered area of western Riverside County.

Participation by Caltrans is intended to streamline the environmental process for future transportation projects in western Riverside County and save money over the long term. A summary of the Project's consistency with the MSHCP is provided in **Chapter 5**.

Existing routes covered under the MSHCP include I-10, I-15, SR-74, SR-79, SR-91, and I-215 at various segments (MSHCP Volume I, Section 7.3.5). The covered transportation routes require discretion by Caltrans with respect to design, construction, and operational decisions to minimize adverse impacts on existing habitat that may be affected by project activities. Where impacts cannot be avoided, Caltrans will make reasonable efforts to mitigate the impacts.

The Project involves an existing facility and therefore is a Covered Activity. The Biological Study Area (BSA) occurs within the Temescal Canyon and Elsinore Area Plans. The Project occurs within Criteria Cells as outlined in **Table 2-1**.

Table 2-1. MSHCP Criteria Cells within the Biological Study Area

Subunit	Criteria Cell	Cell Group
Elsinore Area Plan		
Subunit 1– Estelle Mountain/Indian Canyon	3448	A
	3449	A
	3547	C
	3645	C
	3548	D
	3646	D
	3549	E
	3647	E
	3648	F
	3748	N/A[1]
	3649	H
	3749	H
	3650	I
	3750	I
	3751	J
	3752	J
	3753	J
	3756	J
Subunit 2 – Alberhill	3853	N/A[1]
	3855	N/A[1]
	3856	O

Table 2-1. MSHCP Criteria Cells within the Biological Study Area

Subunit	Criteria Cell	Cell Group
	3859	O
	3959	V
	3964	N/A[1]
	4067	W
	4070	W
Subunit 3 – Elsinore	4166	N/A[1]
	4169	N/A[1]
	4266	N/A[1]
Temescal Canyon Area Plan		
Subunit 3 – Temescal Wash West	2400	C
	2723	D
	2827	E
	2931	E
	3035	F
	3245	H
	3348	I
	3349	I
Subunit 5- Temescal/Santa Ana Mountains	3546	N/A[1]

[1]This Criteria Cell is not part of a Cell Group.

The specific MSHCP linkages and cores, from south to north, that overlap the BSA are: the Proposed Core 1; Proposed Constrained Linkage 6; Proposed Constrained Linkage 5; Proposed Linkage 1; Proposed Extension of Existing Core 2; and Proposed Extension of Constrained Linkage 3.

Portions of the Project would occur in the following MSHCP survey areas:

- Criteria Area Species Survey Area 1 (Section 6.3.2 of the MSHCP) (**Appendix A, Figure 4a**)
    - Criteria Area Plant Species Survey Area 1 Species: thread-leaved brodiaea (*Brodiaea filifolia*; federally threatened [FT], state listed endangered [SE], California Rare Plant Rank [CRPR[3]] 1B.1), Davidson's saltscale (*Atriplex serenana* var. *davidsonii*; CRPR 1B.2), Parish's saltscale (*Atriplex parishii*; CRPR 1B.1), round-leaved filaree (*California macrophylla*), smooth tarplant (*Centromadia pungens* spp. *laevis;* CRPR 1B.1), Coulter's goldfields (*Lasthenia glabrata* spp. *coulteri*; CRPR 1B.1), and little mousetail (*Myosurus minimus* spp. *apus*; CRPR 3.1)

[3] The CNPS Rare Plant Ranking (CRPR) system ranges from presumed extinct species, California Rare Plant Rank (CRPR) 1A, to limited distribution species now on a watch list CRPR 4.

- Narrow Endemic Plant Species Survey Areas (Section 6.1.3 of the MSHCP) 1 and 7 (**Appendix A, Figure 4b**)
    - Narrow Endemic Plant Species Survey Area 1 Species : Munz's onion (*Allium munzii*; federally listed endangered [FE], state listed threatened [ST], CRPR 1B.1); San Diego Ambrosia (*Ambrosia pumila*; FE, CRPR 1B.1), slender-horned spineflower (*Dodecahema leptoceras*; FE, SE, CRPR 1B.1), many-stemmed dudleya (*Dudleya multicaulis*; CRPR 1B.2), spreading navarretia (*Navarretia fossalis*; FT, CRPR 1B.1), California orcutt grass (*Orcuttia californica*; FE, SE, CRPR 1B.1), San Miguel savory (*Clinopodium chandleri*; CRPR 1B.2), Hammitt's clay-cress (*Sibaropsis hammittii*; CRPR 1B.2), and Wright's trichocoronis (*Trichocoronis wrightii var. wrightii*; CRPR 2.1)
    - Narrow Endemic Plant Species Survey Area 7 Species – San Diego ambrosia, Brand's phacelia (*Phacelia stellaris*; CRPR 1B.1), and San Miguel savory
- Burrowing owl (*Athene cunicularia*; CDFW species of special concern [SSC]) Survey Area (**Appendix A, Figure 4c)**

The protection of riparian/riverine areas and vernal pools (Section 6.1.2 of the MSHCP) requires procedures to ensure the biological functions and values of these areas throughout the MSHCP Plan Area are maintained for the species within the MSHCP Conservation Areas. As a part of this effort, riparian/riverine areas and vernal pools are identified through surveys, mapping, and documentation. If during the mapping process, suitable habitat is identified for the species identified below and the Project cannot avoid the identified habitat, then focused surveys for these species are required. If the species are detected, then avoidance and minimization measures are required in accordance with the species-specific objectives for those species.

Birds

- Least Bell's vireo (*Vireo bellii pusillus*; FE, SE; LBV)
- Southwestern willow flycatcher (*Empidonax traillii extimus*; FE, SE; SWFL)
- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*; FT, SE)

Invertebrates/Crustaceans

- Riverside fairy shrimp (*Streptocephalus woottoni*; FE)
- Santa Rosa Plateau fairy shrimp (*Linderiella santarosae*)
- Vernal pool fairy shrimp (FT)

In summary, the MSHCP requires the Project to fulfill the requirements presented in MSHCP Volume I, Sections 6.1.2, 6.1.3, 6.1.4 (Guidelines Pertaining to the Urban/Wildlands Interface), 6.3.2, 7.5.1 (Guidelines for the Siting and Design of Planned Roads within the Criteria Area and Public/Quasi-Public Lands), and 7.5.3 (Construction Guidelines), and follow the best management practices (BMPs) in Appendix C of the Plan.

A consistency review by the Western Riverside County Regional Conservation Authority (RCA), USFWS, and CDFW will be performed through the JPR process to ensure that the Project is consistent with the requirements of the MSHCP. Because there is a federal nexus for the Project, the consistency review will result in a streamlined biological opinion from USFWS. Formal consultation under Section 7 will not be necessary.

Stephens' Kangaroo Rat Habitat Conservation Plan

The Project occurs within the boundaries of the species' long-term HCP of Stephens' kangaroo rat (*Dipodomys stephensi*; SKR) (FE, ST) in western Riverside County (SKR HCP; Riverside County Habitat Conservation Agency [RCHCA] 1996). SKR is a fully covered species under the MSHCP.

Under Section 10 of FESA, the HCP for the SKR in western Riverside County was entered into by the RCHCA and USFWS in April 1996. The HCP describes the conservation, mitigation, and monitoring measures to be implemented by the RCHCA members within the plan area. USFWS issued a Biological Opinion and Incidental Take Statement, and CDFW issued an agreement, authorizing incidental management and take of the SKR, which is protected under both CESA and FESA. The boundaries of the HCP plan area encompass more than 533,954 acres that generally correspond to the historic range of SKR in western Riverside County but include only those lands within the jurisdictions of RCHCA members (the County of Riverside and the cities of Corona, Hemet, Lake Elsinore, Menifee, Moreno Valley, Murrieta, Perris, Riverside, Temecula, and Wildomar). Core reserves were established to conserve the species and its habitat and ensure the persistence of SKR in the plan area.

The Project would occur within the SKR HCP plan area, but outside of core reserves. Public works projects receive coverage under this HCP for potential take of SKR and are exempt from fee payment under this plan.

County of Riverside Oak Tree Management

Riverside County's oak tree management guidelines are intended to provide long-term protection and conservation of oak trees and oak woodlands and guidance on establishing baseline oak tree data to develop adequate avoidance, minimization, and/or compensation for impacts on this natural resource.

County of Riverside Tree Removal Ordinances

Riverside County's tree removal ordinance Chapter 12.08.050 states that the removal, trimming, or planting of a tree in the ROW of any county highway without first obtaining a permit from the County transportation director is prohibited. The permit may include conditions deemed necessary, such as tree relocation or replacement, or that work be done by a qualified tree surgeon or tree trimmer.

Tree removal ordinance Chapter 12.24.010 states that no person shall remove any living native tree above 30 feet in height and 12 inches in diameter at breast height on any parcel or property greater than 0.5 acre in size, that is above 5,000 feet in elevation in Riverside County, without first obtaining a permit to do so.

Oak Tree Management Guidelines implemented by Riverside County in 1993 to address the treatment of oak woodlands in areas where zoning and/or general plan density restrictions would allow for the use of clustering in project design.

Open Space and Conservation Policy where developments in sensitive vegetation areas, including oak woodlands, must be evaluated individually and cumulatively for potential impacts on vegetation, and impacts on sensitive vegetation must be minimized and mitigation measures implemented.

2.2 Studies Required

The Project required field reconnaissance; a delineation of jurisdictional waters/wetlands and streambeds; and habitat assessments for special-status plants, vernal pools, fairy shrimp, riparian birds, and burrowing owl, as required under the MSHCP.

The initial field reconnaissance was performed in June 2019 with field verifications performed from January 2019 to February 2021. Following the reconnaissance work, a jurisdictional delineation was deemed necessary, as were focused surveys for special-status plants, listed fairy shrimp, LBV, SWFL, bats, and burrowing owl.

In 2020, biological surveys were completed for the Project's limits of disturbance (LOD) and in the buffer areas (defined in Section 2.2.1 below) where access was permitted. The LOD represents the area proposed for direct impact, including permanent, temporary, and shading effects. During surveys there were some areas in the buffer where access was not available; therefore, additional surveys were performed in these areas in 2021. No focused studies were performed in the advanced signage/striping areas (refer to Section 2.5 for additional details). The following subsections outline the methods that were used for these studies.

2.2.1 Resource Definitions

Biological Study Area

The BSA consists of the LOD plus a maximum 500-foot buffer (**Appendix A, Figure 5**). The BSA is large enough such that minor changes in the LOD would not require repeating completed surveys. Individual buffers were developed for each resource by taking into consideration the potential impacts on species, including both direct impacts (permanent and temporary impact areas [i.e., LOD]) and the area that may contribute to indirect effects on the species (i.e., dust generated by the Project, noise and vibration, chemical hazards into downstream resources, etc.). The Advance Signage/Striping Areas are not included in the LOD because any activities that would occur in this area would not extend beyond the edge of the pavement, with the exception of adding signs in the median, which would not be considered a discretionary action. Species, such as plants and fairy shrimp, have a smaller BSA because they are limited by the type of habitat, and most direct or indirect effects on these resources would occur closer to the construction area. Species that are migratory or more mobile, sensitive to noise effects, or susceptible to habitat fragmentation/edge effects typically have larger study areas (i.e., birds). For burrowing owl and listed riparian birds, protocols were followed within specific survey area buffers.

The following survey areas were developed for the Project within the BSA (**Appendix A, Figure 5**) and would address potential direct and indirect effects:

- 50-foot buffer: survey area for jurisdictional resources (i.e., waters and wetlands)
- 100-foot buffer: survey area for rare plants, bats, and fairy shrimp

- 300-foot buffer: survey area for LBV and SWFL. CDFW typically requires an initial minimum 300-foot buffer around active listed nesting birds, so this buffer is the minimum that would be reviewed to determine habitat suitability and occupancy by these riparian bird species.
- 500-foot buffer: survey area for burrowing owl and general biological resources including vegetation mapping and wildlife corridors

Special-Status Species

Special-status species are plants and animals that are legally protected under FESA or CESA; species considered sufficiently rare by the scientific community to qualify for listing; those protected under the California Native Plant Protection Act, the California Fully Protected Species statutes, and other regulations, such as those species that meet the definitions of rare, threatened, or endangered under state CEQA Guidelines Sections 15380 and 15125. As used in this report, the term *special-status species* does not include bird species protected under the MBTA or the corresponding California bird protection statutes. For the purposes of this report, species are considered to have special-status if they meet one of the following criteria:

- Species not adequately conserved by the MSHCP including:
    - Narrow Endemic Plant Species (Section 6.1.3 of the MSHCP)
    - Criteria Area Species (Section 6.3.2 of the MSHCP)
    - Riparian/Riverine and Vernal Pool Species (Section 6.1.2 of the MSHCP)
    - The 28 species in Table 9-3 of the MSHCP that include additional species-specific conservation objectives to be considered adequately conserved:
        - Sixteen of these species have species-specific conservation objectives that must be met to be considered adequately conserved.
        - Twelve of these species require a memorandum of understanding with the Forest Service to be considered adequately conserved.
- Plants or animals listed or proposed for listing as threatened or endangered under the FESA or the CESA
- Bald and golden eagles protected under the Bald and Golden Eagle Protection Act (BGEPA)
- Species that meet the definition of “rare” or “endangered” under the CEQA:
    - CDFW SSC (CDFW has designated certain vertebrate species as SSC based on declining population levels, limited ranges, and/or continuing threats that have made them vulnerable to extinction)
    - CDFW fully protected species (fully protected species are afforded additional protection to animals that are rare or face possible extinction; fully protected species may not be taken or possessed at any time)

- Plant species listed as CRPR List: 1A (presumed extinct in California and either rare or extinct elsewhere); 1B (rare, threatened, and endangered in California and elsewhere); 2A (presumed extirpated in California but common elsewhere) or 2B (rare, threatened, or endangered in California, but more common elsewhere); 3 (plants about which more information is needed); and 4 (watch list: plants of limited distribution) (CNPS 2023a)
- Plants or animals determined to meet the definitions of rare or endangered under Sections 15380 and 15125 of the State CEQA Guidelines

Special-status species that could potentially occur in the vicinity of the Project that do not meet these criteria are not discussed in this chapter but are shaded gray in Appendix B, which includes the rationale as to why no further discussion is warranted.

Sensitive Natural Communities

Sensitive natural communities are determined to represent rare vegetation types or to have limited distribution statewide or within a county or region and include riparian areas that are jurisdictional to the CDFW under California Fish and Game Code Section 1600 et seq. These communities are often vulnerable to the environmental effects of projects (CDFW 2020).

During the CEQA environmental review process, the potential existence of sensitive natural communities needs to be addressed in the environmental review process. There are 96 sensitive natural communities included in the California Natural Diversity Database (CNDDB) program, all based on Holland's (1986) classification. These were entered in the mid-1990s and none have been added since then. Where these mapped sensitive natural communities overlap with projects, they are evaluated during the CEQA process.

In addition to this step, CDFW and their partners, including the CNPS, have created a system of classifying vegetation types using state standards. The classification for California is the *Manual of California Vegetation* (Sawyer et al. 2009). Natural communities are now assigned global and state rarity ranks, with global ranks for the full natural range within and outside of California and state ranks within California, with a rank ranging from 1 (very rare and threatened) to 5 (demonstrably secure). Natural communities with ranks of S1 to S3 are considered sensitive natural communities to be addressed in the environmental process of CEQA and its equivalents. Vegetation communities are classified as alliances and within alliances are associations. For alliances with state ranks of S1 through S3, all associations within them are considered sensitive. Note that some alliances that are not considered sensitive may have associations within them that are sensitive.

Sensitive natural communities that could potentially occur in the vicinity of the Project are described in Appendix B.

Habitat Connectivity

A desktop connectivity assessment was conducted at a landscape scale to assess the potential of areas within the BSA facilitating wildlife movement for a variety of wildlife species, including large, medium, and small mammals; amphibians; reptiles; aerial species (i.e., bat and birds); and aquatic species (i.e.,

fish). The desktop review evaluated existing data on known wildlife crossings and areas of importance for wildlife connectivity to determine overlap with the BSA and LOD, and relied on the following sources:

- Google Earth aerial imagery (Google Earth 2020)
- U.S. Geological Survey (USGS) 7.5-minute quadrangle maps (Alberhill, Corona South, Lake Elsinore, Lake Mathews (USGS 2018)
- National Hydrography Dataset (NHD) (USGS 2020)
- CDFW's Biogeographic Information and Observation System (BIOS) Habitat Connectivity Viewer, including the following layers:
    - Missing Linkages in California's Landscape [ds420] (Penrod et al. 2001)
    - California Essential Habitat Connectivity layers [ds 620, ds621, and ds1073] (Spencer et al. 2010)
    - Terrestrial Connectivity – Areas of Conservation Emphasis [ds2734] (CDFW 2017)
    - California Fish Passage Assessment Database (PAD) [ds69] (CDFW 2019)
- Western Riverside County MSHCP (RCIP 2003)

Protected Trees

Protected trees are trees or tree communities that have been identified as having special significance and are provided protection by, and specifically identified in, county and city ordinances, codes, or general plans. The types of trees and specific physical characteristics required to meet the local definitions vary by city and county.

2.2.2 Initial Review and Reconnaissance

Prior to conducting field surveys, existing background information was reviewed to identify potential locations of special-status biological resources, including aquatic resources, sensitive natural communities, protected trees, special-status plant and wildlife species, and wildlife movement corridors within the BSA. The review covered the MSHCP, natural resource databases (CNDDB, CNPS, IPaC, published scientific literature), natural communities, vegetation mapping, aquatic resource mapping, and relevant reference information related to biological resources.

Special-status plant and animal species that were determined to have some potential to occur in the project vicinity, as well as sensitive natural communities, were evaluated to determine if the specific habitat requirements for these species or habitats were met in the BSA. Appendix B provides a complete list of the special-status species and sensitive natural communities reviewed for the Project. This list was developed with use of the CNDDB (CDFW 2023) and the CNPS's electronic inventory (CNPS 2023a) (Appendix C). Database searches were conducted for areas on the USGS 7.5-minute quadrangle maps that include the BSA and the directly adjacent quadrangles (Lake Elsinore, Wildomar, Alberhill, Sitton Peak, Murrieta, Romoland, Steele Peak, Lake Mathews, Perris, Corona South, Corona North, Santiago Peak, Prado Dam, Riverside East, Riverside West, and Black Star Canyon). Finally, species were added, as appropriate, as a result of professional knowledge or experience with prior projects in the vicinity.

A species list was requested from USFWS on December 4, 2020; it did not identify any additional species that had not been identified during the database searches (Appendix D). The species list was updated on August 20, 2021, May 16, 2023, and September 14, 2023, and no new species were identified on this list.

Natural vegetation communities were classified according to *Manual of California Vegetation* (Sawyer et al 2009) and cross referenced to the traditional classification system of Holland (1986). For the vegetation mapping presented in this report, the minimum mapping unit was 1 acre for upland communities and 0.1 acre for wetlands.

2.2.3 Jurisdictional Delineation

Aquatic resources identified and mapped within the BSA consist of USACE/SWRCB wetland and non-wetland waters of the U.S. pursuant to CWA Sections 404 and 401; SWRCB wetland and non-wetland waters of the State pursuant to the Porter-Cologne Water Quality Control Act; and CDFW lakes, streambeds, and associated riparian vegetation pursuant to Section 1600 et seq. of the California Fish and Game Code.

The delineation followed the most current and applicable procedures and guidance available at the time of delineation, including the Navigable Waters Protection Rule and State Wetland Definitions and Procedures. However, on June 9, 2021, the U.S. Environmental Protection Agency (EPA) and the Department of the Army announced their intent to revise the Navigable Waters Protection Rule's definition of "waters of the United States." That rulemaking process is anticipated to take approximately two years. In the meantime, pursuant to an August 30, 2021, U.S. District Court for the District of Arizona order vacating and remanding the Navigable Waters Protection Rule (*Pascua Yaqui Tribe v. U.S. Environmental Protection Agency)*, the EPA and USACE have halted implementation of the Navigable Waters Protection Rule that became effective on June 22, 2020, and are interpreting "waters of the United States" consistent with the pre-2015 regulatory regime until further notice.

2.2.4 Vegetation Community and Land Cover Type Mapping

Vegetation community and land cover type mapping was conducted concurrently with rare plant surveys between April and June 2020 within the LOD and the BSA. In some instances, there were assemblages of plant species for which there is not an adequate description provided by *Manual of California Vegetation* communities; in those cases, the closest alliance was chosen. Land covers were ground verified by surveyors within the 100-foot buffer, and vegetation communities and land covers within the 100- to 500-foot buffer (BSA) were assessed by binocular surveys from visual vantage points. For areas where visual inspection was obscured or blocked, aerial maps were consulted to assess and determine vegetation communities and land covers. Photos of vegetation communities were taken during field surveys and are provided in Appendix E. Appendix G, Table G-2 lists survey dates and personnel.

2.2.5 Rare Plant Surveys

Focused surveys for special-status plants were conducted between April and June 2020 as well as between April and July 2021. Focused survey methods were derived from the standardized guidelines issued by USFWS (USFWS 2000), CDFW (CDFG 2000, CDFW 2018), and CNPS (CNPS 2001). Surveys were completed by walking meandering belt transects throughout suitable habitat where legally accessible. The distance between transects was adjusted when necessary to provide adequate coverage

and to account for ground surface visibility, terrain, vegetation density, and access constraints. Surveys were targeted within unique portions of the BSA where microhabitats had an increased potential to support special-status species. Plants were identified to the lowest taxonomic level necessary to determine whether the species observed was invasive, nonnative, native, or special-status. Plants of uncertain identity were subsequently identified from taxonomic keys (Baldwin et al. 2012). Scientific and common species names were recorded according to Baldwin et al. (2012). Refer to Appendix G, Table G-2 for survey dates and personnel.

The rare plant focused surveys were conducted during the appropriate blooming season for each special-status plant species potentially occurring within the BSA that require flowers for detection. Reference populations for San Diego ambrosia (*Ambrosia pumila*), many stemmed dudleya (*Dudleya multicaulis*), long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), white rabbit tobacco (*Pseudognaphalium leucocephalum*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), Munz's onion (*Allium munzii*), and chaparral sand verbena (*Abronia villosa* var. *aurita*) were visited prior to or concurrently during rare plant focused surveys. Specific dates of the reference site visits when populations were observed are provided in Appendix G, Table G-3. In some cases, no individuals at the reference sites were observed. Rare plant focused surveys were conducted for those species having suitable habitat present within the LOD plus a 100-foot buffer (BSA) (**Appendix A, Figure 5**).

2.2.6 Fairy Shrimp Surveys

Three species of special-status fairy shrimp have potential to occur in the BSA given their geographic distribution: Riverside fairy shrimp, vernal pool fairy shrimp, and San Diego fairy shrimp (FE). These species are federally listed, and Riverside fairy shrimp and vernal pool fairy shrimp are covered species under the MSHCP (Section 6.1.2), requiring surveys when potentially suitable habitat is present, and avoidance and minimization measures implemented in accordance with the species-specific objectives for those species. The MSHCP requires the current fairy shrimp protocol survey, which includes both a wet- and a dry-season survey. Methods for the habitat assessment and focused surveys are presented below. The BSA for the fairy shrimp work was the LOD and a 100-foot buffer (BSA) (**Appendix A, Figure 5**). The method for surveying the two covered fairy shrimp species was the same as that applied for San Diego fairy shrimp.

Habitat Assessment

A habitat assessment including the mapping of seasonal depressions was conducted within the BSA on December 12, 13, 14, and 17, 2020, following 3.33 inches of accumulated rain that had fallen since September 1, 2019 (**Appendix A, Figure 5**). Ponded areas were determined using the following criteria: water marks; leaf staining; cracked soils; saline crusts; and saturated soils. Areas showing these indicators were mapped. The vernal pool study was performed in conjunction with the fairy shrimp and special-status plant surveys.

Focused Surveys

Wet season fairy shrimp surveys were conducted in accordance with the current USFWS survey guidelines (USFWS 2017a). Wet season surveys (2019/2020) were initiated on December 31, 2019, and continued through July 18, 2020 (Appendix G, Table G-4 and Table G-5). By the end of the rainy season, 95 features that supported potentially suitable fairy shrimp habitat were identified. Due to expansion of

the LOD and study area, and access constraints on a few areas during the 2019/2020 surveys, a second wet season survey was initiated on December 30, 2020, and identified 36 additional features. The dry season survey was conducted in 2020. Survey methodology follows the USFWS *Survey Guidelines for the Listed Large Branchiopods* (Guidelines; USFWS 2017a) as described below.

During each sampling round for wet season surveys, all features that were inundated during the habitat assessment and/or previous sampling were visited to determine they were still retaining water. If a rain event occurred between sampling rounds, all known and potential features that may have been inundated by the rain event were visited, and the BSA was reassessed for new features. The biologists recorded information, including air temperature, water temperature, average depth, approximate size, habitat condition (e.g., disturbances), voucher information, and other relevant data, for each inundated feature. Each inundated feature was sampled by sweeping a hand-held net through the water, examining the net contents, and recording all aquatic species. Fairy shrimp were identified in the field with a hand lens or a microscope for immature specimens. The reproductive status and approximate number of fairy shrimp in each feature were noted. Sampling was completed once a feature desiccated and did not re-inundate during the 2019/2020 season or once the feature sustained 120 days of continuous inundation. Mature male and female fairy shrimp voucher specimens were collected from a representative number of features sampled during the 2019/2020 wet-season surveys.

Dry season fairy shrimp surveys (soil sample and collection) were conducted in accordance with the current USFWS survey guidelines (USFWS 2017a). Features were generally sampled at 10 approximately equidistant points starting at the edge of the ponded area continuing lengthwise and widthwise. In the case of narrow depressions, samples were collected approximately equidistantly in a linear manner. Seasonal depressions comprising surface areas larger than 24 square meters were sampled at 25 points, and 50 samples were collected from seasonal depressions larger than 235 square meters. Collection points were adjusted to include the deepest portions of the depressions, especially where deposits of ostracod cysts/valves and/or cladocera ephippia were observed. Soil samples of approximately 100-milliliter aliquots were collected at each subsample site (for a total of 1 liter/ponded area) and transferred to individually labeled plastic bags for future analysis. Each feature was photographed, and hand-drawn sketches of subsample locations were recorded in field notes.

Soil samples were placed into a 1-gallon plastic container and allowed to pre-soak in water, poured into a graded set of stacked U.S. standard 8-inch soil sieves (710-, 300-, and 150-micron sieves), and washed with flowing water. Soil remaining in the 150-micron sieve was used for analysis. The Project lies outside the range of tadpole shrimp; therefore, it was unnecessary to examine the 300-micron samples. Nonetheless, the 300-micron samples were periodically examined for the presence of cladoceran ephippia. To facilitate the analyses, the 150-micron samples were transferred to a 120-milliliter beaker, whereupon the organic material was decanted three times. The remaining organic contents were poured into a 3-inch, 150-micron sieve and examined under a Celestron dissecting microscope at 10–30X to determine the presence and magnitude of anostracan cysts (resting eggs).

2.2.7 Southwestern Willow Flycatcher Protocol Surveys

SWFL is a FE and SE species and a covered species under the MSHCP with requirements for the implementation of Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools

(Section 6.1.2 of the MSHCP). A habitat assessment and a focused survey for SWFL was conducted by a qualified biologist according to accepted protocol, as described below (USFWS 2000).

Habitat Assessment

A habitat evaluation was conducted, and it was determined that the Project occurs within suitable habitat for federally listed SWFL. Approximately 5.5 miles of Temescal Wash occur within the 300-foot buffer study area of the LOD (**Appendix A, Figure 5**). Suitable SWFL habitat is typically classified as a dense riparian habitat with a mid-story and understory and can also include a dense canopy (USFWS 1995).

Focused Survey

A protocol-level presence/absence survey for SWFL was conducted within the BSA (Sogge et al. 2010, USFWS 2000). The report for this survey is included in Appendix H. Five protocol SWFL surveys were conducted following the survey methodology between May 15 and July 17. One survey occurred within the first survey period (May 15–31), two within the second survey period (June 1–24), and two within the third survey period (June 25–July 17). Each survey was conducted at least 5 days apart and was concluded by 10 a.m. Surveys included thorough coverage of all potentially suitable habitats and consisted of slowly walking with frequent stops to look, listen, and play recordings of flycatcher vocalizations. Recordings were played at distance intervals of approximately 75–100 feet, and only while stationary and after first looking and listening for any potential flycatchers. Within Appendix H, the USFWS Survey Notifications and Survey Forms for Southwestern Willow Flycatcher are provided in Appendices B and C, respectively. Surveys were not conducted during inclement weather such as extreme hot or cold temperatures, fog, high winds, or rain. Refer to Appendix G, Table G-6 for survey dates, conditions, and personnel.

2.2.8 Least Bell's Vireo Protocol Surveys

LBV is a FE and SE species and a covered species under the MSHCP, with requirements for the implementation of Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (Section 6.1.2 of the MSHCP). Habitat assessments and focused surveys for this species were conducted by qualified biologist according to accepted protocol and were consistent with MSHCP requirements (RCIP 2003).

Habitat Assessment

A habitat evaluation was performed, and it was determined that the Project occurs within suitable habitat for federally listed LBV. As a result, protocol-level presence/absence surveys for this species were conducted within the BSA. The BSA includes approximately 5.5 miles of Temescal Wash within the 300-foot survey area (**Appendix A, Figure 5**).

LBV is a summer resident of Southern California, inhabiting low growth riparian habitat near water or dry river bottoms below 2,000 feet. Nests are found in dense vegetation low in the riparian zones, usually in 5- to 10-year-old stands. When LBV nest in mature riparian woodlands, the nests typically occur in areas with a robust understory of willows.

Focused Survey

For LBV focused survey work, the USFWS protocol was followed (USFWS 2001). Eight surveys were performed during the breeding season. LBV surveys, which require thorough coverage of potential habitat, occurred no less than 10 days apart between April 15 and July 31 in 2020 and 2021. Site visits occurred during the morning hours until 11 a.m., the time when LBV are most active. No tape recordings of vocalizations were used. A USFWS permit is not required for focused surveys for LBV. Surveys were not conducted during inclement weather such as extreme hot or cold temperatures, fog, high winds, or rain (Appendix G, Table G-6).

2.2.9 Burrowing Owl Focused Studies

Burrowing owl is a covered species under the MSHCP, with surveys required within designated survey areas (**Appendix A, Figure 4c**). Habitat assessments and focused surveys for this species were consistent with MSHCP requirements (RCA 2006).

Habitat Assessment

An evaluation was performed to determine whether potentially suitable habitat for burrowing owl was present. The Project overlaps with the MSHCP Burrowing Owl Survey Area; as such, habitat assessments were only conducted within the boundaries of the MSHCP-designated survey area for this species on parcels where access was provided by the landowners. Within the MSHCP Burrowing Owl Survey Area, habitat was assessed within the LOD plus a 500-foot buffer (BSA) (**Appendix A, Figure 5**). Pedestrian habitat assessments were completed within a 300-foot buffer, with visual surveys continued through the entirety of the 500-foot buffer (BSA) using binoculars.

The habitat assessment identified potential suitable habitat at a broad landscape level. Suitable habitat was identified by the presence of low vegetation cover, potential burrows, perch sites, and/or burrowing owl sign such as scat, tracks, pellets, or feathers (CDFG 2012; RCA 2006). Open lands that were sparsely vegetated with native or nonnative vegetation were considered potentially suitable. Areas with no suitable habitat, including fully developed parcels and areas with dense, tall vegetation lacking burrows or burrow surrogates or areas with steep topography were deemed unsuitable and excluded from further assessment. Refer to Appendix G, Table G-7 for survey dates and personnel.

Focused Survey

Focused surveys for burrowing owl were performed in areas determined to provide potentially suitable habitat within the MSHCP Burrowing Owl Survey Area. Burrowing owl surveys followed a two-step approach (RCA 2006):

- Step 1: Map and search for potential burrowing owl burrows and burrowing owl sign within the MSHCP Burrowing Owl Survey Area portions of the BSA.
- Step 2: Perform a four-visit focused survey in suitable habitat within the MSHCP Burrowing Owl Survey Area portions of the BSA up to 300 feet with visual surveys out to an additional 200 feet.

Within the MSHCP Burrowing Owl Survey Area, accessible portions of vacant fields and open areas within the BSA were surveyed for suitable burrows. Within the MSHCP Burrowing Owl Survey Area,

surveys were conducted within the LOD plus a 500-foot buffer (BSA) (**Appendix A, Figure 5**). Pedestrian surveys were completed within a 300-foot buffer, with visual surveys continued through the entirety of the 500-foot buffer (BSA) using binoculars. A systematic search for potential burrows and burrowing owl sign was performed by walking transects, thereby allowing for 100 percent coverage. All potential burrows were determined by burrow size (greater than 4 inches). The location of all potential burrows or burrow complexes were recorded and mapped using global positioning system (GPS). Protocol surveys were then initiated during the species breeding season (March 15 through August 31) in areas with suitable vegetation communities and suitable burrows. The protocol surveys were conducted during weather that was conducive to observing owls outside burrows and detecting sign. Biologists walked transects to ensure 100 percent visual coverage. All burrowing owl protocol surveys were conducted between 1 hour before sunrise and 2 hours after sunrise, or between 2 hours before sunset and 1 hour after sunset to comply with the MSHCP burrowing owl survey requirements (RCA 2006). Surveys were conducted from February through July 2020 as well as June through August 2021. Refer to Appendix G, Table G-8 for survey dates, conditions, and personnel.

2.2.10 Bat Focused Study

Habitat Assessment

A daytime habitat assessment for roosting bats was performed on May 8, 14, and 16, 2020, by ICF biologists and on January 26, 2022, by Caltrans biologists to determine the potential for bat foraging and roosting activity within the BSA. The bat BSA consisted of the LOD plus a 100-foot buffer (BSA) (**Appendix A, Figure 5**). Biologists surveyed the area looking for potential day-roost habitat. Day roosts are features that could be occupied during the day by bats and include dispersal, bachelor, maternity, overwintering, and hibernacula roosts. Habitat that is considered potential for roosting bats includes bridges with expansion joints and weep/drainage holes, swallow nests, culverts, empty or abandoned buildings, rocky outcroppings, large tree cavities, basal hollows, loose or peeling bark, larger snags, large leaf trees, and palm trees with intact dead fronds. The biologist traversed the entire bat BSA examining potential features with and without binoculars. Surfaces of potential features, as well as the ground below the features, were inspected for bat sign, such as guano, wall staining, prey remains, or vocalizations. The location, structure type, size, and a general description of potential bat roosts were noted, as well as land-use and level of disturbance under and adjacent to each structure. Potential roosts were photographed, and their location recorded using a GPS unit.

Emergence Surveys

Bat emergence surveys were conducted in September 2020 and July 2021 by ICF biologists and in April 2022 and May 2022 by Alluvion Biological Consulting Biologists (Alluvion 2022a, 2022b) (Appendix G, Table G-9) within features identified as having potential for large colonies of day roosting bats.

A Pettersson D500X bat detector was deployed at each location with suitable habitat on each survey night to passively record bat echolocation calls. If surveys were not conclusive after one visit, a second site visit was conducted to verify accuracy. The emergence surveys were conducted during favorable weather conditions (i.e., calm nights with temperatures conducive to bat activity [52°F and above] and no precipitation). Surveys began approximately half an hour before sunset and continued for 1.5 hours after

sunset. Ambient artificial light from the surrounding businesses and vehicular traffic provided sufficient light for visual emergence surveys throughout the survey period.

Acoustic Analysis

Echolocation calls were recorded as wave sound files on memory cards by the Pettersson units. These units were strategically placed during the emergence surveys to record emerging bats from suitable habitat features, as well as to detect species using the site for foraging. Once emergence surveys were completed, the sound files were downloaded to a computer and analyzed by bat biologist Lisa Allen in 2020 and 2021, using Sonobat software (base version 2.9.7). In 2022, acoustic analysis was performed by Alluvion Biological Consulting biologists (Alluvion 2022a, 2022b) As the detectors also record other ambient noise, such as insects or loud vehicles, in addition to the bat calls, each sound file was reviewed to determine which files were bat echolocation calls and which consisted of other sounds. Bat calls were analyzed and bat species identified based on the frequency of the call, and were then compared to known calls for species within the Sonobat call reference library.

2.2.11 Tree Survey

A tree inventory was performed to determine the locations of all oak trees or other protected trees within the LOD in April and May of 2021. The trees were visually surveyed for their species, diameter at breast height, height, canopy radius, health, habitat value, and hazard. Shrub type trees like toyon (*Heteromeles arbutifolia)*, lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and elderberry (*Sambucus nigra*) were not counted. Trees that were 1-inch caliper or bigger were recorded using a Collector map and a sub-meter to increase the accuracy. All trees meeting the requirements beside the ones in the median were labeled using a numbered aluminum tag. For safety reasons, trees in the median were not tagged; however, they have an assigned a number. Where access was not feasible or dangerous to access (such as within the median) field staff attempted to document trees based on visual observations, and measurements were estimated. Photos of trees were taken during field surveys. Appendix G, Table G-10 lists survey dates and personnel.

2.3 Personnel and Survey Dates

A complete list of the ICF field personnel and their qualifications is provided in Appendix F. The survey dates for all reconnaissance work, personnel, and focused surveys and survey conditions are provided in Appendix G, Tables G-1 through G-10.

2.4 Agency Coordination and Professional Contacts

No agency coordination or communications have occurred to date.

2.5 Limitations That May Influence Results

There were several access limitations when focused studies were initiated in 2020. All areas with suitable habitat for special-status species requiring focused studies in the BSA were identified in the field; however, access had not been acquired for all areas prior to the start of the 2020 survey season. Any property that was not legally accessible was visually surveyed from the nearest public right-of-way or via

aerial imagery. Focused surveys commenced in areas that were legally accessible in 2020, and surveys were conducted in 2021 in any additional areas requiring study that were not legally accessible in 2020. Although survey results are typically valid for 1 year, there were no changes in site conditions that would affect the results of the surveys across the 2-year timeframe. Any remaining parcels that were not legally accessible were visually accessed. In addition, since focused studies were completed within the entirety of the LOD, no direct effects on sensitive biological resources outside of the LOD would occur. For areas that could only be visually assessed, avoidance and minimization measures have been included in this report to address potential indirect effects on special-status species that could occur within areas that were inaccessible within the BSA. Therefore, these access limitations do not pose a constraint on survey results.

No focused studies or habitat evaluations were conducted within the advanced signage/striping areas because these activities would occur within existing pavement and/or the existing disturbed shoulder, where no sensitive biological resources would occur. There are also two maintenance vehicle pullout areas just outside of the LOD that were not studied because they occur within an existing disturbed area on the shoulder. No indirect effects from these activities are expected, as they do not differ from existing maintenance activities.

During fairy shrimp surveys, due to some of the access limitations described above or restrictions associated with active construction from unrelated projects, a complete wet season sampling for fairy shrimp could not be conducted for some features. Many of the features in the 100-foot buffer (BSA) are on private property, which required written approval from each property owner before the area could be surveyed. In these instances, when possible, a visual assessment from the property boundary was done, noting whether ponding was present or not. If access was granted, each feature was sampled until it dried and did not re-inundate or reached 120 days of continuous inundation after the date access was granted. This would not pose a limitation on the Project.

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3 Results: Environmental Setting

The Project would occur in the South Coast subregion of the Southwestern California region, within the California Floristic Province (Baldwin et al. 2012). Valleys and small hills that extend from the coast inland to the foothills of the Transverse and Peninsular mountain ranges characterize this subregion. Much of this subregion is developed for urban, suburban, and agricultural uses. Its natural vegetation is primarily chaparral, sage scrub, annual grasslands, woodland, and riparian scrub and forest. Much of the natural vegetation occurs in preserved open space or scattered, often fragmented, patches on hills or in other areas that are not easily developed.

Major topographic features in the study area are the Santa Ana Mountains to the west, Temescal Wash, Estelle Mountain, Gavilan Hills, Corona Lake, and Lake Elsinore.

The BSA occurs within the Bedford Wash – Temescal Wash, Dawson Canyon – Temescal Wash, Arroyo del Toro – Temescal Wash, and Lake Elsinore subwatersheds of the Santa Ana River Watershed. Drainages within the BSA receive flows from the Santa Ana Mountains, west of the BSA and the Gavilan Hills, east of the BSA. Temescal Wash, which connects Lake Elsinore in the south to the Santa Ana River north of the BSA, is the main drainage within the BSA, and most of the aquatic features are tributary to Temescal Wash. Temescal Wash is an intermittent and perennial earthen drainage here, supporting riparian habitat through much of its length.

3.1 Description of the Existing Physical and Biological Conditions

Historically within the BSA, human activities have included ranching, farming, and mining. The BSA currently contains extensive urban and residential development with most open lands being agricultural and preserved open space (refer to Appendix E for representative photographs of the BSA).

3.1.1 Study Area

The BSA and LOD are shown in **Appendix A, Figure 5**. As described in Chapter 2 above, the BSA consists of the LOD plus a maximum buffer of 500 feet (BSA).

Land use varies throughout the LOD and the BSA but is dominated by developed areas, grasslands, and shrub/scrub habitats (see **Appendix A, Figure 5** for aerial imagery within the BSA and the LOD). At the northern end of the Project, within the City of Corona, land use predominantly consists of developed areas. Other highly developed areas include the unincorporated areas of Temescal Valley and Alberhill, as well as the City of Lake Elsinore at the southern end of the BSA. Most of the developed areas lie west of I-15 and are interspersed by grasslands and sage scrub habitats; the land east of I-15 mostly consists of grassland and sage scrub habitats. Temescal Wash drains from Lake Elsinore to the Santa Ana River and runs along and through the BSA; it lies along the eastern side of the BSA at the northern end of the Project, crosses through the BSA and under I-15 at approximately PM 28, then continues along the western side of the BSA near the southern end of the Project. Some wetland, riparian vegetation, and woodland habitats are present along Temescal Wash and other intermittent and ephemeral tributaries.

Conserved lands occur within the BSA and include MSHCP conserved lands that are owned, managed, monitored or maintained by the RCA. The intent of these conserved lands is to secure open space and ecological diversity by conserving species and their associated habitats through land acquisition. Such lands occur within the BSA just north of the City of Lake Elsinore along the western and eastern sides of I-15. Smaller parcels of conserved lands intersect the BSA west of I-15 at the Temescal Wash crossing and between Corona Lake and I-15. Conservation easements under the MSHCP occur at the BSA near the Shops at Sycamore Creek complex, west of I-15. There are no conserved lands within the I-15 median where widening will occur (RCA 2020).

3.1.2 Physical Conditions

Most of the LOD is relatively flat but sloping upward in a southerly direction along I-15. The BSA extends outward from the LOD and includes some areas of hillside and more rugged terrain. Elevation within the BSA generally increases from the northern end of the Project to the southern end, and ranges from approximately 850 to 1,460 feet above mean sea level (Google Earth 2020).

Within the BSA, loamy and sandy soils of various textures make up most of the mapped soil types (more than 82 percent of the BSA) (**Appendix A, Figure 6**). These soils include Arbuckle, Cajalco, Cortina, Escondido, Garretson, Gorgonio, Hanford, Honcut, Modjeska, Perkins, Placentia, Ramona, Lodo, San Emigdio, Soboba, Soper, Tujunga, Vallecitos, Waukena, Yokohl, Yorba, and Ysidora (U.S. Department of Agriculture 2003), Other mapped units include terrace escarpments (10 percent of the BSA); rough broken land (1 percent of the BSA); and riverwash, badland, and gullied land (less than 1 percent of the BSA each) (NRCS 2020). Clay soils or saline-alkali soils can support special-status plants and animals or sensitive water resources. A small amount of clay soils of various textures occur (almost 5 percent of the BSA), including Altamont clay, clay pits, Porterville clay, and Willows silty clay (**Appendix A, Figure 6**, Sheets 3–7, 9–10, 12, 17, and 18). Clay soils can support several sensitive plant species, such as Munz's onion, thread-leaved brodiaea, round-leaved filaree (California macrophylla), Orcutt's brodiaea (*Brodiaea orcutti*), intermediate mariposa lily (*Calochortus weedii* var. *intermedius*), long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), and many-stemmed dudleya, small-flowered microseris (*Microseris douglasii* spp. *platycarpha*) and Hammitt's clay-cress. More detailed soil information for the BSA, including soil series description summaries, can be found in the Jurisdictional Delineation Report (Appendix I).

The BSA occurs within the Bedford Wash-Temescal Wash (Hydrologic Unit Code [HUC] 180702030604), Dawson Canyon-Temescal Wash (HUC 180702030602), Arroyo del Toro-Temescal Wash (HUC 180702030601) and Lake Elsinore (HUC 180702020308) subwatersheds of the Santa Ana River Watershed (HUC 18070105) (USGS 2021). The Santa Ana River Watershed drains a 2,650 square mile area (Santa Ana RWQCB 1994). Drainages within the BSA receive flows from the Santa Ana Mountains, west of the BSA, and the Gavilan Hills east of the BSA. Temescal Wash, which connects Lake Elsinore in the south to the Santa Ana River north of the BSA, is the main drainage within the BSA, and most of the aquatic features within the BSA are eventually tributary to Temescal Wash. Within the BSA, Temescal Wash is an intermittent and perennial earthen drainage that supports riparian habitat throughout much of its length. Between the BSA and the Santa Ana River, Temescal Wash contains portions with earthen substrate that support areas with riparian habitat, as well as portions that have been

concrete-lined/channelized. All hydrological features within the BSA have been modified to some extent to support development of I-15 and surrounding residential, agricultural, and commercial land uses.

3.1.3 Biological Conditions

The following sections describe the biological conditions within the BSA, including vegetation communities, dominant plant and wildlife species, aquatic resources, invasive species, and habitat connectivity through the BSA. Appendix J provides a list of the plant and animal species that were found during field surveys.

Vegetation Communities

Over 200 plant species (Appendix J) within 25 vegetation communities and three land use types were identified in the BSA (Table 3-1). Eleven of the vegetation communities are classified as sensitive natural communities by CDFW (Appendix B) (CDFW 2020). Each community is listed in Table 3-1, along with its acreage in the BSA (refer to **Figure 7, Appendix A** for an illustration of the vegetation community locations in the BSA and to Appendix E for representative photos of vegetation communities).

The vegetation communities and land cover types that occur within the BSA include: Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Arrow Weed Thickets, Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Mulefat Thickets, Salt Grass Flats, Tamarisk Thickets, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, Scrub Oak Chaparral, California Sycamore Woodland, Eucalyptus–Tree of Heaven–Black Locust Groves, Pepper Tree or Myoporum Forest and Woodland, Agriculture, Developed, and Disturbed (**Table 3-1**).

Table 3-1. Vegetation Communities and Land Cover Type Acreages within the BSA

Vegetation Communities (*Manual of California Vegetation Classification*)	**Vegetation Communities (*Holland Classification*)**	**Biological Study Area, 500-foot Buffer (acres)**
Vegetation Communities		
Needle Grass–Melic Grass Grasslands[1]	Valley Needlegrass[1]	1.62
Clustered Tarweed Fields[1]	Wildflower Fields[1]	3.79
Wild Oats and Annual Brome Grasslands[2]	Non-Native Grasslands or Valley and Foothill Grassland[2]	253.66
Upland Mustard and Star Thistle Fields[2]	Non-Native Grasslands[2]	103.28
Wild Tarragon Patches	Central Coast Riparian Scrub	1.18
Brittle Bush Scrub	Riversidian Sage Scrub	383.97
Bush Penstemon Scrub[1]	Coastal Sage-Chaparral Scrub[1]	19.89
California Buckwheat Scrub	Riversidian Sage Scrub	49.18

Table 3-1. Vegetation Communities and Land Cover Type Acreages within the BSA

Vegetation Communities (*Manual of California Vegetation Classification*)	**Vegetation Communities (*Holland Classification*)**	**Biological Study Area, 500-foot Buffer (acres)**
California Sagebrush–Black Sage Scrub	Riversidian Sage Scrub	193.97
Deer Weed Scrub	Coastal Sage – Chaparral Scrub	38.44
Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral[1]	Southern North Slope Chaparral[1]	15.20
Quailbush Scrub	Desert Saltbush Scrub	0.23
Scrub Oak Chaparral	Scrub Oak Chaparral	0.90
Eucalyptus–Tree of Heaven–Black Locust Groves[2]	Eucalyptus Woodland[2]	48.67
Pepper Tree or Myoporum Forest and Woodland	Non-native Woodland[2]	1.92
Arrow Weed Thickets[1]	Arrow Weed Scrub[1]	2.07
Coast Live Oak Woodland and Forest	Southern Coast Live Oak Riparian Forest or Coast Live Oak Woodland	26.77
Fremont Cottonwood Forest and Woodland[1]	Southern Cottonwood-Willow Riparian Forest[1]	35.26
Goodding's Willow–Red Willow Riparian Woodland[1]	Southern Willow Scrub[1]	48.45
Hardstem and California Bulrush Marshes[1]	Coastal and Freshwater Marsh[1]	7.19
Mulefat Thickets	Mulefat Scrub	13.87
Salt Grass Flats[1]	Alkali Meadow[1]	0.08
Tamarisk Thickets[2]	Tamarisk Scrub[2]	9.51
Scale Broom Scrub[1]	Riversidian Alluvial Fan Sage Scrub[1]	31.09
California Sycamore Woodland[1]	Southern Sycamore-Alder Riparian Woodland[1]	2.32
Other Land Cover Types		
Agriculture	N/A	2.39
Developed	N/A	1,295.05
Disturbed	N/A	334.22
Total		**2,924.17**

[1] Sensitive natural community

[2] Nonnative vegetation community

Needle Grass–Melic Grass Grasslands

Needle Grass–Melic Grass Grasslands (*Nasella* spp. – *Melica* spp. Herbaceous Alliance) is a native bunchgrass vegetation community identified by foothill needle grass (*Nasella lepida*) or other needle grass species being characteristically present in the herbaceous layer (Rodriguez et al. 2017). The herbaceous cover is open to continuous, typically less than approximately 4 feet in height, and emergent shrubs may be present at low cover (CNPS 2021). Within the BSA, this community is dominated by nodding needle grass (*Nasella cernua*) with a diverse mix of native and nonnative annual grasses and forbs and is found in several patches just north and south of Indian Truck Trail and also just south of Nichols Road. These patches cover approximately 1.62 acres of land (Table 3-1).

This vegetation is classified as Valley Needlegrass Grassland by Holland (1986). Needle Grass–Melic Grass Grassland Herbaceous Alliance is considered sensitive by CDFW (CDFW 2020). Foothill needle grass is considered to be a sensitive association by CDFW within the Needle Grass–Melic Grass Grassland Herbaceous Alliance, with a provisional global rank of G3 and a state rank of S3 (CDFW 2020) (see Section 2.2.1).

Clustered Tarweed Fields

Clustered Tarweed fields (*Deinandra* spp. Herbaceous Alliance) are characterized as a native herbaceous community where tarweed (*Deinandra spp*.) is dominant within the herbaceous layer. The herbaceous cover is open to continuous, typically less than approximately 3 feet in height, and emergent shrubs and trees may be present at low cover (CNPS 2021). Within the BSA, this herbaceous wildflower community is dominated by Kellogg's tarweed (*Deinandra kelloggii*) and typically associated with a diverse mix of native and nonnative forbs and grasses. Clustered tarweed fields occur mainly in the northern portion of the BSA, covering 3.79 acres (Table 3-1).

This vegetation is classified as Wildflower Fields by Holland (1986). Clustered Tarweed Fields Herbaceous Alliance is considered a sensitive alliance, with a global rank of G2 and a state rank of S2 (CDFW 2020) (see Section 2.2.1).

Wild Oats and Annual Brome Grasslands

Wild Oats and Annual Brome Grasslands (*Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance) is characterized as an annual grassland dominated or co-dominated by any of several nonnative oat (*Avena* spp.*)* and/or brome (*Bromus* spp.) grass species within the herbaceous layer (CNPS 2021). The herbaceous cover is open to continuous, typically less than approximately 4 feet in height, and emergent shrubs and native forbs may be present, but at low cover (CNPS 2021). Within the BSA this nonnative annual grassland community is dominated by wild oat (*Avena fatua*) and/or foxtail brome (*Bromus madritensis*). Although this community may support diverse native annuals, Wild Oats and Annual Brome Grasslands within the BSA are typically associated with fallow fields, vacant lots, along roadsides, and other waste places with little plant diversity. Wild Oats and Annual Brome Grasslands occurs throughout the BSA, covering approximately 253.66 acres (Table 3-1).

This vegetation is classified as Valley and Foothill Grassland or Non-Native Grassland by Holland (1986). Wild Oats and Annual Brome Grasslands Semi-Natural Alliance is not considered a sensitive community by CDFW.

Upland Mustards and Star Thistle Fields

Upland Mustards and Star Thistle Fields (*Brassica nigra – Centaurea* [*solstitialis/melitensis*] Herbaceous Semi-Natural Alliance) is a ruderal, herbaceous vegetation type strongly dominated by various nonnative, annual or biennial mustards, such as black mustard (*Brassica nigra*), small-pod mustard (*Hirschfeldia incana*), or radish (*Raphanus sativus*) and/or star thistle (*Centaurea solstitialis/melitensis*) or similar nonnative forbs (CNPS 2021). The herbaceous cover is open to continuous, typically less than approximately 10 feet in height, and native forbs and shrubs may be present, but only at low cover (CNPS 2021). Within the BSA, this community is typically dominated by black mustard and/or small-pod mustard or star thistle with little to no diversity. These stands occupy fallow fields, vacant lots, roadsides, and other disturbed places throughout the BSA, covering approximately 103.28 acres (Table 3-1).

This vegetation is classified as Non-Native Grassland by Holland (1986). Upland Mustards and Star Thistle Fields Semi-Natural Alliance is not considered a sensitive community by CDFW.

Wild Tarragon Patches

Wild Tarragon Patches (*Artemisia dracunculus* Herbaceous Alliance) is an herbaceous community that is dominated by or co-dominated by wild tarragon (*Artemisia dracunculus*), with an open to intermittent canopy typically less than approximately 5 feet in height, and emergent shrubs and trees may be present at low cover (CNPS 2021). Within the BSA, this community is an ecotonal vegetation community between upland and riparian zones and is dominated by tarragon with associated species such as California croton (*Croton californica*), Wright's cudweed (*Pseudognaphalium canescens*), common cryptantha (*Cryptantha intermedia*), and other native forbs and nonnative grasses. Scattered trees and shrubs such as black elderberry, mulefat (*Baccharis salicifolia*), saltcedar (*Tamarix ramosissima*) and California buckwheat (*Eriogonum fasciculatum*) are also present within this community. Wild tarragon patches occur at one location just north of Indian Truck Trail Road within the central portion of the BSA, covering approximately 1.18 acres (Table 3-1).

This vegetation is classified as Central Coast Riparian Scrub in Holland (1986). It has been included as an upland vegetation community here as it occurs in an ecotonal area between upland and riparian zones, and in the BSA was determined to be an upland community. Wild Tarragon Patches Herbaceous Alliance is not considered a sensitive natural alliance, with a global rank of G4 and a state rank of S4 (CDFW 2020) (see Section 2.2.1).

Brittle Bush Scrub

Brittle Bush Scrub (*Encelia farinosa* Shrubland Alliance) is a native shrub community dominated or co-dominated by brittle bush (*Encelia farinosa*) (CNPS 2021). The shrub cover is open to intermittent, typically less than approximately 7 feet in height, and emergent trees may be present at low cover (CNPS 2021). Within the BSA, this community is dominated by brittle bush or as a co-dominant alliance of brittle bush and California sage (*Artemisia californica*). Common associated species within this community included such species as California buckwheat, common sand aster, sweetbush (*Bebbia juncea*), desert wishbone bush (*Mirabilis laevis*), and deer weed (*Acmispon glaber*). The understory is primarily composed of a diverse mix of native forbs and nonnative grasses. This community is typically found on hillsides and slopes throughout the BSA, covering approximately 383.97 acres (Table 3-1).

This vegetation is classified as Riversidian Sage Scrub by Holland (1986), and Brittle Bush Scrub Shrubland Alliance is not considered a CDFW sensitive natural community, with a state rank of S4 and a global rank of G5 (see Section 2.2.1).

Bush Penstemon Scrub

Bush Penstemon Scrub (*Keckiella antirrhinoides* Shrubland Alliance) is a native shrub community dominated or co-dominated by bush penstemon (*Keckiella antirrhinoides*) within the shrub layer (CNPS 2021). The shrub cover is open to continuous, typically less than approximately 7 feet in height, and emergent trees may be present at low cover (CNPS 2021). Within the BSA, Bush Penstemon Scrub is dominated by bush penstemon with species such as chaparral honeysuckle (*Lonicera subspicata* var. *denutata*), chamise (*Adenostoma fasciculatum*), white sage (*Salvia apiana*), sticky monkeyflower (*Diplacus aurantiacus*), scrub oak (*Quercus berberidifolia*), and deer weed commonly present. The understory is an intermittent to closed, diverse mix of native and nonnative grasses and forbs. This community is limited to a few locations within the central portion of the BSA between Horse Thief Canyon Road and Hostettier Road, covering approximately 19.89 acres (Table 3-1).

This vegetation is classified as Coastal Sage-Chaparral Scrub by Holland (1986), and Bush Penstemon Scrub Shrubland Alliance is considered a CDFW sensitive natural community, with a state rank of S3 and a global rank of G3 (see Section 2.2.1).

California Buckwheat Scrub

California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance) is a native shrub community dominated or co-dominated by California buckwheat within the shrub layer (CNPS 2021). The shrub cover is open to intermittent, typically less than approximately 7 feet in height, and emergent trees may be present but at low cover (CNPS 2021). Within the BSA, California Buckwheat Scrub is typically associated with disturbed environments. This community can form dense monotypic stands of California buckwheat in some areas within the BSA; however, the shrub cover is typically open to intermittent, dominated by California buckwheat, with associated species such as brittle bush, California sage, and deer weed commonly present. The understory, when present, is intermittent to closed and primarily composed of nonnative grasses and mustards. This community occurs throughout the BSA, covering approximately 49.18 acres (Table 3-1).

California Buckwheat Scrub Shrubland Alliance is classified as Riversidian Sage Scrub by Holland (1986), and California Buckwheat Scrub Shrubland Alliance is not considered a CDFW sensitive natural community, with a state rank of S5 and a global rank of G5 (see Section 2.2.1).

California Sagebrush–Black Sage Scrub

California Sagebrush–Black Sage Scrub (*Artemisia californica–Salvia mellifera* Shrubland Alliance) is characterized by California sage and black sage scrub (*Salvia mellifera*) being co-dominant within the shrub layer, with chamise, sticky monkeyflower, brittlebush scrub, California buckwheat, chaparral yucca (*Hesperoyucca whipplei*), deerweed (*Acmispon glaber*), laurel sumac, lemonade berry, sugar bush (*Rhus ovata*), and white sage present (CNPS 2021). The scrub cover is intermittent to continuous, typically less than approximately 7 feet in height, and taller shrubs may be present at low cover, with a variable

herbaceous layer (CNPS 2021). California Sagebrush–Black Sage Scrub occurs on hillsides throughout the BSA, covering approximately 193.97 acres (Table 3-1).

This vegetation is classified as Riversidian Sage Scrub by Holland (1986). California Sagebrush–California Buckwheat Scrub Shrubland Alliance is not considered a CDFW sensitive natural community, with a state rank of S4 and a global rank of G4 (see Section 2.2.1).

Deer Weed Scrub

Deer Weed Scrub (*Acmispon glaber* [previously *Lotus scoparius*] Shrubland Alliance) is a native shrub community commonly associated with disturbed environments and is dominated or co-dominated by deer weed (CNPS 2021). The shrub cover is open to intermittent, typically less than approximately 7 feet in height, and emergent trees may be present at low cover (CNPS 2021). Within the BSA, this community is strongly dominated by deer weed with species such as California buckwheat, common sand aster (*Corethrogyne filaginifolia*), brittle bush, and California sage commonly present. The understory cover is intermittent to closed and primarily composed of nonnative grasses and mustards. This community occurs throughout the BSA and is typically associated with previously or routinely disturbed areas, covering approximately 38.44 acres (Table 3-1).

This vegetation is classified as Coastal Sage-Chaparral Scrub by Holland (1986), and Deer Weed Scrub Shrubland Alliance is not considered a CDFW sensitive natural community, with a state rank of S5 and a global rank of G5 (see Section 2.2.1).

Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral

Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral (*Prunus ilicifolia—Heteromeles arbutifolia—Ceanothus spinosus* Shrubland Alliance) is dominated by one of the following shrub species greenbark (*Ceanothus spinosus*), toyon or holly leaf cherry (*Prunus ilicifolia*), or a co-dominant combination of two or more of these species within the shrub canopy (CNPS 2021). The shrub cover is open to continuous and is typically less than approximately 49 feet in height, and emergent trees may be present at low cover (CNPS 2021). Within the BSA, this community is dominated by holly leaf cherry with species such as scrub oak, hoary leaved ceanothus (*Ceanothus crassifolius*), chamise, redberry (*Rhamnus crocea*), and California buckwheat commonly present. The understory cover is typically sparse to continuous and composed mainly of nonnative grasses and forbs, but areas of diverse native annuals also occur. Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral appears in several large patches within the southern-central portion of the BSA between Lake Street and Nichols Road, covering approximately 15.20 acres (Table 3-1).

This vegetation is classified as Southern North Slope Chaparral by Holland (1986), and Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral Shrubland Alliance is considered a CDFW sensitive natural community, with a state rank of S3 and a global rank of G3 (see Section 2.2.1).

Quailbush Scrub

Quailbush Scrub (*Atriplex lentiformis* Shrubland Alliance) is characterized by quailbush (*Atriplex lentiformis*) being dominant or co-dominant within the shrub layer (CNPS 2021). The shrub cover is open to intermittent, typically less than approximately 10 feet in height and emergent trees may be present at

low cover (CNPS 2021). Within the BSA, this community is strongly dominated by quailbush, forming a monotypic vegetation community with little diversity. The herbaceous cover is sparse and primarily composed of native saltgrass (*Distichlis spicata*) and nonnative grasses. Quailbush Scrub occurs at one location within the BSA adjacent to the cottonwood riparian forest between Lake Street and Nichols Road in Lake Elsinore, covering approximately 0.23 acre (Table 3-1).

This vegetation community is classified as Desert Saltbush Scrub by Holland (1986), and Quailbush Scrub Shrubland Alliance is not considered a CDFW sensitive natural community, with a state rank of S4 and a globally rank of G4 (see Section 2.2.1).

Scrub Oak Chaparral

Scrub Oak Scrub (*Quercus berberidifolia* Shrubland Alliance) is a native shrub community dominated or co-dominated by scrub oak with an open to continuous cover and is typically less than approximately 20 feet in height (CNPS 2021). Emergent trees may be present at low cover and may include coast live oak and black elderberry (CNPS 2021). Within the BSA, this community is dominated by scrub oak with species such as chamise, white sage, sticky monkeyflower, and deer weed commonly present. The understory, when present, is a mix of native and nonnative grasses and forbs. Scrub Oak Chaparral is limited to a few locations between Horse Thief Canyon Road and Hostettier Road and between Lake Street and Nichols Road, covering approximately 0.90 acre (Table 3-1).

This vegetation is classified as Scrub Oak Chaparral by Holland (1986), and Scrub Oak Chaparral Shrubland Alliance is not considered a CDFW sensitive natural community, with a state rank of S4 and a global rank of G4 (see Section 2.2.1).

Eucalyptus–Tree of Heaven–Black Locust Groves

Eucalyptus–Tree of Heaven–Black Locust Groves (*Eucalyptus* spp.–*Ailanthus altissima*–*Robinia pseudoacacia* Woodland Semi-Natural Alliance) is a nonnative woodland community characterized by eucalyptus trees, tree of heaven (*Ailanthus altissima*), and/or black locust (*Robinia pseudoacacia*) being strongly dominant or co-dominant within the tree canopy (CNPS 2021). The tree canopy is open to continuous, reaching heights up to approximately 197 feet, and the shrub layer is sparse to intermittent with a herbaceous layer that is sparse to intermittent (CNPS 2021). Within the BSA, this community is dominated by eucalyptus trees but often occurs with other nonnative and ornamental trees, such as paperbark and honey-myrtle (*Melaleuca* spp.), Mexican fan palm, eucalyptus, pepper tree, and ornamental pines. These groves are strongly dominated by nonnative trees but may have native trees and tall shrubs, such as coast live oak, elderberry, laurel sumac, and sugarbush at very low cover. The shrub layer, if present, is typically sparse, and the herbaceous layer is variable and typically composed of nonnative grasses. Eucalyptus–Tree of Heaven–Black Locust Groves are commonly encountered throughout the BSA, covering approximately 48.67 acres (Table 3-1).

This vegetation is classified as Eucalyptus Woodland by Holland (1986) and Eucalyptus–Tree of Heaven–Black Locust Groves Woodland Semi-Natural Alliance is not considered a CDFW sensitive natural community. Blue gum (*Eucalyptus globulus*) has a California Invasive Plant Council (Cal-IPC) rank of moderate with seedings invading neighboring areas from original planted locations aggressively. Tree of heaven has a Cal-PIC rank of moderate with rapid growth and remarkable suckering ability. Black

locust has a Cal-IPC rank of limited and sprouts through seedling establishment, displacing native vegetation.

Pepper Tree or Myoporum Forest and Woodland Semi-Natural Alliance

Pepper tree or myoporum (ngaio) forest and woodland semi-natural alliance is composed of ornamental trees, typically pepper trees, ornamental pine trees, or ngaio (*Myoporum laetum*), which are strongly dominated within the tree canopy (CNPS 2023b). The tree canopy is open to continuous and may reach heights up to approximately 59 feet. The shrub layer is sparse to intermittent, and the herbaceous layer is simple to diverse. Within the BSA, this community is dominated or co-dominated by pepper trees and/or ngaio trees but often occurs with other nonnative and ornamental trees, which include, but are not limited to, Mexican fan palm, eucalyptus, paperbark, honey-myrtle, silk oak, and ornamental pines. These groves are strongly dominated by nonnative trees but may have native trees and tall shrubs, such as coast live oak, elderberry, laurel sumac, and sugarbush at very low cover. The shrub layer in the BSA is typically sparse to bare, and the herbaceous layer is typically sparse, composed of nonnative grasses or bare. Pepper tree or myoporum forest and woodland semi-natural alliance is commonly encountered throughout much of the BSA, covering approximately 1.92 acres (Table 3-1).

This is not a CDFW sensitive natural community as the species is nonnative. Pepper trees have a Cal-IPC rank of limited and ngaio trees have a Cal-IPC of moderate, often with fruits dispersed by birds.

Arrow Weed Thickets

Arrow Weed Thickets (*Pluchea sericea* Shrubland Alliance) is a dense riparian shrub community dominated by or co-dominated by arrow weed (*Pluchea sericea*) (CNPS 2021). The shrub cover is variable, typically less than approximately 10 feet in height, and emergent trees may be present at low cover (CNPS 2021). Within the BSA, this community is characterized by dense, monotypic stands of arrow weed. The understory is bare to sparely populated with nonnative grasses and mustards. Within the BSA, Arrow Weed Thickets occur in several large patches within the riparian corridor located on the western side of I-15 in Lake Elsinore between Lake Street and Nichols Road, covering approximately 2.07 acres (Table 3-1).

This vegetation is classified as Arrow Weed Scrub by Holland (1986). Arrow Weed Thickets Shrubland Alliance is considered a sensitive natural community, with a global rank of G4 and a state rank of S3 (see Section 2.2.1). Seasonally flooded Arrow Weed Thickets are also considered to be sensitive.

Coast Live Oak Woodland and Forest

Coast Live Oak Woodland and Forest (*Quercus agrifolia* Woodland and Forest Alliance) is a multi-canopy community dominated or co-dominated by coast live oak (*Quercus agrifolia*) within an open to continuous tree canopy reaching heights of up to approximately 98 feet (CNPS 2021). Within the BSA, this community is dominated by coast live oak with associated tree and tall shrub species such as velvet ash (*Fraxinus velutina*), arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), toyon (*Heteromeles arbutifolia*), Black elderberry, poison oak (*Toxicodendron diversilobum*), and laurel sumac. The herbaceous understory is composed primarily of native western ragweed (*Ambrosia psilostachya*), dwarf nettle (*Urtica urens*), and nonnative grasses and mustards. Perennial exotic trees and shrubs are also present within this community at low cover and includes species, such as giant reed (*Arundo donax*),

saltcedar, castor bean (*Ricinus communis*), Mexican fan palm (*Washingtonia robusta*), eucalyptus (*Eucalyptus* spp.), and pepper trees (*Schinus* spp.). Both upland and riparian Coast Live Oak Woodland and Forest communities are found within the BSA. Riparian Coast Live Oak Woodland and Forest and can be found throughout the BSA along drainages and riparian corridors and other mesic areas. Upland Coast Live Oak Woodland and Forest typically occurs on valleys floors and along ephemeral drainages, but also exist as remnant patches surrounded by development. This vegetation community covers approximately 26.77 acres within the BSA (Table 3-1).

The Coast Live Oak Woodland and Forest Alliance is classified as Southern Coast Live Oak Riparian Forest or Coast Live Oak Woodland by Holland (1986). Coast Live Oak Woodland and Forest Alliance is not considered to be sensitive by CDFW, with a global rank of G5 and state rank of S4 (see Section 2.2.1).

Fremont Cottonwood Forest and Woodland

Fremont Cottonwood Forest and Woodland (*Populus fremontii–Fraxinus velutina–Salix gooddingii* Forest and Woodland Alliance) is a dense, multi-canopy growth of broadleaf, winter-deciduous riparian tree and shrub species dominated by or co-dominated by Fremont cottonwood (*Populus fremontii*) within an open to continuous tree layer (CNPS 2021). Within the BSA, this community is a co-dominant alliance of Fremont cottonwood and Goodding's black willow (*Salix gooddingii*) with associated native tree species such as red willow, coast live oak, velvet ash, and arroyo willow commonly present. The low shrub cover is intermittent to continuous and includes species such as mugwort (*Artemisia douglasiana*), mulefat, poison oak, blackberry (*Rubus ursinus*), and wild tarragon, with coastal sage shrub species also common in drier locations. The herbaceous understory is composed primarily of native ragweed, yerba mansa (*Anemopsis californica*), stinging nettle (*Urtica dioica*), nonnative grasses, and mustards. Perennial exotic trees and shrubs are also present within this community at low cover, and it includes species such as giant reed, Mexican fan palm, saltcedar, eucalyptus trees, and pepper trees. Fremont Cottonwood Forest and Woodland occurs in several locations throughout the BSA but primarily occurs within the riparian corridor within Temecula Creek on the western side of I-15 south of Lake Street, covering approximately 35.26 acres (Table 3-1).

This vegetation is classified as Southern Cottonwood-Willow Riparian Forest by Holland (1986). Fremont Cottonwood Forest and Woodland Alliance is considered a CDFW sensitive natural community, with a state rank of S3 and a global rank of G4 (see Section 2.2.1).

Goodding's Willow–Red Willow Riparian Woodland

Goodding's Willow–Red Willow Riparian Woodland (*Salix laevigata* Woodland Alliance) is a dense growth of broadleaf, winter-deciduous riparian species dominated or co-dominated by Goodding's willow and/or red willow within a continuous tree canopy typically less than approximately 98 feet in height (CNPS 2021). Within the BSA, this community is strongly dominated by Goodding's black willow with associated tree species such as red willow, coast live oak, California sycamore, and Fremont's cottonwood. Within the BSA, this community typically lacks a sub-canopy of smaller willow and shrub species, and the understory is sparse to heavily composed of nonnative grasses and forbs, Goodding's Willow–Red Willow Riparian Woodland occurs at several locations throughout the BSA, but it primarily

occurs within the riparian corridor within Temecula Creek on the western side of I-15 south of Lake Street, covering approximately 48.45 acres (Table 3-1).

This vegetation is classified as Southern Willow Scrub by Holland (1986) and Goodding's Willow–Red Willow Riparian Woodland Alliance is considered a CDFW sensitive natural community, with a state rank of S3 and a global rank of G4 (see Section 2.2.1).

Hardstem and California Bulrush Marshes

Hardstem and California Bulrush Marshes (*Schoenoplectus acutus californicus* Herbaceous Alliance) is characterized by hardstem bulrush (*Schoenoplectus acutus*) and/or California bulrush (*S. californicus*) being dominant within the herbaceous layer, or one or both species may form a co-dominant alliance with cattails (*Typha* spp.) (CNPS 2021). The herbaceous canopy is intermittent to continuous, typically less than approximately 13 feet in height, and emergent shrubs and trees may be present but only at low relative cover (CNPS 2021). Within the BSA, this community is dominated by hardstem bulrush and largely forms uniform monotypic stands. Trees and shrubs, such as mulefat, sand bar willow, arroyo willow, and coast live oak occur at low cover along the periphery of this community. Hardstem and California Bulrush Marshes are found at several locations throughout the BSA, but primarily occur within the riparian corridor located on the western side of I-15 south of Lake Street in Lake Elsinore, covering approximately 7.19 acres (Table 3-1).

This vegetation is classified as Coastal and Valley Freshwater Marsh by Holland (1986), and Hardstem and California Bulrush Marshes Herbaceous Alliance is considered a CDFW sensitive natural community, with a state rank of S3 (see Section 2.2.1).

Mulefat Thickets

Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance) is a dense, riparian shrub community dominated by or co-dominated by mulefat. The shrub cover is variable, typically less than approximately 10 feet in height, and emergent trees may be present at low cover (CNPS 2021). Within the BSA, the shrub canopy varies from intermittent to closed and is dominated by mulefat with species, such as arroyo willow, mugwort, tarragon, toyon, and black elderberry commonly present. Perennial exotic trees and shrubs are also present within this community at low cover; it includes species such as giant reed, saltcedar, castor bean, Mexican fan palm, eucalyptus, and pepper trees. The herbaceous understory includes native species such as weak leaf ragweed (*Ambrosia confertifolia*), yerba mansa, and stinging nettle, but primarily consists of nonnative grasses and mustards. Mulefat Thickets occur at several mesic locations throughout the BSA and in larger swaths within the riparian corridor located on the western side of I-15 between Lake Street and Nichols Road in Lake Elsinore, covering approximately 13.87 acres (Table 3-1).

This vegetation is classified as Mulefat Scrub by Holland (1986), and Mulefat Thickets Shrubland Alliance is not considered a CDFW sensitive natural community, with a state rank of S4 and a global rank of G4 (see Section 2.2.1).

Salt Grass Flats

Salt Grass Flats (*Distichlis spicata* Herbaceous Alliance) is a native riparian herbaceous community that is commonly found in alkaline or saline environments (CNPS 2021). The herbaceous layer is open to continuous, typically less than 5 feet in height, and emergent shrubs may be present at low cover, including Atriplex spp., rabbitbrush (*Ericameria albida*), rubber rabbitbrush (*Ericameria nauseosa*), or greasewood (*Sarcobatus vermiculatus*). Herbaceous species may include salt grass, spiny rush (*Juncus acutus*), and Cooper's rush (*Juncus cooperi*) as dominant or co-dominant in the herbaceous layer. Characteristic species of this alliance include yerba mansa (*Anemopsis californica*), ripgut grass (*Bromus diandrus*), brass-buttons (*Cotula coronopifolia*), alkali heath (*Frankenia salina*), and wall barley (*Hordeum murinum*), all of which are present in the BSA. Salt Grass Flats occur at one location in the BSA on the north side of Temescal Canyon Road and south of I-15, north of Temescal Wash, between Lake Street and Horse Thief Canyon Road in Lake Elsinore, covering approximately 0.08 acre (**Appendix A, Figure 7**) (Table 3-1).

This vegetation is classified as Alkali Meadow by Holland (1986), and Salt Grass Flats Alliance is not considered a CDFW sensitive natural community, with a state rank of S4 and a global rank of G5; however, the Salt Grass–Alkali Heath–Marsh Jaumea (*Jaumea carnosa*) association has a global rank of G3 and a state rank of S2.2 and is considered a CDFW sensitive natural community (see Section 2.2.1).

Tamarisk Thickets

Tamarisk Thickets (*Tamarix* spp. Shrubland Semi-Natural Alliance) is a nonnative riparian shrub community that is strongly dominated by saltcedar or other Tamarix species within the shrub canopy (CNPS 2021). The shrub cover is open to continuous, typically less than approximately 26 feet in height, and emergent trees may be present at low cover, including native riparian species such as Fremont cottonwood and willows (CNPS 2021). Within the BSA Tamarisk Thickets are strongly dominated by saltcedar with species such as elderberry, arroyo willow, giant reed, and mulefat present but at low cover. The understory, when present, is composed mainly of nonnative grasses and mustards. Within the BSA, small thickets of tamarisk occur at several mesic locations within the BSA, and several larger patches occur within the riparian corridor located on the western side of I-15 south between Lake Street and Nichols Road in Lake Elsinore. Tamarisk thickets cover approximately 9.51 acres within the BSA (Table 3-1).

This vegetation is classified as Tamarisk Scrub by Holland (1986), and Tamarisk Thickets Shrubland Semi-Natural Alliance is not considered a CDFW sensitive natural community. This is a semi-natural alliance, and tamarisk species are among the most invasive, widely distributed and troublesome nonnatives to infest California's wetlands (see Section 2.2.1).

Scale Broom Scrub

Scale Broom Scrub (*Lepidospartum squamatum* Shrubland Alliance) is a native shrub community commonly associated with alluvial environments and dominated or co-dominated by scale broom (*Lepidospartum squamatum*) within the shrub canopy (CNPS 2021). The shrub canopy cover is open to continuous and typically less than approximately 7 feet in height, and emergent trees may be present at low cover and can include riparian species such as California sycamore, Fremont cottonwood, black

elderberry, or willows (CNPS 2021). Within the BSA, Scale Broom Scrub is an open shrub community co-dominated by scale broom and California buckwheat, with species such as mulefat, deer weed, brittle bush, California sage, two-color rabbit-tobacco (*Pseudognaphalium biolettii*), and tarragon commonly present. The understory is typically bare or sparsely composed of native and nonnative grasses and forbs. Within the BSA, scale broom scrub primarily occurs within several large drainages traversing I-15, covering approximately 31.09 acres (Table 3-1).

This vegetation is classified as Riversidian Alluvial Fan Sage Scrub by Holland (1986). Scale Broom Scrub Shrubland Alliance is considered a CDFW sensitive natural community, with a state rank of S3 and a global rank of G3 (see Section 2.2.1).

California Sycamore Woodland

California Sycamore Woodland (*Platanus racemosa–Quercus agrifolia* Woodland Alliance) is a broadleaf, winter-deciduous woodland and forest community dominated by California sycamore or a co-dominant alliance of California sycamore and coast live oak (CNPS 2021). The tree canopy is continuous and typically less than approximately 115 feet in height (CNPS 2021). Within the BSA, this community is strongly dominated by California sycamore, but coast live oak is also present but at low cover. Within the BSA, this community lacks a sub-canopy of smaller willows and shrubs and the understory is heavily composed of nonnative grass and forbs. California Sycamore Woodland occurs at a single location just south of Temescal Canyon Road within the BSA, covering approximately 2.32 acres (Table 3-1).

This vegetation is classified as Southern Sycamore-Alder Riparian Woodland by Holland (1986), and California Sycamore Woodland Alliance is considered a CDFW sensitive natural community, with a state rarity rank of S3 and a global rarity rank of G3 (see Section 2.2.1).

Other Land Cover Types

Agriculture

Areas mapped as Agriculture are active or recently active agricultural areas, as well as associated access roads. These areas are regularly maintained, and understory is minimal, consisting mostly of scattered nonnative weeds. Small Agriculture areas are present on the northside of I-15 near Lake Street in Lake Elsinore within the BSA, covering approximately 2.39 acres (Table 3-1).

Developed

Areas mapped as Developed include roadways, buildings, residential housing, commercial development, parks, and landscaped areas. The Developed land cover type is typically unvegetated or is composed of nonnative, ornamental species. Within the BSA, this land cover type is found throughout the LOD, covering approximately 1,295.05 acres (Table 3-1).

Disturbed

Areas mapped as Disturbed are mostly devoid of vegetation and have evidence of frequent human disturbance, such as disking and fire breaks. These areas usually have a very scant cover of native or nonnative ruderal or nonnative grassland species, but the cover is much reduced compared to areas

mapped as ruderal vegetation type or nonnative grassland. Areas mapped as Disturbed are mostly observed immediately adjacent to the freeway shoulder or in vacant dirt lots and cover approximately 334.22 acres in the BSA (Table 3-1).

Wildlife Species

A total of 88 species of wildlife were observed and documented throughout the BSA during field surveys completed in 2020. Most of these species were birds, followed in terms of species richness by mammals, reptiles, amphibians, branchiopods, and fish (see Appendix J for a complete list of species observed during fieldwork).

The most commonly observed birds were red-tailed hawk (*Buteo jamaicensis*), killdeer (*Charadrius vociferous*), mourning dove (*Zenaida macroura*), white-throated swift (*Aeronautes saxatalis*), horned lark (*Eremophila alpestris*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), common raven (*Corvus corax*), bushtit (*Psaltriparus minimus*), European starling (*Sturnus vulgaris*), California towhee (*Melozone crissalis*), song sparrow (*Melospiza melodia*), house finch (*Haemorhous mexicanus*), and lesser goldfinch (*Carduelis psaltria*). The above species are common in this region nearly year-round and are more disturbance-tolerant than most of the other observed species. Additionally, the riparian corridor in the southern portion of the BSA provides habitat for other less frequently observed birds, including the pacific-slope flycatcher (*Empidonax difficilis*) and phainopepla (*Phainopepla nitens*).

The most frequently detected mammals were the desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Otospermophilus beecheyi*), and domestic dog (*Canis familiaris*). These are all animals that are typically observed in, and common to, this region.

Amphibians and reptiles detected included American bullfrog (*Lithobates catesbeianus*), western fence lizard (*Sceloporus occidentalis*), and gopher snake (*Pituophis catenifer*). All three are common in the BSA and readily found near human-altered or disturbed areas.

Five special-status animals were observed across the BSA: orange-throated whiptail (*Aspidoscelis hyperythra;* California Watch List [WL]); LBV (FE, SE); coastal California gnatcatcher (*Polioptila californica*; FT, SSC); yellow-breasted chat (*Icteria virens*; SSC); and yellow warbler (*Setophaga petechia*; SSC).

With the exception of LBV, all of these special-status animals are MSHCP fully covered species, with no additional survey requirements. Chapter 4 provides additional details regarding the aforementioned special-status species.

Aquatic Resources

A total of 145 features with an identifiable OHWM or discernible bed-and-bank, or both, were observed within the BSA. Temescal Wash, which connects Lake Elsinore in the south to the Santa Ana River north of the BSA, is the main drainage within the BSA, and most of the aquatic features within the BSA are tributary to Temescal Wash, which is tributary to Santa River, approximately 8.5 miles to the northwest

of the BSA (see Appendix I). Additional aquatic features include Arroyo del Toro, Indian Wash, Mayhew Wash, Coldwater Wash, McBride Canyon Creek, and Bedford Wash.

Temescal Wash generally flows from south to north, connecting Lake Elsinore in the south to the Santa Ana River in the north. It runs mostly parallel to the BSA, crossing under I-15 just north of the intersection of Hostettler Road and Temescal Canyon Road. Within the BSA, Temescal Wash has an earthen bottom and exhibits intermittent and perennial flows that support riparian habitat and wetlands in some areas.

Typical riparian vegetation communities mapped within the BSA include Fremont Cottonwood Forest and Woodland, Goodding's Willow-Red Willow Riparian Woodland and Forest, Hardstem and California Bullrush Marshes, and Mulefat Thickets. Within the BSA, riparian communities were identified within Temescal Wash and 14 unnamed channels, basins, or depressional areas. In total, 19 features supporting riparian habitat either within or extending beyond the mapped bed-and-bank that are potentially subject to CDFW jurisdiction under Section 1600 et seq. of the California Fish and Game Code were identified within the BSA.

Invasive Species

A list of plant species observed during fieldwork is included in Appendix J. Included are species that are classified as invasive by the Cal-IPC (2021a). These species invade natural communities in California and replace habitat needed by native plants and animals, increase wildfire and flood danger, and destroy productive range and timberland.

A total of 40 species of plants were observed in the BSA that are classified as invasive, following the Cal-IPC classifications (2021b). These species and their Cal-IPC ratings are including in Table 3-2.

Table 3-2. Invasive Plants Observed in the Biological Study Area

Scientific Name	Common Name	Rating
Arundo donax	Giant reed	High
Bromus madritensis ssp. rubens	Red brome	High
Centaurea solstitialis	Yellow starthistle	High
Oncosiphon piluliferum	Stinknet	High
Tamarix parviflora	Smallflower tamarisk	High
Tamarix ramosissima	Saltcedar	High
Bromus hordeaceus	Soft chess	Limited
Cotula coronopifolia	Brass-buttons	Limited
Erodium cicutarium	Redstem filaree	Limited
Eucalyptus camaldulensis	Red gum	Limited
Eucalyptus globulus	Blue gum	Limited
Medicago polymorpha	California burclover	Limited

Table 3-2. Invasive Plants Observed in the Biological Study Area

Scientific Name	Common Name	Rating
Mesembryanthemum nodiflorum	Slender-leaved ice plant	Limited
Olea europaea	Olive	Limited
Raphanus sativus	Radish	Limited
Ricinus communis	Castorbean	Limited
Robinia pseudoacacia	Black locust	Limited
Rumex crispus	Curly dock	Limited
Salsola tragus	Prickly Russian thistle	Limited
Schinus molle	Pepper tree	Limited
Schismus barbatus	Mediterranean schismus	Limited
Sisymbrium irio	London rocket	Limited
Ailanthus altissima	Tree of heaven	Moderate
Avena barbata	Slender wild oat	Moderate
Avena fatua	Wild oat	Moderate
Brassica nigra	Black mustard	Moderate
Bromus diandrus	Ripgut grass	Moderate
Centaurea melitensis	Tocalote	Moderate
Cynodon dactylon	Bermuda grass	Moderate
Festuca myuros	Rattail fescue	Moderate
Festuca perennis	Rye grass	Moderate
Ficus carica	Edible fig	Moderate
Hirschfeldia incana	Shortpod mustard	Moderate
Hordeum murinum	Wall barley	Moderate
Lythrum hyssopifolia	Grass poly	Moderate
Myoporum laetum	Ngaio tree	Moderate
Nicotiana glauca	Tree tobacco	Moderate
Oxalis pes-caprae	Bermuda buttercup	Moderate
Schinus terebinthifolius	Brazilian pepper tree	Moderate
Washingtonia robusta	Mexican fan palm	Moderate

3.1.4 Habitat Connectivity

The area surrounding and within the BSA provides opportunity for movement and landscape connectivity for a wide variety of species. Between Nichols Road and Temescal Canyon Road, there are large areas of open space and conservation lands that are bounded by I-15 to the east. These open space areas provide

diverse topographical conditions, riparian corridors, and low human presence. The BSA occurs in the Temescal Valley. The Temescal Valley includes Temescal Wash and associated tributaries. Habitats associated with Temescal Wash include riparian, woodland, coastal sage scrub, alluvial fan sage scrub, and open water. Upland habitats adjacent to Temescal Wash and riparian areas connect to Lake Mathews/Estelle Mountain Reserve areas and the foothills north of Lake Elsinore (Estelle Mountain, Sedco Hills) to the north. Existing connections at Indian Canyon, Horsethief Canyon, and open upland areas southwest of Alberhill provide connections between the Santa Ana Mountains, Temescal Wash, and the foothills. Clay soils in the Temescal Valley provide habitat suitable for any special-status plants, as do the floodplain processes associated with Temescal Wash. Temescal Wash links to the Santa Ana River to the north.

The datasets and literature listed in Chapter 2 were evaluated in a desktop review for existing habitat connectivity features within the BSA. Results of the desktop review are listed below. Detailed description of these connectivity features, including approximate locations, focal planning/key species, and Covered Activities are provided in Chapter 4.

Western Riverside County MSHCP

Within the BSA, there are several wildlife corridors and linkages identified by the Western Riverside County MSHCP, including Core areas, Extension of Existing Core, Linkages, and Constrained Linkages. These terms are defined in the MSHCP as follows:

- **Core:** A core is a habitat block that is sufficient in size and configuration, with appropriate vegetation, to support one or more MSHCP covered species.
- **Extension of Existing Core:** A habitat block that provides additional habitat adjacent to an existing core and reduces an exposed edge.
- **Linkage:** A connection of adequate size, appropriate vegetation, and configuration between core areas to provide for "live-in" habitat and/or provide for genetic flow for identified planning species. Linkages may provide movement habitat but not live-in habitat for some species, functioning as movement corridors. It is expected that every linkage will provide live-in habitat for at least one species, and since the term "corridor" may be confused with the term "transportation corridors" discussed in the Community and Environmental Transportation Acceptability Process (CETAP) portion of the Riverside County Integrated Project, the term linkage is used here.
- **Constrained Linkage:** A constricted connection expected to provide for movement of identified planning species between core areas, in areas where connections are limited due to existing use. (RCIP 2003)

The following MSHCP cores and linkages overlap with or are adjacent to the BSA and LOD:

- Proposed Core 1
- Proposed Extension of Existing Core 2
- Proposed Linkage 1

- Proposed Linkage 2
- Proposed Constrained Linkage 3
- Proposed Constrained Linkage 5
- Proposed Constrained Linkage 6

Missing Linkages in California's Landscape

In 2000, a statewide interagency workshop was held to discuss and map critical and at-risk linkages throughout California. The effort, which included more than 200 contributing land managers, conservationists, and biologists, culminated in the *Missing Linkages: Restoring Connectivity to the California Landscape* [ds420] report and linkage dataset (Penrod et al. 2001). The missing linkages layer identifies the location of, and threats to, the most important wildlife movement corridors in California. The project area is within the South Coast ecoregion, and there are two linkages that overlap the BSA and project area, as identified in the missing linkages geospatial layer:

- Bedford Canyon
- Gavilan Hills–Santa Ana Mountains

California Essential Habitat Connectivity Layers

The California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California was designed to support connectivity conservation in land use and transportation planning. The report and accompanying dataset were produced by a multi-disciplinary team of representatives from 62 agencies, a small technical advisory team, and a steering committee. The statewide map of essential habitat connectivity depicts large and small "Natural Landscape Blocks" of relatively intact habitat, as well as areas that have been deemed essential with respect to ecological connectivity for a broad range of species. Also depicted are "Essential Connectivity Areas" that serve to connect the Natural Landscape Blocks. Although developed at a coarse scale, the data can be used to prioritize conservation, mitigation, and other land use decisions (Spencer et al. 2010). Mapped California Essential Habitat Connectivity resources that occur within or adjacent to the BSA and LOD are listed below.

- **Natural Landscape Blocks – Large [ds621]:** One large natural landscape block occurs within (and crosses) the BSA and project area: ID Number 76, named "Indian Mountain/Gilman Springs".
- **Natural Landscape Blocks – Natural Areas Small [ds1073]:** Eight small natural landscape blocks are mapped within or adjacent to the BSA and project area, ranging in size from approximately 2.5 to 126 acres.
- **Essential Connectivity Areas (Linkages) [DS620]:** The BSA and project area are adjacent to an essential habitat connectivity area: ID Number 120, named "Estelle Mountain-Lake Mathews". The linkage connects from the north side of the Temescal Wash (adjacent to the BSA) near Estelle Peak to the Monument Peak and Lake Mathews area.

Terrestrial Connectivity – Areas of Conservation Emphasis

The Terrestrial Connectivity dataset [ds2734] within Areas of Conservation Emphasis layer supports conservation planning efforts (CDFW 2017). The data summarize information on terrestrial connectivity, including the presence of mapped corridors or linkages and proximity to large, contiguous natural areas. Each hexagonal mapping unit has a connectivity rank value from 1 to 5, with 5 indicating areas of irreplaceable and essential connectivity conservation priority.

The majority of the BSA and project area intersect with hexagonal mapping units with a connectivity rank of 1, signifying "limited connectivity opportunity," defined as "areas where land use may limit options for providing connectivity (e.g., agriculture, urban) or no connectivity importance has been identified in models" (CDFW 2017). The following locations that overlap the BSA and project area are mapped as having connectivity ranks higher than 1:

- Indian Truck Trail vicinity
- Temescal Wash crossing vicinity

California Fish Passage Assessment Database

There are no identified California Fish Passage [ds69] impediments or barriers on streams within the BSA or LOD (CDFW 2019); thus, this layer is not further discussed in this report.

3.1.5 Regional Species and Habitats and Natural Communities of Concern

More than 170 special-status species and 15 sensitive natural communities are known to occur in the region, given their geographic distribution. A list of these species and vegetation communities, habitat requirements, and potential to occur in the BSA is provided in Appendix B. Biological issues of regional concern include bird nesting and foraging, including raptors nesting and foraging, and wildlife corridors and linkages.

A review of special-status species that occur in the vicinity of the Project, along with sensitive natural communities, and other natural resources that are or may be present in the BSA, is presented in Chapter 4.

A review of federally designated critical habitat in the study area is provided in Chapter 5.

4 Results: Biological Resources, Discussion of Impacts, and Mitigation

The Project lies within the boundaries of the MSHCP and is a Covered Activity under Volume I, Section 7.3.5 of the Plan. The MSHCP provides full mitigation under CEQA for impacts on most of the biological resources that have been identified as being potentially affected by the Project. To ensure consistency with the MSHCP, measures are presented in this chapter, where appropriate, that follow the MSHCP requirements in Volume I, Sections 6.1.2 through 6.1.4, 6.3, and 7.5. For compliance with the MSHCP, a consistency review through the JPR process would be required from RCA, with concurrence that the Project is consistent with the requirements of the MSHCP. Furthermore, for compliance with FESA and CESA, this report must also be reviewed by USFWS and CDFW. Because this Project has a federal nexus, it is understood that any take authorization for species would occur under Section 7 (not Section 10) of FESA and that USFWS would provide a MSHCP consistency determination of the Project, resulting in a streamlined biological opinion. The streamlined biological opinion would require no more compensation than what is required to be consistent with the MSHCP. In this document, where a consistency review or compensation for impacts is discussed, it is understood that RCA, USFWS, and CDFW would be involved in the review process.

4.1 Approach

As presented in Appendix B, more than 100 special-status plants and animals and 65 special-status wildlife species occur in the vicinity of the Project, according to the review criteria and databases described in Chapter 2. Appendix B lists each species and community, along with regulatory status, species requirements, and potential for occurrence in the BSA.

As described in Chapter 1, the Project consists of a Build Alternative and a No-Build Alternative. The Build Alternative, which would permanently alter the I-15 facility, includes both construction and operations components. Construction includes any activity associated with building the Project to completion (e.g., grading, adding new lanes in the dirt median, bridge widening in the median, creating staging areas for materials and equipment, installing signage, and lane restriping). Operation of the Project would occur after construction is complete and would include maintenance (e.g., mowing along the shoulder for fire/weed abatement). Based on studies conducted to date it is expected that the Build Alternative would result in more vehicles traveling on the facility, increases in noise, and other activities or changes associated with operating the new facility. The No-Build Alternative assumes that there could be future improvements or general maintenance work to improve operation of the facility or incorporate safety enhancements regardless of whether the Build Alternative is approved.

Throughout this chapter, potential direct, indirect, and cumulative impacts are discussed for the No-Build Alternative and the Build Alternative. The No-Build Alternative represents the condition that would result if the Project does not move forward. Describing and analyzing a No-Build Alternative helps decision-makers and the public compare the impacts of approving the Project with the consequences of not approving the Project.

Direct impacts are those impacts that can be expected from direct removal and disturbances to the land and resources, either temporarily or permanently. Examples of direct impacts include mortality of individuals, temporary impacts from clearing and grubbing, and permanent loss of habitat. Indirect impacts are those impacts that give rise to delayed and/or further removed, secondary impacts. Examples of indirect impacts may include fragmentation, pollination interruption, increased levels of environmental toxins, plant and wildlife dispersal interruption, downstream sedimentation, increased risk of fire, and invasion of nonnative animals and plants, which stresses or alters competition among natives. Indirect impacts are those that can be assumed to increase mortality, reduce productivity, and/or reduce the functions and values of natural open space for native species. Cumulative impacts are those direct and indirect impacts that the Project would contribute to regionally in conjunction with other past, present, or reasonably foreseeable projects.

Permanent and temporary impacts were analyzed for each biological resource under the Build Alternative. In addition, shading effects on wetlands, riparian vegetation, or native upland vegetation would occur where new bridges or bridge extensions are being installed (refer to **Appendix A, Figure 7** for the project impact areas). During construction, the area underneath the new bridge/bridge extension would be temporarily affected. Post-construction, shading resulting from the constructed structure would potentially result in a conversion of habitat type (e.g., riparian habitat to unvegetated; Riversidian Sage Scrub [RSS] to ruderal) or loss of CDFW riparian, the effects on these resources from shading are considered a permanent indirect effect. Non-wetland waters and state streambeds under new bridge structures would be expected to only result in temporary impacts.

4.1.1 Cumulative Impacts Information

Cumulative impacts are those direct and indirect impacts that the Project would contribute to regionally in conjunction with other past, present, or reasonably foreseeable projects. In some instances, the area used for assessing cumulative impacts is based on the area plans of the MSHCP. The Project occurs within the Temescal Canyon and Elsinore Area Plans. The geographical limits of these area plans, and the associated cities, are identified in Figure 3-3 of the MSHCP (Volume I). The BSA lies within the cities of Corona and Lake Elsinore, as well as unincorporated areas of Riverside County, from El Cerrito Road to Central Avenue. Most of the land is open space with some lands developed for urban, suburban, and agricultural uses. Much of the remaining natural vegetation occurs in scattered, often fragmented, patches on hills or in other areas that are not easily developed. The Area Plans are of sufficient size and scope to assess cumulative impacts for plants and wildlife. For jurisdictional resources, the watershed is used to define the area for cumulative impacts. The portions of the alignment with the least developed land are south of Corona. Cumulative impacts on each sensitive resource are presented below under the Cumulative Impacts section for each resource type.

4.2 Habitats and Natural Communities of Special Concern

There are 13 sensitive natural communities potentially occurring within the regional vicinity of the BSA based on a review of the CNDDB (CDFW 2021) and the MSHCP (Appendix B), including 11 communities considered to be sensitive natural communities by CDFW (each alliance is considered to be one community); one community considered to be rare per the MSHCP (Riversidian sage scrub includes four alliances, but as none of these alliances are sensitive by CDFW, this is considered one community);

and protected trees. The following vegetation communities of special concern are present in the BSA and are mapped on **Figure 7** in **Appendix A**:

Sensitive Natural Communities[4]

- Southern Riparian Scrub
  - Arrow Weed Thickets Shrubland Alliance
- Southern Cottonwood Willow Riparian Forest
  - Fremont Cottonwood Forest and Woodland Alliance
- Southern Willow Scrub
  - Goodding's Willow–Red Willow Riparian Woodland and Forest Alliance
- Coastal and Valley Freshwater Marsh
  - Hardstem and California Bulrush Marsh Alliance
- Chaparral
  - Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral Shrubland Alliance
  - Bush Penstemon Scrub Shrubland Alliance
- Valley Needlegrass Grassland
  - Needle Grass–Melic Grass Grasslands Herbaceous Alliance
- Tarweed Fields
  - Clustered Tarweed Fields Herbaceous Alliance
- Riversidian Alluvial Fan Sage Scrub
  - Scale Broom Scrub Alliance
- Southern Sycamore Alder Riparian Woodland
  - California Sycamore Woodland Alliance

MSHCP Communities

- Riversidian Sage Scrub
  - Brittle Bush Scrub Shrubland Alliance
  - California Buckwheat Scrub Shrubland Alliance
  - California Sagebrush–Black Sage Scrub Brush Shrubland Alliance

[4] Sensitive natural community as defined by CDFW. The alliances noted for both Riversidian Sage Scrub and Southern Coast Live Oak Riparian Forest are no longer considered sensitive by CDFW. However, Riversidian Sage Scrub is still discussed in this section as this habitat type provides habitat for listed species and special-status wildlife species. Southern Coast Live Oak Riparian Forest is addressed in the Summary of Protected Trees (Section 4.2.6).

- Deer Weed Scrub Alliance Shrubland Alliance

Protected Trees

- Southern Sycamore Alder Riparian Woodland
  - California Sycamore Woodland Alliance

The following sections discuss the occurrence of these vegetation communities in the BSA and provide an analysis of potential direct and indirect effects that may occur from the Project.

4.2.1 Discussion of Riversidian Sage Scrub

Coastal sage scrub, of which RSS is a subtype, is characterized by low-growing drought-deciduous shrubs with shallow roots and an open canopy, which allows for a diverse herbaceous community of annual vegetation. RSS is a plant community of concern because its extent has been drastically reduced during recent decades, primarily because of residential development in the coastal foothills of Southern California. Vegetation of this type can provide potential habitat for several special-status species, such as coastal California gnatcatcher and coastal cactus wren. The Alliances and associations within the BSA that are classified as RSS are not considered by CDFW to be sensitive natural communities; however, they are considered biologically important based on MSHCP classifications. Because this vegetation type provides habitat for listed species and special-status wildlife species, such as coastal California gnatcatcher, this community is discussed herein.

Survey Results

In the BSA, there are an estimated 644.46 acres of RSS, including 378.89 acres of Brittle Bush Scrub, 49.18 acres of California Buckwheat Scrub, 177.95 acres of California Sagebrush–Black Sage Scrub, and 38.44 acres of Deer Weed Scrub. The acreages of each sensitive natural community represented within RSS habitat are provided in Table 4-1. The distribution of RSS in the BSA is shown in **Appendix A, Figure 7**. The overall habitat value of the RSS communities in the BSA is judged to be moderate to high due to relatively high native cover. California Buckwheat Scrub and Deer Weed Scrub are judged to be lower in value based on their association with disturbed environments within the BSA as well as their understories being primarily composed of nonnative grasses and mustards.

Project Impacts

Build Alternative

Project impacts may occur during construction and operation. Construction of the Build Alternative would directly and permanently remove 3.33 acres of RSS, would temporarily remove 128.58 acres of RSS, and would remove 0.07 acre of RSS via indirect effects from shading (**Appendix A, Figure 7**, Table 4-1).

Table 4-1. Potential Impacts of the Build Alternative on the Riversidian Sage Scrub Vegetation Communities

Vegetation Communities Represented Within RSS Habitat	Impacts (acres)			
	Permanent	**Temporary**	**Shading**	**Total**
Brittle Bush Scrub	3.11	84.76	0.07	**87.94**
California Buckwheat Scrub	0.08	11.46	--	**11.54**
California Sagebrush–California Buckwheat Scrub	0.09	24.84	--	**24.93**
Deer Weed Scrub	0.05	7.52	--	**7.57**
Total	**3.33**	**128.58**	**0.07**	**131.98**

These impacts would occur in MSHCP criteria cells and cores and linkages, but no impacts on this vegetation community would occur in conserved lands. The potential also exists for short-term, temporary indirect effects from construction activities, including dust, increases in fire risks, introduction of invasive plant species, erosion and sedimentation, introduction of hazardous materials, and introduction of trash on sage scrub adjacent to the LOD. However, these effects are expected to be greatly reduced with implementation of the measures presented in the Avoidance and Minimization Measures below. Construction activities are expected to occur primarily within the I-15 median and are not expected to sever existing connectivity of RSS from one side of the interstate to the other.

Operation of the Project would have potential indirect effects on RSS, including fire risks, litter, introduction of invasive species, habitat fragmentation, erosion and sedimentation, and introduction of hazardous materials due to ROW maintenance. However, the operation of the Project is not expected to differ appreciably from existing conditions.

The potential impacts on RSS from the Build Alternative would not be expected to be more than the impacts under current operational conditions of the I-15 facility. The permanent removal of 3.33 acres of RSS, temporary removal of 128.58 acres with 0.07 acre lost due to shading of RSS could be a biologically important loss; however, RSS is not considered to be a sensitive natural community by CDFW. This community could provide habitat for coastal California gnatcatcher and other special-status species. However, the Project is a covered activity under the MSHCP, and the impacts on RSS, and therefore the loss of any RSS (total of 131.98 acres for the Project), would not be considered substantial and would be covered under the MSHCP.

No-Build Alternative

If this Project is not constructed, there would be no new or additional impacts on RSS beyond those that would be expected to occur from the existing facility.

Avoidance and Minimization Efforts

Build Alternative

A full list of avoidance and minimization measures, with details regarding each, is provided in Appendix L. Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans** are required under the MSHCP to reduce the level of indirect effects and eliminate the potential for direct impacts on RSS adjacent to but outside of the proposed LOD. These measures would also protect adjacent native flora and fauna associated with RSS in the BSA during and following construction.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Under the Build Alternative, all potential direct and indirect impacts on RSS are fully addressed through consistency with the MSHCP with implementation of the avoidance and minimization measures identified above and in Appendix L.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Impacts

Build Alternative

Construction of the Build Alternative would directly remove RSS and, potentially, cause indirect effects. Over the past decade, a large amount of RSS has been removed through residential and commercial development in the region. RSS has also been incrementally removed as interchanges and other improvements have been built along I-15. The total amount of RSS that may be proposed for removal by future projects is not known, but it is reasonable to assume that the amount of RSS proposed for removal by the Build Alternative could make a cumulatively considerable contribution to the decline of RSS. Consistency with the MSHCP would fully mitigate these potential cumulative effects through its identified conservation measures.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on RSS.

4.2.2 Discussion of Chaparral

Chaparral is one of the most widespread vegetation types in California and is the most abundant and widespread vegetation type in Western Riverside County, covering approximately 35 percent of the MSHCP (Plan) Area. Chaparral is characterized by hillside evergreen shrubs with deep root systems and leathery leaves, which help the plants with water conservation during the hot, dry summers in Southern California. Because Chaparral is so widely distributed, there is no direct threat to Chaparral as a vegetation type. However, some stands of Chaparral that support sensitive species or unique species compositions may be threatened by urban development. Only sensitive Chaparral communities will be discussed here. Both Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral Shrubland Alliance (state rank S3, global rank G3) and Bush Penstemon Scrub Shrubland Alliance (state rank S2, global rank G2) are considered sensitive natural communities by CDFW. Scrub Oak Chaparral is not considered to be a sensitive natural community by CDFW and will not be included in this discussion.

Survey Results

In the BSA, there are an estimated 35.09 acres of sensitive Chaparral communities, composed of 15.2 acres of Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral Shrubland Alliance and 19.89 acres of Bush Penstemon Scrub Shrubland Alliance. The acreages of each sensitive natural community represented within Chaparral habitat can be found in Table 4-2.

The distribution of Chaparral in the BSA is shown in **Appendix A, Figure 7**. The overall habitat value of the Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral Shrubland Alliance and Bush Penstemon Scrub Shrubland Alliance in the BSA is judged to be moderate to high based on overall native species diversity but still having nonnative grass species understories. Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral Shrubland Alliance occurs in several large patches within the southern-central portion of the BSA between Lake Street and Nichols Road. Bush Penstemon Scrub Shrubland Alliance is limited to a few locations within the central portion of the BSA between Horse Thief Canyon Road and Hostettier Road.

Project Impacts

Build Alternative

Project impacts may occur during construction and during operation of the I-15 facility once constructed. Construction of the Build Alternative would directly and temporarily remove 1.49 acres of sensitive Chaparral (**Appendix A, Figure 7**). For the impacts on each Chaparral community refer to Table 4-2. These impacts would occur in MSHCP criteria cells and cores and linkages, but no impacts on this vegetation community would occur in conserved lands. No permanent impacts or shading effects would occur. The potential exists for short-term, temporary indirect effects from construction activities including dust, increased fire risk, introduction of invasive plant species, erosion and sedimentation, introduction of hazardous materials, and introduction of trash on sensitive Chaparral adjacent to the LOD. However, these effects are expected to be greatly reduced with implementation of the measures presented in Appendix L. Construction activities would be expected to occur associated with I-15 and would not be expected to sever existing connectivity of sensitive Chaparral from one side of I-15 to the other.

Table 4-2. Potential Impacts of the Build Alternative on the Sensitive Chaparral Vegetation Communities

Vegetation Communities	Impacts (acres)			
	Permanent	**Temporary**	**Shading**	**Total**
Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral	0.00	0.53	0.00	**0.53**
Bush Penstemon Scrub	0.00	0.96	0.00	**0.96**
Total	**0.00**	**1.49**	**0.00**	**1.49**

Operation of the Project would have potential indirect effects on sensitive Chaparral including fire risks, litter, introduction of invasive species, habitat fragmentation, erosion and sedimentation, and introduction of hazardous materials due to ROW maintenance. However, operation of the Project is not expected to differ appreciably from existing conditions.

The potential impacts on sensitive Chaparral from the Build Alternative would not be expected to be more than the impacts under current operational conditions of the I-15 facility. The temporary removal of 1.49 acres of sensitive Chaparral would not be considered a biologically substantial loss under the MSHCP. Chaparral is the most abundant and widespread vegetation type in Western Riverside County, covering approximately 435,000 acres of the Plan Area. The loss of any sensitive Chaparral (total of 1.49 acres for the Project) would not be considered substantial and would be covered under the MSHCP. Sensitive Chaparral is not expected to provide habitat for CESA- or FESA-listed wildlife.

No-Build Alternative

If this Project is not constructed, there would be no new or additional impacts on sensitive Chaparral beyond those that would be expected to occur from the existing facility.

Avoidance and Minimization Efforts

Build Alternative

A full list of avoidance and minimization measures, with details regarding each, is provided in Appendix L. Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans** are required under the MSHCP to reduce the level of indirect effects and eliminate the potential for direct impacts on sensitive Chaparral adjacent to, but outside of, the proposed LOD. These measures would also protect adjacent native flora and fauna associated with sensitive Chaparral in the BSA during and following construction.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Under the Build Alternative, all potential direct and indirect impacts on sensitive Chaparral would be fully addressed through consistency with the MSHCP with implementation of the avoidance and minimization measures identified above and in Appendix L.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Impacts

Build Alternative

Construction of the Build Alternative would directly remove sensitive Chaparral and, potentially, cause impacts through indirect effects. Over the past decade, a large amount of sensitive Chaparral has been removed through residential and commercial development in the region. Sensitive Chaparral has also been incrementally removed as interchanges and other improvements have been built along I-15. The total amount of sensitive Chaparral that may be proposed for removal by future projects is not known, but the amount of sensitive Chaparral proposed for removal by the Build Alternative would not be considered to be a cumulatively considerable contribution to the decline of sensitive Chaparral. However, consistency with the MSHCP would fully mitigate even minor potential cumulative effects through its identified conservation measures.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on sensitive Chaparral.

4.2.3 Discussion of Native Grasslands

Native Grasslands are characterized by gentle topography and predominantly introduced annual grasses, usually with native grasses and forbs and a scattering of sub-shrubs mixed in. Native Grasslands are rare and typically contain perennial bunch grasses, though nonnative grasses and forbs may also be present. Native Grasslands are a sensitive natural community because their extent has been greatly reduced during recent decades, primarily because of increased residential and urban development in the inland areas of Southern California. Vegetation of this type can provide potential habitat for a number of special-status species, such as SKR and special-status plants.

Survey Results

In the BSA, there are an estimated 1.62 acres of Native Grasslands, which are composed of Needle Grass–Melic Grass Grasslands. The acreages of each sensitive natural community represented within Nonnative Grassland habitat can be found in Table 3-1. The distribution of Native Grassland in the BSA is shown in **Appendix A, Figure 7**. The overall habitat value of Needle Grass–Melic Grass Grasslands in the BSA is judged to be low to moderate based on its proximity to disturbed and developed habitats, as

well as the presence of nonnative annual grasses and forbs within the community. Within the BSA, Needle Grass–Melic Grass Grasslands Herbaceous Alliance is found in two small patches, one just south of Indian Truck Trail and the other just south of Nichols Road in Lake Elsinore.

Project Impacts

Build Alternative

Project impacts may occur during construction and operations once the Project is constructed. Construction of the Build Alternative would directly and temporarily remove 0.31 acre of Native Grassland, composed of Needle Grass–Melic Grass Grasslands. No permanent or shading impacts would occur. These impacts would occur in MSHCP criteria cells and cores and linkages, but no impacts on this vegetation community would occur in conserved lands. Also, the potential exists for short-term, temporary indirect effects from construction activities including dust, increases in fire risks, introduction of invasive plant species, erosion and sedimentation, introduction of hazardous materials, and introduction of trash on Native Grassland adjacent to the LOD. However, these effects are expected to be greatly reduced with implementation of the measures presented below. Operation of the Project would have potential indirect effects on Native Grasslands including fire risks, litter, introduction of invasive species, habitat fragmentation, erosion and sedimentation, and introduction of hazardous materials due to ROW maintenance. However, the operation of the Project is not expected to differ appreciably from existing conditions.

The potential impacts on Native Grasslands from the Build Alternative would not be expected to be more than the impacts under current operational conditions of the I-15 facility. The temporary removal of 0.31 acre of Native Grasslands could be considered a biologically substantial loss given the rarity of Native Grasslands. This community could provide habitat for SKR and special-status plant species. However, under the MSHCP, the loss of any Native Grasslands would not be considered substantial and would be covered under the MSHCP.

No-Build Alternative

If this Project is not constructed, there would be no new or additional impacts on Native Grasslands beyond those that would be expected to occur from the existing facility.

Avoidance and Minimization Efforts

Build Alternative

A full list of avoidance and minimization measures, with details regarding each, is provided in Appendix L. Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans** are required under the MSHCP to reduce the level of indirect effects and eliminate the potential for direct impacts on Native Grasslands adjacent to but outside of the proposed LOD. These measures would also protect adjacent native flora and fauna associated with Native Grasslands in the BSA during and following construction.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Under the Build Alternative, all potential direct and indirect impacts on Native Grasslands would be fully addressed through consistency with the MSHCP with implementation of the avoidance and minimization measures identified above and in Appendix L.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Impacts

Build Alternative

Construction of the Build Alternative would directly, temporarily remove Native Grasslands and potentially cause impacts through indirect effects. Over the past decade, relative to the remaining amount of habitat, a large amount of Native Grasslands have been removed through residential and commercial development in the region. Native Grasslands have also been incrementally removed as interchanges and other improvements have been built along I-15. The total amount of Native Grasslands that may be proposed for removal by future projects is not known, but it is reasonable to assume that the amount of Native Grasslands proposed for removal by the Build Alternative could make a cumulatively considerable contribution to the decline of Native Grasslands. Consistency with the MSHCP would fully mitigate these potential cumulative effects through its identified conservation measures.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on Native Grasslands.

4.2.4 Discussion of Wildflower Fields

Wildflower Fields include the Clustered Tarweed Fields Herbaceous Alliance in the BSA. This vegetation type is found in clay flats and bottomlands, edges of vernal pools, shallow pools, or alkaline flats. Soils are fine-textured alluvium with periodic or intermittent inundation; they may be underlain by claypan or other impervious layer and are poorly drained. Clustered Tarweed Fields are a sensitive natural community with a state rank of S2 and a global rank of G2. Vegetation of this type may be an indicator of southern California vernal pools and can provide potential habitat for fairy shrimp and special-status plants.

Survey Results

In the BSA, there are an estimated 3.79 acres of Wildflower Fields, which are composed of Clustered Tarweed Fields. Refer to Table 3-1. The distribution of Wildflower Fields in the BSA is shown in **Appendix A, Figure 7**. The vegetation community was not found associated with any of the seasonal

pools mapped during the fairy shrimp surveys. The overall habitat value of Clustered Tarweed Fields in the BSA is judged to be moderate as this community was typically associated with a diverse mix of native and nonnative forbs and grasses. Clustered Tarweed fields occur mainly in the northern portion of the BSA.

Project Impacts

Build Alternative

Project impacts may occur during construction and operations once the Project is constructed. Construction of the Build Alternative would directly permanently remove 0.09 acre and temporarily remove 2.29 acres of Wildflower Fields, composed of Clustered Tarweed Fields. These impacts would occur in MSHCP criteria cells and cores and linkages, but no impacts on this vegetation community would occur in conserved lands. No permanent or shading impacts would occur. Also, the potential exists for short-term, temporary indirect effects from construction activities including dust, increases in fire risks, introduction of invasive plant species, erosion and sedimentation, introduction of hazardous materials, and introduction of trash on Wildflower Fields adjacent to the LOD. However, these effects are expected to be greatly reduced with implementation of the measures presented below.

Operation of the Project would have potential indirect effects on Wildflower Fields including fire risks, litter, introduction of invasive species, habitat fragmentation, erosion and sedimentation, and introduction of hazardous materials due to ROW maintenance. However, the operation of the Project is not expected to differ appreciably from existing conditions.

The potential impacts on Wildflower Fields from the Build Alternative would not be expected to be more than the impacts under current operational conditions of the I-15 facility. The permanent removal of 0.09 acre and temporary removal of 2.29 acres of Wildflower Fields could be considered a biologically substantial loss given the rarity of Wildflower Fields. This community could provide habitat for fairy shrimp and special-status plant species; however, no seasonal pools that were mapped during fairy shrimp surveys (refer to Section 4.5.1) were mapped associated with this vegetation community, and no special-status plants were found in these areas (refer to Sections 4.4 and 4.5). However, under the MSHCP, the loss of any Wildflower Fields would be mitigated, except where this habitat type would be classified as a vernal pool, in which case Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools, of the MSHCP would apply. No evidence that vernal pools were present associated with this habitat type was observed during surveys in 2020 and 2021; therefore, the loss of any Wildflower Fields would not be considered substantial and would be covered under the MSHCP.

No-Build Alternative

If this Project is not constructed, there would be no new or additional impacts on Wildflower Fields beyond those that would be expected to occur from the existing facility.

Avoidance and Minimization Efforts

Build Alternative

A full list of avoidance and minimization measures, with details regarding each, is provided in Appendix L. Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans** are required under the MSHCP to reduce the level of indirect effects and eliminate the potential for direct impacts on Wildflower Fields adjacent to but outside of the proposed LOD. These measures would also protect adjacent native flora and fauna associated with Wildflower Fields in the BSA during and following construction.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Under the Build Alternative, all potential direct and indirect impacts on Wildflower Fields would be fully addressed through consistency with the MSHCP with implementation of the avoidance and minimization measures identified above in Appendix L.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Impacts

Build Alternative

Construction of the Build Alternative would directly, temporarily remove Wildflower Fields and, potentially, cause impacts through indirect effects. Over the past decade, relative to the remaining amount of habitat, a large amount of Wildflower Fields has been removed through residential and commercial development in the region. Wildflower Fields have also been incrementally removed as interchanges and other improvements have been built along I-15. The total amount of Wildflower Fields that may be proposed for removal by future projects is not known, but it is reasonable to assume that the amount of Wildflower Fields proposed for removal by the Build Alternative could make a cumulatively considerable contribution to the decline of Wildflower Fields. Consistency with the MSHCP would fully mitigate these potential cumulative effects through its identified conservation measures.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on Wildflower Fields.

4.2.5 Discussion of Riparian Sensitive Natural Communities

During the CEQA review process, the potential for sensitive natural communities is required to be addressed. Six riparian sensitive natural communities were identified in the BSA during this review process, and these include: Arrow Weed Thickets, Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Scale Broom Scrub, and Southern Sycamore Alder Riparian Woodland. A discussion of these resources, and how the protection of riparian/riverine areas and vernal pools (Section 6.1.2 of the MSHCP) and consistency with the MSHCP relates to these resources, is provided below.

Survey Results

There are six riparian sensitive natural communities that were identified as being sensitive natural communities as defined by CDFW mapped in the BSA (**Appendix A, Figure 7**):

- Arrow Weed Thickets (state rank S3, global rank G4) (2.07 acres)
- Fremont Cottonwood Forest and Woodland (state rank S3, global rank G4) (54.19 acres)
- Goodding's Willow–Red Willow Riparian Woodland (state rank S3, global rank G4) (28.25 acres)
- Hardstem and California Bulrush Marshes (state rank S3) (7.19 acres)
- Scale Broom Scrub (state rank S3, global rank G3) (31.77 acres)
- Southern Sycamore Alder Riparian Woodland (state rank S3, global rank G3) (2.32 acres)

In the BSA, there is an estimated 125.79 acres of riparian sensitive natural communities. The distribution of these communities is shown in **Appendix A, Figure 7**. The overall habitat value of these communities is judged to be moderate as they provide occupied habitat for federal and state listed species (refer to Section 4.3.1 and 4.4.1) and are also suitable for a number of other sensitive species (refer to Sections 4.3.2 and 4.4.2).

Arrow Weed Thickets Shrubland Alliance occurs in the BSA in several large patches within the riparian corridor located on the western side of I-15 between Lake Street and Nichols Road in Lake Elsinore. Fremont Cottonwood Forest and Woodland Alliance occurs in several locations throughout the BSA, but primarily occurs within the riparian corridor on the western side of I-15 south of Lake Street in Lake Elsinore. Goodding's Willow–Red Willow Riparian Woodland occurs at several locations throughout the BSA. Hardstem and California Bulrush Marshes are found at several locations throughout the BSA, but primarily occur within the riparian corridor located on the western side of I-15 south of Lake Street in Lake Elsinore. Scale Broom Scrub Shrubland Alliance occurs within several large drainages traversing I-15 within the BSA. California Sycamore Woodland Alliance occurs at a single location just south of Temescal Canyon Road within the BSA.

Project Impacts

Build Alternative

Project impacts may occur during construction and operations once the Project is constructed. Construction of the Build Alternative would temporarily affect 2.29 acres of riparian sensitive natural communities, with an additional 0.18 acre of impacts due to shading effects. No permanent impacts would occur on sensitive riparian natural communities. Temporary impacts would occur on Fremont Cottonwood Forest and Woodland Alliance, Goodding's Willow–Red Willow Riparian Woodland Alliance, Hardstem and California Bulrush Marshes, Scale Broom Scrub, and California Sycamore Woodland Alliance. In addition, shading effects would permanently affect Scale Broom Scrub. No impacts are expected on Arrow Weed Thicket Shrubland Alliance or Hardstem and California Bulrush Marshes (Table 4-3). Because the impacts on these vegetation communities would occur within the existing ROW, the quality of habitat for species is generally low due to existing maintenance and vegetation clearing activities that may occur within the ROW.

Table 4-3. Potential Direct Impacts of the Build Alternative on the Riparian Sensitive Natural Communities

Riparian Sensitive Natural Communities	Impacts (acres)			
	Permanent	Temporary	Shading	Total
Arrow Weed Thicket Shrubland Alliance	0.00	0.00	0.00	0.00
Fremont Cottonwood Forest and Woodland Alliance[1]	0.00	0.32	0.00	0.32
Goodding's Willow–Red Willow Riparian Woodland and Forest Alliance	0.00	1.21	0.00	1.21
Hardstem and California Bulrush Marshes	0.00	0.39	0.00	0.00
Scale Broom Scrub	0.00	0.31	0.18	0.45
California Sycamore Woodland[1]	0.00	0.06	0.00	0.06
Total	**0.00**	**2.29**	**0.18**	**2.47**

[1] A portion of this vegetation community occurs within upland areas.

These impacts would occur in MSHCP criteria cells and cores and linkages, but no impacts on this vegetation community would occur in conserved lands. The potential also exists for short-term, temporary indirect effects from construction activities including dust, increases in fire risks, introduction of invasive plant species, erosion and sedimentation, introduction of hazardous materials, and introduction of trash on riparian sensitive natural communities adjacent to the LOD. However, these effects are expected to be greatly reduced with implementation of the measures presented in Appendix L.

Operation of the Project would have potential indirect effects on riparian sensitive natural communities adjacent to the LOD including fire risks, litter, introduction of invasive species, habitat fragmentation,

erosion and sedimentation, and introduction of hazardous materials due to ROW maintenance. These potential indirect effects may degrade quality of habitat adjacent to the LOD. However, the operation of the Project is not expected to differ appreciably from existing conditions. The potential impacts on riparian sensitive natural communities from the Build Alternative would not be expected to be more than the impacts under current operational conditions of the I-15 facility.

Under the MSHCP, the loss of any riparian sensitive natural communities would be mitigated through the implementation of Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas, and Vernal Pools, of the MSHCP. However, not all parts of all of the communities described here would be considered riparian/riverine and therefore not all impacts on these communities would be completely mitigated through implementation of Section 6.1.2 of the MSHCP. For instance, both Fremont Cottonwood Forest and Woodland Alliance and California Sycamore Woodland Alliance can be considered upland communities but are still considered to be sensitive natural communities. Where these communities are considered to be upland communities, all potential direct and indirect impacts on riparian sensitive natural communities would be fully mitigated through consistency with the MSHCP.

No-Build Alternative

If this Project is not constructed, there would be no new or additional impacts on riparian sensitive natural communities beyond those that would be expected to occur from the existing facility.

Avoidance and Minimization Efforts

Build Alternative

A full list of avoidance and minimization measures, with details regarding each, is provided in Appendix L. Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans** are required under the MSHCP to reduce the level of indirect effects and eliminate the potential for direct impacts on riparian sensitive natural communities adjacent to but outside of the proposed LOD. These measures would also protect adjacent native flora and fauna associated with riparian sensitive natural communities in the BSA during and following construction.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Under the Build Alternative, all potential direct and indirect impacts on riparian sensitive natural communities would be fully mitigated under the MSHCP with implementation of the avoidance and minimization measures identified in Appendix L and through compliance with Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools, of the MSHCP. Where these

communities are considered to be upland communities, all potential direct and indirect impacts on riparian sensitive natural communities would be fully addressed through consistency with the MSHCP. The Project would be reviewed through the JPR process, whereby the JPR application and supporting documentation will be assessed and concurrence with the Project's consistency with the MSHCP would be provided. As a part of the JPR process, impacts on Riparian/Riverine Areas would trigger then need for a Determination of Equivalent or Superior Preservation (DBESP) report, which would be prepared to demonstrate that no net loss of Riparian/Riverine Areas would occur, and that replacement would be equivalent or better than existing conditions.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Impacts

Build Alternative

Construction of the Build Alternative would directly remove riparian sensitive natural communities and, potentially, cause impacts through indirect effects. Riparian sensitive natural communities include several of California's rare alliances. The total amount of riparian sensitive natural communities that may be proposed for removal by future projects is not known, but it is reasonable to assume that the amount of riparian sensitive natural communities proposed for removal by the Build Alternative would not make a cumulatively considerable contribution to the decline of riparian sensitive natural communities due to the small amount of loss. Consistency with the MSHCP through both compliance with Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools, of the MSHCP and through compliance with identified conservation measures would fully mitigate these potential cumulative effects.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on riparian sensitive natural communities.

4.2.6 Discussion of Protected Trees

Protected trees are trees or tree communities that have been identified as having special significance and are provided protection by, and specifically identified in, county and city ordinances, codes, or general plans. Within the BSA, trees are protected by Riverside County Oak Tree Management Guidelines, Open Space and Conservation Policy, Ordinance 12.08, Tree Removal Ordinance 12.24.010, and the California State Senate Concurrent Resolution No. 17, Oak Woodlands.

Protected trees in the BSA include oak trees within both mapped Coast Live Oak Woodland and Forest and any other vegetation community containing oak trees. Other protected trees include trees within the ROW of the county highway.

Survey Results

A tree inventory was performed to determine the locations of all oak trees within the LOD (**Appendix A, Figure 9**). In the BSA, coast live oak trees can be found in Coast Live Oak Woodland, California Sycamore Woodland, Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Scrub Oak Chaparral, Eucalyptus–Tree of Heaven–Black Locust Groves, and Pepper Tree or Myoporum Forest and Woodland communities. The distribution of these communities in the BSA is shown in **Appendix A, Figure 7**. These vegetation communities within the BSA include approximately 168.65 acres of habitat where oaks may occur.

In addition, other protected trees, including roadside trees in the ROW (Ordinance 12.08) may occur in any mapped vegetation type. Tree Removal Ordinance 12.24.010 does not apply to the Project because the Project's elevation is not above 5,000 feet.

Project Impacts

Build Alternative

Tree removal may occur during construction and operations once the Project is constructed. Construction of the Build Alternative would remove protected trees, including the direct removal of up to three oak trees within the temporary impact area of the LOD. No oak trees were observed within the permanent impact area of the LOD. All three trees occur at the edges of the LOD and not within the median where most of the work would occur. Also, the potential exists for short-term, temporary indirect effects from construction activities including dust, increases in fire risks, introduction of invasive plant species, erosion and sedimentation, introduction of hazardous materials, and introduction of trash on oak trees and trees within the ROW adjacent to the LOD. However, these effects are expected to be greatly reduced with implementation of the measures presented in Appendix L.

Operation of the Project would have potential indirect effects on oak trees including fire risks, litter, introduction of invasive species, habitat fragmentation, erosion and sedimentation, and introduction of hazardous materials due to ROW maintenance. However, the operation of the Project is not expected to differ appreciably from existing conditions. The potential impacts on oak trees from the Build Alternative would not be expected to be more than the impacts under current operational conditions of the I-15 facility. The permanent removal of individual oak trees could be considered a biologically substantial loss of protected trees.

No-Build Alternative

If this Project is not constructed, it would not cause any impacts on protected trees.

Avoidance and Minimization Efforts

Build Alternative

A full list of avoidance and minimization measures, with details regarding each, is provided in Appendix L. Measures **BIO-1** through **BIO-12** are required under the MSHCP to reduce the level of

indirect effects and eliminate the potential for direct impacts on protected trees adjacent to, but outside of, the proposed LOD.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Under the Build Alternative, all potential direct and indirect impacts on vegetation communities that may contain protected trees would be fully mitigated under the MSHCP with implementation of the avoidance and minimization measures identified in Appendix L and specifically through compliance with **BIO-19, Oak Tree Management**, where the removal of trees, including oaks, may require replacement or purchase of credits in a mitigation bank.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Impacts

Build Alternative

Construction of the Build Alternative could directly remove protected trees and, potentially, cause impacts through indirect effects. The total amount of protected trees that may be proposed for removal by future projects is not known, but it is reasonable to assume that the amount of protected trees proposed for removal by the Build Alternative would not make a cumulatively considerable contribution to the decline of protected trees due to existing maintenance activities in the ROW.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on protected trees.

4.2.7 Discussion of MSHCP Riparian/Riverine Resources

Vegetation communities associated with riparian systems are sensitive natural vegetation communities because, similar to coastal sage scrub, they have declined throughout Southern California during past decades. Riparian vegetation provides hydrological functions and values by removing excess nutrients and sediment from surface runoff and shallow groundwater. In addition, they support a large variety of special-status wildlife species, including LBV, SWFL, arroyo toad (*Bufo californicus*), western pond turtle (*Actinemys marmorata*), yellow-breasted chat (*Icteria virens*), and western yellow warbler (*Setophaga petechia*). Most species associated with riparian/riverine resources are covered species under the MSHCP. Riparian habitats were formerly abundant along major rivers of coastal Southern California, but are now much reduced by urban expansion, flood control, and channel improvements (Holland 1986). Riparian areas are regulated under California Fish and Game Code, and when located within drainages, are also typically protected by the CWA and CDFW code sections.

The MSHCP has specific policies and procedures regarding the evaluation and conservation of riparian/riverine resources (including riparian vegetation) because it supports MSHCP covered species. Specifically, the MSHCP states that:

> riparian/riverine areas are natural lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with freshwater flow during all or a portion of the year.

Thus, the MSHCP classification of riparian/riverine includes both riparian (sensitive natural vegetation communities) as well as ephemeral drainages that are natural in origin but may lack riparian vegetation. For this analysis, all man-made features that drain directly into MSHCP conserved lands also meet the definition and are considered MSHCP riparian/riverine resources. No vernal pool resources were identified in the study area.

Survey Results

Riparian/riverine areas are defined in the MSHCP as lands that contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, that are close to or depend on soil moisture from a nearby freshwater source, or areas with freshwater flow during all or a portion of the year. Within the BSA for jurisdictional resources (50-ft buffer), there are an estimated 26.37 acres of MSHCP riparian/riverine resources (**Appendix A, Figure 8**). Within the study area for jurisdictional resources, there are 43.51 acres of riparian habitats (i.e., Arrow Weed Thickets, Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Mulefat Thickets, Tamarisk Thickets) and 11.68 acres of ephemeral riverine drainages (refer to Appendix I).

A large portion of the riparian/riverine resources in the BSA occur within Temescal Wash and along its tributaries. The quality of habitat within Temescal Wash ranges from moderate to high value. At Temescal Wash (west of the I-15), the riparian resources support a large population of LBV (refer to Section 4.4.1), as well as many other MSHCP (Volume I, Section 6.1.2) covered species of birds and amphibians that need moist soils and riparian vegetation and would be considered high quality. Other areas of Temescal Wash are more degraded due to disturbances from humans, domestic predators, vehicular noise from the I-15, and general vicinity to the I-15; this area would be considered moderate quality due the higher level of disturbance.

All riparian/riverine resources in the BSA occur in state jurisdictional streambeds. However, there are state streambeds that are man-made features that are constructed in upland areas, which generally do not qualify as MSHCP riparian/riverine. However, these features do need to be evaluated for downstream resources, especially if upstream to the conservation area, to make this determination.

Project Impacts

Build Alternative

Project impacts may occur during construction and operations. Construction of the Build Alternative would directly and permanently remove approximately 0.07 acre of MSHCP riparian/riverine resources. These permanent effects would result from installation of bridge piers, BMPs, and other work associated with the permanent construction area (**Appendix A, Figure 8**). Temporary direct effects on up to 5.62 acres of MSHCP riparian/riverine are associated with the work area needed to accomplish the installation of bridge decks, abutments, and piers, including access routes to and from bridge areas and ephemeral habitats. Shading effects would occur in the following areas:

- Riverine areas in Feature 25.5-1 (**Appendix A, Figure 8**, Sheet 6)
- Riparian habitat found in the median gap in Temescal Wash (**Appendix A, Figure 8**, Sheet 8); however, this habitat is mapped as disturbed (refer to **Appendix A Figure 7**, Sheet 9)
- Riverine areas in Feature 29.1-1 (**Appendix A, Figure 8**, Sheet 10)
- Riverine areas in Feature 30.0-1, Indian Wash (**Appendix A, Figure 8**, Sheet 11)
- Riverine areas in Feature 31.9, Mayhew Wash (**Appendix A, Figure 8**, Sheet 13)
- Riverine areas in Feature 31.8-1 (**Appendix A, Figure 8**, Sheet 13)
- Riverine areas in Feature 32.9-1, Coldwater Wash (**Appendix A, Figure 8**, Sheet 14)
- Riverine areas in Feature 34.7-1, McBride Canyon Creek (**Appendix A, Figure 8**, Sheet 17)
- Riverine areas in Feature 36.5-1, Bedford Wash (**Appendix A, Figure 8**, Sheet 19)

The closure of the median over existing riparian areas would permanently degrade the habitat function and value for wildlife and plant species, affect potential movement for wildlife due to decreased vegetation cover, and/or affect water quality and soil processes within stream areas due to longer periods of shading. Table 4-4 summarizes the potential direct impacts on MSHCP riparian/riverine resources from the Build Alternative.

Table 4-4. Potential Direct Impacts of the Build Alternative on MSHCP Riparian/Riverine Resources

MSHCP Riparian/ Riverine Resources	Impact (acres)			
	Permanent	**Temporary**	**Shading**	**Total**
Riparian	0.00	1.80	0.46	2.26
Riverine	0.07	3.82	1.00	4.89
Total Impacts	**0.07**	**5.62**	**1.46**	**7.15**

Also, the potential exists for short-term, temporary indirect effects from construction activities including dust, increases in fire risks, introduction of invasive plant species, erosion and sedimentation, introduction of hazardous materials, and introduction of trash on riparian/riverine resources adjacent to the LOD.

Operation of the Project may have potential indirect effects on MSHCP riparian/riverine resources and sensitive natural riparian communities including fire risks, litter, introduction of invasive species, habitat fragmentation, erosion and sedimentation, and introduction of hazardous materials due to ROW maintenance. The potential indirect operation effects may reduce the functions and values of the existing riparian/riverine resources adjacent to the LOD.

The potential operational impacts on MSHCP riparian/riverine resources and sensitive natural riparian communities from the Build Alternative would not be expected to be more than the impacts under current operational conditions of the I-15 facility. The permanent removal of 0.07 acre, temporary impact 5.62 acres and shading effects on 1.46 acres of MSHCP riparian/riverine resources could be considered a biologically substantial loss given the rarity of MSHCP riparian/riverine resources. Riparian/riverine resources have declined appreciably over past decades. As stated previously, this resource provides highly productive habitats for plants and animals and is essential to maintaining water quality functions and values.

No-Build Alternative

If this Project is not constructed, impacts on riparian/riverine resources would not occur.

Avoidance and Minimization Efforts

Build Alternative

A full list of avoidance and minimization measures required under the MSHCP for the Project is provided in Appendix L. Those that are intended to avoid and/or minimize potential direct and indirect impacts on riparian vegetation and sensitive natural riparian communities and associated native flora and fauna in the BSA are **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-15, DBESP; BIO-16, Riparian/Riverine Compensation), BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings; BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-22, Temescal Wash – Biological Monitoring; BIO-24, Waste Management; BIO-26, Bat Management Plan;** and **BIO-28, Nesting Bird Management Plan**.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

The proposed impacts on MSHCP riparian/riverine resources by the Build Alternative would require compensatory mitigation. Under the MSHCP, compensation for these losses would be addressed through preparation of a Determination of Biologically Equivalent or Superior Preservation (DBESP) report that would be approved through a consistency review and determination by RCA, USFWS, and CDFW (**BIO-15, DBESP**). A compensation ratio of no less than 3:1 for permanent riparian impacts (including shading effects) and 1.25:1 for temporary riparian impacts, along with no less than 2:1 for permanent and temporary impacts on ephemeral drainages, would provide equivalent preservation. The minimum 3:1 ratio addresses the temporal loss of riparian resources that would occur between the impact and completion of the offsite restoration/enhancement program as well as acknowledgement that although it is not quantifiable, the viability of the riparian vegetation directly adjacent to the gap area may be compromised by the permanent shading. All temporary losses would be replaced at their current locations, when feasible (**BIO-16, Riparian/Riverine Compensation**). Measure **BIO-17, Compensatory Mitigation** ensures no net loss of riparian/riverine resources. Implementation of compensatory measures **BIO-15** through **BIO-17** would fully compensate for any impacts on riparian/riverine resources. Such compensation should be coordinated with acquisition of a state Streambed Alteration Agreement (California Fish and Game Code Section 1602). Federal CWA Section 401 and 404 permits would also be required for the Project (refer to Chapter 5). It would also be necessary to ensure restored riparian habitat in temporarily affected areas along the Temescal Wash so this habitat can continue to support wildlife movement and LBV (**BIO-23, LBV Habitat Compensation**).

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Impacts

Build Alternative

Construction of the Build Alternative may permanently remove a biologically substantial amount of MSHCP riparian/riverine resources at the Temescal Wash. Given the amount of impact proposed, and that the majority of this impact would occur at the Temescal Wash, the Build Alternative could make a cumulatively considerable contribution to a regional decline of riparian/riverine resources. However, all direct impacts would be fully mitigated, as discussed under Compensatory Mitigation above, and consistency with the MSHCP would fully mitigate any potential cumulative impacts on this resource from the Project.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on MSHCP riparian/riverine resources and sensitive natural riparian communities.

4.2.8 Discussion of Habitat Connectivity

Within the BSA, there are several habitat connectivity features identified by the Western Riverside County MSHCP, including Core areas, Extension of Existing Core, Linkages, and Constrained Linkages. These terms are defined in the MSHCP and reviewed above in Chapter 3.

Survey Results

A habitat connectivity desktop review is summarized in Chapter 3 and described here in more detail, listed by data source. Underpasses like viaducts, bridges, culverts, and pipes are often designed to ensure adequate drainage beneath highways and can also support connectivity for biological resources. Within the LOD and the BSA, there are nine natural features (washes) that cross under I-15. The nine washes cross below I-15 at large bridges, where the NB and SB lanes are separated over the washes. Seven of these washes have natural bottoms, thus, likely provide most of the fish and wildlife crossing opportunities within the BSA. Two hydrological features, Brown Canyon Wash and Wasson Canyon Wash, have partial or complete concrete channels, thus, may not provide much wildlife connectivity value. The location of each wash and description follows:

- Bedford Wash (PM 36.58) – natural bottom crossing under I-15 at large bridges
- Brown Canyon Wash (PM 34.72) – concrete channelized wash crossing under I-15 at large bridges
- Coldwater Wash (PM 32.96) – natural bottom crossing under I-15 at large bridges
- Mayhew Wash (PM 31.97) – natural bottom crossing under I-15 at large bridges
- Indian Wash (PM 30.09) – natural bottom crossing under I-15 at large bridges
- Horsethief Canyon Wash (PM 29.13) – natural bottom crossing under I-15 at large bridges
- Temescal Wash (South Crossing) (PM 28.04) – natural bottom crossing under I-15 at large bridges
- Gavilan Wash (PM 25.55) – natural bottom crossing under I-15 at large bridges
- Wasson Canyon Wash (PM 21.57) – part natural bottom, part concrete channel crossing under I-15 at large bridges

Many additional road under-crossings and overcrossings exist that could allow for wildlife movement across I-15 within the BSA; however, they are primarily frequently travelled roadways, thus, are not likely to support a high level of use by wildlife. Smaller culverts and pipes that cross under I-15 may provide alternative crossing opportunities, particularly for smaller species, though they may only function well if they are shorter than approximately 300 feet and have daylight visible through the length of the structure.

Western Riverside County MSHCP

Table 4-5 summarizes the Western Riverside County MSHCP Core area, Extension of Existing Core area, Linkages, and Constrained Linkages that overlap the BSA and LOD. Descriptions of the connectivity features are provided below.

Proposed Core 1 consists of two blocks bifurcated by I-15 in the Alberhill area, approximately from PM 24 to PM 27. This core area overlaps with the BSA and LOD. The area provides habitat for species and movement of species. As described in the MSHCP, "[k]ey populations of coastal California gnatcatcher, Munz's onion, many-stemmed dudleya, cactus wren, tricolored blackbird, and yellow warbler are supported in this Core Area. The Core likely provides for movement of common mammals such as bobcat" (Dudek & Associates, Inc. 2003). Key considerations for this Core area described in the MSHCP due to planned development and the Hemet to Corona/Lake Elsinore CETAP Corridor include management of edge conditions to maintain high quality habitat within the Core. The Gavilan Wash crossing under I-15 occurs between the two Proposed Core 1 blocks. Shading and permanent impacts occur at the Lake Street crossing associated with Proposed Core 1. These are depicted in **Appendix A, Figure 7**, Sheet 7.

Proposed Extension of Existing Core 2 consists of a long area west of I-15 from Lake Mathews and El Cerrito south to just downstream of the Temescal Wash crossing under I-15. It is also known as the Lake Mathews/Estelle Mountain Extension area. This core area extension overlaps with BSA and LOD (specifically the ROW from PM 29 to PM 32 and near PM 34) but does not cross I-15. As described in the MSHCP, the area "supports populations of coastal California gnatcatcher; thus high quality, connected Habitat must be maintained in this area…" (Dudek & Associates, Inc. 2003). Other key considerations include edge effects that may occur as planned development and the proposed Hemet to Corona/Lake Elsinore CETAP Corridor Alternative 1B are implemented. Existing crossings under I-15 adjacent to Proposed Extension of Existing Core 2 include Coldwater Wash (PM 32.96), Mayhew Wash (PM 31.97), Indian Wash (PM 30.09), and Horsethief Canyon Wash (PM 29.13).

Proposed Linkage 1 consists of the foothills of the Santa Ana Mountains and undeveloped areas adjacent to and west of I-15, across from Corona Lake (i.e., Lee Lake). This core area extension overlaps with BSA and LOD (specifically the ROW from approximately PM 29 to PM 30). As described in the MSHCP, "[t]his Linkage likely provides for movement of common mammals such as bobcat. Mountain lions are also likely to use the Linkage to access Core Areas in the Lake Mathews/Estelle Mountain Reserve" (Dudek & Associates, Inc. 2003). Key considerations include maintenance of contiguous habitat with refugia for dispersal of juveniles and management of edge effects from existing future development. Existing large crossings under I-15 adjacent to Proposed Linkage 1 include Horsethief Canyon Wash (PM 29.13). Shading and permanent impacts occur associated with Proposed Linkage 1. These are depicted in **Appendix A, Figure 7**, Sheet 11 for Jurisdictional Feature 29.1-1 and on **Figure 7**, Sheet 12 for Indian Wash, Jurisdictional Feature 30.0-1.

Proposed Linkage 2 is composed of wetland habitat of the Collier Marsh, within the Lake Elsinore, west of I-15 and adjacent to the BSA near PM 23 to PM 24. This linkage is adjacent to the BSA but there is no overlap with LOD because I-15 is separated from the wetlands by a developed area and Collier Avenue. The linkage supports key populations of yellow-breasted chat, San Diego ambrosia, downy woodpecker, LBV, yellow warbler, and SWFL. Key considerations include maintenance of water quality and wetland functions and value of Collier Marsh, as well as edge effects from adjacent development.

Proposed Constrained Linkage 3 consists of undeveloped upland habitat west of I-15 approximately at the Indian Truck Trail exit, between PM 30 and PM 31. This linkage overlaps with the BSA and LOD. The linkage is considered constrained because of extensive adjacent development. As described in the

MSHCP, "[i]t provides movement of species between Core Areas along Temescal Wash and Lake Mathews/Estelle Mountain area to the Santa Ana Mountains in the Cleveland National Forest via an undercrossing of I-15" (Dudek & Associates, Inc. 2003). The linkage primarily provides movement habitat for mammals like bobcat. Key considerations described in the MSHCP include maintenance of contiguous habitat with refugia for dispersal of juveniles, potential habitat fragmentation due to development, and proposed widening of I-15 that could affect movement. The MSHCP suggests that, "Maintenance of an adequate wildlife undercrossing at least 10-20 feet wide with fencing and vegetative cover will be important to accommodate movement of bobcats." An existing crossing under I-15 in the vicinity is Indian Wash (PM 30.09). There may be an unnamed wash that passes under I-15 through Proposed Constrained Linkage 3 at the Indian Truck Trail exit, though the culvert is more than 800 feet long and may not provide adequate wildlife passage due to its length. Shading and permanent impacts occur in Proposed Constrained Linkage 13 associated with Indian Truck Trail and Jurisdictional Feature 30.4-1 as depicted in **Appendix A, Figure 7**, Sheet 12.

Proposed Constrained Linkage 5 consists of a wildlife undercrossing and adjacent upland habitat located at I-15 northwest of Horsethief Canyon Road. This linkage overlaps with the BSA and LOD and runs underneath I-15 near PM 29. It is considered constrained due to planned development to the north and the east. As described in the MSHCP, it provides, "a connection to Core Areas along Temescal Wash and in the Lake Mathews/Estelle Mountain area to ultimately the Santa Ana Mountains in the Cleveland National Forest" (Dudek & Associates, Inc. 2003). It primarily provides movement habitat for mammals including mountain lion and bobcat. Key considerations include maintenance of contiguous habitat with appropriate dispersal refugia for juveniles, management of edge effects from adjacent planned development, and maintenance of an adequate wildlife undercrossing at I-15. The MSHCP suggests that an adequate wildlife undercrossing at least 10 to 20 feet wide with fencing and vegetative cover will be important to accommodate movement of bobcat and mountain lion. An existing crossing under I-15 within the linkage is Horsethief Canyon Wash (PM 29.13). Shading and permanent impacts occur in Proposed Constrained Linkage 5, associated with Horsethief Canyon Road, as depicted in **Appendix A, Figure 7,** Sheet 10.

Proposed Constrained Linkage 6 consists of a portion of Temescal Wash and its adjacent riparian habitat north and south of I-15, as well as some adjacent undeveloped upland habitat southwest of I-15 and the wash. The linkage overlaps the BSA and the LOD from approximately PM 27 to PM 28, and extends underneath I-15 on both sides of the highway at the Temescal Wash crossing (PM 28.04). As described in the MSHCP, this linkage connects Proposed Core area 1 (Alberhill area), Proposed Extension of Existing Core area 2 (Lake Mathews/Estelle Mountain Extension), and Proposed Linkage 1. Key populations of species use the upland and high-quality riparian areas along the wash, including Cooper's hawk, yellow warbler, white-tailed kite, yellow-breasted chat, and LBV. Key considerations include maintenance of upland and riparian habitats along Temescal Wash and management of edge effects from adjacent future development.

Permanent and shading impacts associated with Proposed Constrained Linkage 6 occur in Temescal Canyon Road and Temescal Wash in Temescal Valley (Jurisdictional Feature 28.1-1), as depicted in **Appendix A, Figure 7**, Sheet 9.

Table 4-5. Summary of Western Riverside County MSHCP Proposed Cores and Linkages within the BSA and LOD

MSHCP Habitat Connectivity Feature	Location Description	Approximate Total Area (acres)	Planning Species	Primarily Provides Live-in Habitat and/or Movement Habitat	Major Covered Activities Potentially Affecting Feature
Proposed Core 1	East and west of I-15, approximately. Consists of land in the Alberhill area. Overlaps with BSA and LOD, exists on both sides of I-15.	7,470	Coastal California gnatcatcher, cactus wren, tricolored blackbird, SWFL, Munz's onion, many-stemmed dudleya	Both live-in and movement habitat	I-15, Hemet to Corona/Lake Elsinore CETAP Corridor
Proposed Extension of Existing Core 2 (i.e., Lake Mathews/Estelle Mountain Extension)	West of I-15. Consists of land from Lake Mathews and El Cerrito south to almost the I-15 crossing of Temescal Wash. Overlaps with BSA and LOD but does not cross I-15.	8,100	Cooper's hawk, southern California rufous-crowned sparrow, Bell's sage sparrow, yellow warbler, white-tailed kite, SWFL, yellow-breasted chat, loggerhead shrike, downy woodpecker, coastal California gnatcatcher, LBV, SKR, bobcat, mountain lion, Munz's onion, long-spined spine flower, many stemmed dudleya	Both live-in and movement habitat	Hemet to Corona/Lake Elsinore, CETAP Corridor, Alternative 1B
Proposed Linkage 1	West of I-15. Consists of foothills of the Santa Ana Mountains and adjacent undeveloped areas. Overlaps with BSA and LOD and has an under-crossing at I-15.	2,310	Cooper's hawk, Bell's sage sparrow, loggerhead shrike, mountain quail, coastal California gnatcatcher, SKR, bobcat, mountain lion	Movement habitat	I-15

Table 4-5. Summary of Western Riverside County MSHCP Proposed Cores and Linkages within the BSA and LOD

MSHCP Habitat Connectivity Feature	Location Description	Approximate Total Area (acres)	Planning Species	Primarily Provides Live-in Habitat and/or Movement Habitat	Major Covered Activities Potentially Affecting Feature
Proposed Linkage 2	West of I-15. Consists of wetland habitat associated with Collier Marsh in City of Lake Elsinore. Adjacent to BSA but no overlap with LOD.	160	American bittern, mountain plover, SWFL, black-crowned night heron, osprey, double-crested cormorant, white-faced ibis, LBV	Live-in habitat	None
Proposed Constrained Linkage 3	West of and underneath I-15. Consists of undeveloped upland habitat approximately at the Indian Truck Trail exit. Overlaps with BSA and LOD (undercrossing at I-15).	80	Bobcat	Movement habitat	I-15
Proposed Constrained Linkage 5	West of and underneath I-15. Consists of a wildlife undercrossing and adjacent upland habitat northwest of Horsethief Canyon Road. Overlaps with BSA and LOD (undercrossing at I-15).	25	Bobcat, mountain lion	Movement habitat	I-15

Table 4-5. Summary of Western Riverside County MSHCP Proposed Cores and Linkages within the BSA and LOD

MSHCP Habitat Connectivity Feature	Location Description	Approximate Total Area (acres)	Planning Species	Primarily Provides Live-in Habitat and/or Movement Habitat	Major Covered Activities Potentially Affecting Feature
Proposed Constrained Linkage 6	North and south of, and underneath I-15. Consists of Temescal Wash and adjacent riparian habitat and nearby undeveloped upland habitat. Overlaps the BSA and the LOD (undercrossing at I-15).	175	Cooper's hawk, yellow warbler, white-tailed kite, SWFL, yellow-breasted chat, LBV	Both live-in and movement habitat	I-15

Missing Linkages in California's Landscape

There are two linkages that overlap the BSA and LOD, as identified in the missing linkages geospatial layer (Penrod et al. 2001):

- **Bedford Canyon:** This linkage is located approximately near PM 65.5, south of the Dos Lagos Drive/Weirick Road and is likely meant to be the location of the existing Bedford Wash crossing under I-15 (PM 36.85). The area is described as a choke-point in the linkage report. It is located within coastal sage scrub and chaparral habitats, as well as citrus groves, and could be key connectivity habitat for species, such as mountain lion and deer. The Missing Linkages Report noted that this is one of two remaining corridors that connects Cleveland National Forest to Lake Mathews/Gavilan Plateau and ranked it as facing "severe threat/loss imminent" due to urbanization. I-15 and a proposed industrial park (as of 2001) were listed as impediments/barriers to wildlife movement within the linkage. It was given a feasibility ranking for conservation priority of only 2 (between infeasible and moderately feasible).
- **Gavilan Hills-Santa Ana Mountains:** This linkage is located approximately near PM 30, near the Indian Truck Trail exit and at the Indian Wash crossing under I-15 (PM 30.09). The area is described as a choke point. It is located within sage scrub and chaparral habitats, as well as citrus groves, and could be key connectivity habitat for species, such as mountain lion, bobcat, deer, and badger. The Missing Linkages Report ranked it as facing "severe threat/loss imminent" due to development. I-15 is noted as an impediment/barrier to wildlife movement within the linkage. The report gave this linkage a feasibility ranking for conservation priority of 5 (good opportunity). The report also lists a previous mountain lion study that demonstrated the value of this linkage and notes this is the last remaining connection across the I-15 south of the 91 freeway.

California Essential Habitat Connectivity

Mapped California Essential Habitat Connectivity resources that occur within or adjacent to the BSA are described below (Spencer et al. 2010).

- **Natural Landscape Blocks – Large [ds621]:** One large natural landscape block occurs within, and crosses, the BSA and LOD: ID Number 76, named "Indian Mountain/Gilman Springs." This natural landscape block consists of approximately 48,455 contiguous acres of wildlife habitat. It is generally located across the Santa Ana Mountains, including a vast area of national forest. The block crosses the BSA and the LOD at two places (near the Indian Truck Trail exit and east of the Lake Street exit) and generally runs adjacent to I-15 along Temescal Wash between approximately PM 25 and PM 32, including on both sides of the highway in some areas.
- **Natural Landscape Blocks – Natural Areas Small [ds1073]:** Eight small natural landscape blocks are mapped within or adjacent the BSA and LOD, ranging in size from approximately 2.5 to 126 acres. These small areas are adjacent to larger natural landscape blocks; thus, they are of importance to species traversing or living near edges of developed areas.

  - Near PM 35: One block of 126.02 acres located west of I-15, previously undeveloped habitats, though the area now consists of a mix of scrub/remnant sagebrush habitats and residential neighborhoods.
  - Near PM 29.5 to PM 30: Four blocks of 32.12, 4.94, 2.47, and 4.94 acres located northeast of I-15 and adjacent to Lee Lake, consisting of coast live oak forest, sagebrush/scrub, and developed (park) land.
  - Near PM 23.5 to PM 24.5: Two blocks of 7.41 and 217.45 acres located along and east of I-15, consisting of scrub/shrub and grassland habitats, though most of the larger block has been developed (a quarry).
  - Near PM 23.8: One block of 2.47 acres located west of I-15 along Temescal Wash, consisting of riparian and wetland habitats.

- **Essential Connectivity Areas (Linkages) [DS620]:** The BSA and LOD are adjacent to an essential habitat connectivity area: ID Number 120, named "Estelle Mountain-Lake Mathews." This essential connectivity area linkage consists of approximately 4,428 acres of contiguous wildlife habitat that connects from the north side of the Temescal Wash near Estelle Peak to the Monument Peak and Lake Mathews area. It is adjacent to and nearby the BSA, north of I-15, near PM 28 to PM 31.

Terrestrial Connectivity – Areas of Conservation Emphasis

The majority of the BSA and LOD intersect with hexagonal mapping units with a connectivity rank of 1, signifying "limited connectivity opportunity," defined as "areas where land use may limit options for providing connectivity (e.g., agriculture, urban) or no connectivity importance has been identified in models" (CDFW 2017). The following locations that overlap the BSA and LOD are mapped as having connectivity ranks higher than 1:

- **Indian Truck Trail vicinity –** The hexagonal mapping unit at the Indian Truck Trail exit along I-15 (approximately PM 30 to PM 31.5) was given a connectivity rank of 5. A rank of 5 is given to "irreplaceable and essential corridors," which are defined as "…channelized areas, as identified in The Nature Conservancy's Omniscape Model, and priority species movement corridors."
- **Temescal Wash crossing vicinity –** Five contiguous hexagonal mapping units at, adjacent to, and near the I-15 crossing of Temescal Wash (approximately PM 24.5 to PM 30) were given a connectivity rank of 3. A rank of 3 is given to "connections with implementation flexibility," defined as "… other areas that have been identified as having connectivity importance but have not been identified as channelized areas, species corridors, or habitat linkages at this time."

Project Impacts

Build Alternative

Road widening can result in reduced use of an existing wildlife crossing structure if animals have a difficult time seeing daylight from the other side after structure widening or closing of skylights between sections of closed structure. A reduction in the openness of a structure can restrict animal movement and affect the type and size of animal that would use it. As proposed, the Project would widen the I-15 facility

by creating lanes in the existing median and there would be no outside widening of the facility. Where bridges currently exist, the additional lane would either be supported by bridge expansion between the two existing bridges (NB and SB), or the existing bridge would support the additional lanes.

Of the nine wash crossings under I-15, seven have entirely natural bottoms, thus likely provide most of the wildlife crossing opportunities within the BSA. Two crossings are partially (Wasson Canyon Wash) or completely (Brown Canyon Wash) channelized with concrete and likely provide little value as wildlife crossings. Two of the crossings were highlighted by the Missing Linkages in California project as high-priority connectivity features: Bedford Canyon linkage (i.e., Bedford Wash crossing) and Gavilan Hills-Santa Ana Mountains linkage (i.e., Indian Wash crossing).

As part of the Project, the dual bridges at the nine wash crossings would be widened to fill in the existing gaps between them, and the gap would support the new lanes. Other, smaller, existing culverts and pipes along the alignment that may support animal movement under I-15 are expected to remain unchanged because all widening would occur in the existing median.

Localized, direct, and permanent impacts would occur where infrastructure is added within the floodplain. This would reduce the amount of available live-in habitat by a small amount within each crossing feature. Shading would occur where the gap between dual bridges would be permanently closed; no partial gaps are assumed to remain. The shading would be unlikely to deter wildlife movement through the structures considering the overall openness of the bridge crossings. However, the shading could result in a small amount of permanent habitat loss for riparian-obligate species because riparian vegetation would likely no longer grow without adequate sunshine. Vegetation removal that would occur during construction activities at wash bridges could have impacts on riparian-obligate species, such as LBV, if present, but the habitat loss impact would be temporary until revegetation is complete. During construction, wildlife movement through the washes and under I-15 could be interrupted due to noise, lighting, human presence, removal of cover features, and general disturbance within the crossing structures and their immediate vicinity. There is potential for wildlife to avoid moving through areas adjacent to construction and/or to make less safe crossings of the highway that may increase the risk of mortality, especially during nighttime work. This impact would be temporary.

Western Riverside County MSHCP Proposed Core area, Proposed Extension of Existing Core area, Linkages, and Proposed Constrained Linkages that overlap the BSA and LOD could be impacted by the Project. There are areas where permanent impacts of the LOD overlap with MSHCP areas described for conservation. Shading and permanent impacts overlap with areas described for conservation in Proposed Core 1, Proposed Linkage 1, Proposed Linkage 3, Proposed Constrained Linkage 5, and Proposed Constrained Linkage 6. Impacts would occur at the following locations: Proposed Constrained Linkage 5 at Horsethief Canyon Road; Proposed Constrained Linkage 3 at Indian Truck Trail and shading and permanent impacts at Temescal Canyon Road and Temescal Wash at Proposed Constrained Linkage 6. I-15 is expected to operate similarly after project completion compared to existing conditions, but with increased traffic efficiency. Development of the median into active traffic lanes may reduce the chance of an animal successfully reaching the other side when crossing the highway, though the number of animals this may directly affect is not known. However, the capacity for wildlife movement across I-15 is already poor with roadkill observed frequently. Such capacity has also been degraded over past decades by the increasing width of the interstate, traffic flows, and noise. Though the Project would not improve this

situation, it is not expected to substantially worsen current operational impacts on wildlife movement or connectivity.

Overall, the Project is not expected to substantially affect wildlife movement or linkage functions and values within the BSA because major wash crossings under I-15 bridges would be retained, including the priority linkages at Bedford Wash and Indian Wash.

No-Build Alternative

If this Project is not constructed, there would be no new or additional impacts on habitat connectivity beyond that which are expected to occur from the existing facility.

Avoidance and Minimization Efforts

Build Alternative

To address potential edge impacts during construction and direct impacts from additional bridge infrastructure and closing of bridge gaps on MSHCP Proposed Linkage 1, Proposed Constrained Linkage 3, Proposed Constrained Linkage 5, Proposed Core 1, and Proposed Extension of Existing Core 2, measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-15, DBESP; BIO-16, Riparian/Riverine Compensation; BIO-17, Compensatory Mitigation; BIO-18, Night Lighting Management;** and **BIO-20, Wildlife Undercrossings** in Appendix L are incorporated as required by the MSHCP. Measure **BIO-18, Night Lighting Management** reduces potential indirect impacts on wildlife movement during construction. Measure **BIO-20, Wildlife Undercrossings** maintains undercrossing functionality at the Temescal Wash during construction.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

The permanently removed riparian and ephemeral streambed habitat would be compensated at a minimum 3:1 ratio for riparian habitat and 2:1 for ephemeral habitat (**BIO-16, Riparian/Riverine Compensation**). The minimum 3:1 ratio was chosen to address temporal loss as well as potential indirect degradation of the riparian habitat adjacent to bridge gaps that would be closed off. The compensation may be a combination of enhancement, restoration, and/or creation as long as there is no net loss of riparian/riverine resources.

Measure **BIO-17, Compensatory Mitigation** ensures no net loss of riparian/riverine resources. Implementation of compensatory measures **BIO-15, DBESP; BIO-16, Riparian/Riverine**

Compensation; and **BIO-17, Compensatory Mitigation** would fully compensate for any impacts on riparian/riverine resources. Such compensation should be coordinated with acquisition of a state Streambed Alteration Agreement (California Fish and Game Code Section 1602). Federal CWA Section 401 and 404 permits would also be required for the Project (refer to Chapter 5). It would also be necessary to restore riparian habitat in temporarily affected areas along the Temescal Wash so this habitat can continue to support wildlife movement and LBV (**BIO-23 LBV Habitat Compensation**).

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Impacts

Build Alternative

The Project is not expected to substantially alter the existing linkage functions and wildlife connectivity values within the BSA or region. Closure of the bridge gaps in the median is not expected to have a significant impact. Therefore, the Project's contribution to cumulative impacts would be less than significant.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on habitat connectivity.

4.3 Special-Status Plant Species

The plants discussed are considered to be of special concern based on (1) federal, state, or local laws regulating their development; (2) limited distributions; and/or (3) the presence of habitat required by the special-status plants occurring on site. A literature review determined that 16 threatened and endangered and 86 non-listed special-status plant species are known to occur within the regional vicinity of the BSA (refer to Appendix B).

4.3.1 Threatened and Endangered Plant Species

Sixteen federal and/or state endangered or threatened plant species are known to occur in the regional vicinity of the BSA: Munz's onion, San Diego ambrosia (*Ambrosia pumila*), marsh sandwort (*Arenaria paludicola*), Braunton's milk-vetch (*Astragalus brauntonii*), San Jacinto valley crownscale (*Atriplex coronata* var. *notatior*), Nevin's barberry (*Berberis nevinii*), thread-leaved brodiaea, salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*), San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*), slender-horned spineflower (*Dodecahema leptoceras*), Santa Monica dudleya (*Dudleya cymosa* ssp. *ovatifolia*), Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*), San Diego button-celery (*Eryngium aristulatum* var. *parishii*), Parish's meadowfoam (*Limnanthes alba* ssp. *parishii*), spreading navarretia (*Navarretia fossalis*), and California orcutt grass (*Orcuttia californica*). The following sections provide the results of habitat evaluations, focused survey work, and relevant regulatory analysis for these species. Appendix B provides a list of all special-status plants, including

federally and/or state-listed species, reviewed for the project, along with a summary of the habitat requirements for each species.

Discussion of MSHCP Threatened and Endangered Plant Species

Of the 16 federal and/or state endangered or threatened plant species known to occur in the regional vicinity of the BSA, suitable habitat is present only for Munz's onion, San Diego ambrosia, thread-leaved brodiaea, slender-horned spineflower, and San Jacinto Valley crownscale. All five of the species are Covered Species under the MSHCP with additional survey requirements. The Project occurs within Narrow Endemic Plant Species Survey Area 1, which includes requirements for surveys for Munz's onion, San Diego ambrosia, and slender-horned spineflower. Surveys for San Diego ambrosia are also required in Narrow Endemic Plant Species Survey Area 7, which the Project occurs within. Surveys for thread-leaved brodiaea are required in Criteria Area Survey Area 1. Surveys are required per the MSHCP for San Jacinto Valley crownscale. However, the Project is not within a survey area for this species, so it is fully covered under the MSHCP and has no survey requirement. The remaining species required focused surveys within the rare plant BSA (LOD plus a100-foot buffer).

Appendix B provides a list of all special-status plants, including federally and/or state-listed species, reviewed for the Project, along with a summary of the habitat requirements for each species.

Survey Results

Up to 1,286.20 acres of potentially suitable habitat for threatened and endangered plants were surveyed in the BSA in Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Arrow Weed Thickets, Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Mulefat Thickets, Salt Grass Flats, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, Scrub Oak Chaparral, California Sycamore Woodland, Eucalyptus–Tree of Heaven–Black Locust Groves, Pepper Tree or Myoporum Forest and Woodland, and Agriculture habitats. Potential habitat for special-status plants is mapped in **Figure 9** in **Appendix A**; rare plant survey results are also included in this figure. No threatened or endangered plant species were observed during 2020 or 2021 rare plant surveys in the rare plant study area.

Designated critical habitat for San Diego ambrosia occurs in the BSA at Nichols Road and Lake Street in Lake Elsinore and overlaps slightly with the LOD.

Project Impacts

Build Alternative

During 2020 and 2021 focused surveys, no threatened or endangered plant species were observed. These species are considered absent from the study area.

FESA Determination. Caltrans has determined, in accordance with Section 7 of FESA, a "No Effect" finding for Munz's onion, San Diego ambrosia, thread-leaved brodiaea, slender-horned spineflower, and San Jacinto crownscale.

No-Build Alternative

If this Project is not constructed, there would be no new or additional impacts on threatened and endangered plants beyond that which would be expected to occur within the existing facility.

Avoidance and Minimization Measures

Build Alternative

No listed plants were found during 2020 or 2021 focused surveys. Therefore, no avoidance or minimization measures are necessary.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

No compensatory mitigation is necessary.

No-Build Alternative

Not applicable.

Cumulative Impacts

Build Alternative

During surveys in 2020/2021, MSHCP federally and state-listed plants (endangered and/or threatened) were absent from the rare plant BSA. Therefore, no cumulative impacts are anticipated for MSHCP federally and state-listed plants.

No-Build Alternative

Under a No-Build Alternative, the cumulative effects on threatened and endangered plants would not differ from existing conditions. Therefore, a No-Build Alternative would not contribute to additional cumulative effects.

4.3.2 Non-listed Special-Status Plant Species

Non-listed special-status plant species known to occur in the region are listed in Appendix B. The following sections provide the results of the habitat evaluations/focused surveys and relevant regulatory analysis. Habitat requirements for each species are briefly summarized in Appendix B.

Discussion of MSHCP Non-Listed Special-Status Plants

Of the non-listed special-status species initially reviewed in Appendix B, the following MSHCP-covered plant species were determined to have some potential for occurrence in the BSA and/or are Narrow Endemic Plants and Criteria Areas Species requiring focused study under the Plan: Davidson's saltscale, round-leaved filaree, intermediate mariposa lily (*Calochortus weedii* var. *intermedius*), Payson's jewelflower (*Caulanthus simulans*), smooth tarplant, Peninsular spineflower (*Chorizanthe leptotheca*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), long-spined spineflower, many-stemmed dudleya, Palmer's grapplinghook (*Harpagonella palmeri*), Coulter's goldfields, and Brand's phacelia, rainbow manzanita (*Arctostaphylos rainbowensis*), Plummer's mariposa lily (*Calochortus plummerae*), graceful tarplant (*Holocarpha virgata* ssp. *elongata*), small-flowered microseris (*Microseris douglasii* ssp. *platycarpha*), Fish's milkwort (*Polygala cornuta* var. *fishiae*), Coulter's Matilija poppy (*Romneya coulteri*), and ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*).

Of these, intermediate mariposa lily, Payson's jewelflower, long-spined spineflower, Palmer's grapplinghook, graceful tarplant, Fish's milkwort, Coulter's Matilija poppy, rainbow manzanita, and small-flowered microseris are fully covered under the MSHCP because the conservation objectives for these species have been met.

Survey Results

Up to 1,286.20 acres of potentially suitable habitat for MSHCP non-listed special-status plants were surveyed in the BSA in Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Arrow Weed Thickets, Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Mulefat Thickets, Salt Grass Flats, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, Scrub Oak Chaparral, California Sycamore Woodland, Eucalyptus–Tree of Heaven–Black Locust Groves, Pepper Tree or Myoporum Forest and Woodland, and Agriculture habitats. Focused rare plant surveys were conducted in 2020 and 2021. Potential habitat and the rare plant survey results are mapped in **Figure 9** in **Appendix A**. In 2020, only long-spined spineflower was incidentally observed in the rare plant study area; this species is fully covered under the MSHCP.

Project Impacts

Build Alternative

During rare plant focused surveys in 2020 and 2021, none of the Criteria Area Plant Species Survey Area 1 Species and Narrow Endemic Plant Species Survey Area 1 and 7 non-listed special-status plant species were observed. Therefore, no impacts would occur.

Long-spined spineflower was found; however, this species is fully covered under the MSHCP. No other covered species were detected; however, these could potentially occur in the project vicinity.

No-Build Alternative

If the Project is not constructed, there would be no new or additional impacts on MSHCP non-listed special-status plants beyond what would be expected to occur within the existing facility.

Avoidance and Minimization Measures

Build Alternative

Based on current results, there are no Criteria Area Species or Narrow Endemic non-listed special-status plants within the rare plant study area, therefore no avoidance or minimization measures are necessary.

Although long-spined spineflower was found, the species is fully covered under the MSHCP. The avoidance and minimization measures being implemented for sensitive vegetation communities (Sections 4.2.1 through 4.2.4) would reduce the potential for indirect impacts on long-spined spineflower adjacent to the proposed LOD. These measures would also protect adjacent native flora and fauna associated with long-spined spineflower in the BSA during construction.

No-Build Alternative

Avoidance or minimization measures would not apply under the No-Build Alternative.

Compensatory Mitigation

Build Alternative

No compensatory mitigation is necessary.

Consistency with all measures required by the MSHCP provides full mitigation of potential impacts on long-spined spineflower.

No-Build Alternative

No compensatory measures would apply under the No-Build Alternative.

Cumulative Impacts

Build Alternative

The total amount of MSHCP covered non-listed plant species that may be affected by future projects is not known, but it is reasonable to assume that the amount of MSHCP covered non-listed plant species proposed for removal by the Build Alternative would not make a cumulatively considerable contribution to these species' decline due to the small amount of loss and the Project's coverage under the MSHCP. Consistency with the avoidance and minimization measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans** identified in Appendix L would reduce potential indirect impacts.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on MSHCP non-listed plant species.

Discussion of Non-MSHCP Non-Listed Special-Status Plants

Of the non-listed species initially reviewed in Appendix B, the following species were determined to have potential for occurrence in the BSA and are not covered under the MSHCP: chaparral sand-verbena (*Abronia villosa* var. *aurita*), alkali marsh aster (*Almutaster pauciflorus*), Douglas' fiddleneck (*Amsinckia douglasiana*), Brewer's calandrinia (*Calandrinia breweri*), Catalina mariposa lily (*Calochortus catalinae*), Lucky morning-glory (*Calystegia felix*), Lewis' evening-primrose (*Camissonia lewisii*), southern tarplant (*Centromadia parryi* ssp. *australis*), summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), small-flowered morning glory (*Convolvulus simulans*), snake cholla (*Cylindropuntia californica* var. *californica*), paniculate tarplant (*Deinandra paniculata*), Campbell's liverwort (*Geothallus tuberosus*), mesa horkelia (*Horkelia cuneata* ssp. *puberula*), California satintail (*Imperata brevifolia*), Southern California walnut (*Juglans californica*), southwestern spiny rush (*Juncus acutus* ssp. *leopoldi*), Santa Lucia dwarf rush (*Juncus luciensis*), Robinson's pepper-grass, Parish's desert-thorn (*Lycium parishii*), intermediate mondardella (*Mondardella hypoleuca* ssp. *intermedia*), felt-leaved monardella (*M. hypoleuca* ssp. *lanata*), Pringle's monardella (*Monardella pringlei*), woolly chaparral-pea (*Pickeringia montana* ssp. *tomentosa*), chaparral rein orchid (*Piperia cooperi*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), Nuttall's scrub oak (*Quercus dumosa*), Engelmann oak (*Q. engelmannii*), chaparral ragwort (*Senecio aphanactis*), bottle liverwort (*Sphaerocarpos drewei*), San Bernardino aster (*Symphyotrichum defoliatum*), Parry's tetracoccus (*Tetracoccus dioicus*), woven-spored lichen (*Texosporium sancti-jacobi*), and California screw moss (*Tortula californica*). None of these species were observed during rare plant surveys in 2020, and none are covered under the MSHCP.

Survey Results

Up to 1,286.20 acres of potentially suitable habitat for special-status plants were surveyed in the BSA in Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Arrow Weed Thickets, Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Mulefat Thickets, Salt Grass Flats, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, Scrub Oak Chaparral, California Sycamore Woodland, Eucalyptus–Tree of Heaven–Black Locust Groves, Pepper Tree or Myoporum Forest and Woodland, and Agriculture habitats. Focused rare plant surveys were conducted in 2020 and 2021. Potential habitat for special-status plants is mapped in **Figure 9** in **Appendix A**. No special-status species were found.

Project Impacts

Build Alternative

No non-MSHCP non-listed special-status plants species were observed during the 2020 or 2021 focused studies. These species are considered absent from the study area.

No-Build Alternative

If this Project is not constructed, there would be no new or additional impacts on MSHCP non-listed special-status plants beyond what would be expected to occur within the existing facility.

Avoidance and Minimization Measures

Build Alternative

No non-listed plants were found during 2020 or 2021 focused surveys. Therefore, no avoidance or minimization measures are necessary.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

No compensatory mitigation is necessary.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Impacts

Build Alternative

The total amount of non-MSHCP non-listed plant species that may be impacted and proposed for removal by future projects is not known. Based on the existing maintenance and vehicular disturbances within the LOD, it is reasonable to assume that the amount of non-MSHCP non-listed plant species proposed for removal by the Build Alternative would not make a cumulatively considerable contribution to the species' decline. Consistency with avoidance and minimization measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans** identified in Appendix L would reduce potential indirect impacts.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on MSHCP non-listed plant species.

4.4 Special-Status Animal Species

Special-status animal species known to occur in the region are listed in Appendix B. The following sections provide the results of the habitat evaluations and focused surveys (where appropriate) and relevant regulatory analysis. Habitat requirements for each species are briefly summarized in Appendix B. For ease of reference, all permanent, temporary and shading impacts for special-status animal species discussed in this section are included below in Table 4-6.

Table 4-6. Potential Impacts of the Build Alternative on Special-Status Wildlife Species

Wildlife Species	Impact (acres)			
	Permanent	**Temporary**	**Shading**	**Total**
Fairy shrimp	Not present (2020)			
Quino checkerspot butterfly[1]	13.84	226.46	0.29	240.59
Arroyo toad[1]	0.00	2.65	0.22	2.87
Least Bell's vireo	0.00	2.76	0.19	2.95
Southwestern willow flycatcher	Not present			
Tricolored blackbird[1]	0.00	3.38	0.19	3.57
Coastal California gnatcatcher[1]	3.33	129.15	0.07	132.55
Stephens' kangaroo rat[1]	13.84	225.80	0.47	240.11
San Bernardino kangaroo rat	13.67	190.46	0.47	204.60
Mountain lion[1]	13.85	234.19	0.66	248.70
Crotch bumble bee	No direct effects expected			
Monarch butterfly	No direct effects expected			
Dulzura pocket mouse	13.84	226.76	0.47	241.07
American badger	13.84	226.76	0.47	241.07
California glossy snake	13.84	226.79	0.51	241.14
Coastal whiptail	3.34	137.85	0.44	141.63
California legless lizard	0.00	2.18	0.04	2.22
Coronado skink	13.84	226.76	0.47	241.07
Coast western patch nosed-snake	3.33	130.42	0.25	134.00
Burrowing owl	20.65	93.83	0.41	114.89

Table 4-6. Potential Impacts of the Build Alternative on Special-Status Wildlife Species

Wildlife Species	Impact (acres)			
	Permanent	Temporary	Shading	Total
Long-eared owl	0.00	0.41	0.04	0.45
Grasshopper sparrow	10.51	96.34	0.22	107.07
Pallid bat	0.01	6.41	0.34	6.76
Western mastiff bat	0.01	4.73	0.04	4.78
Western red bat	0.00	0.38	0.0	0.38
Western yellow bat	0.01	4.73	0.04	4.78
Pocketed free-tailed bat	0.00	1.95	0.30	2.25
Big free-tailed bat	0.01	6.41	0.34	6.76
Bat (foraging)	95.91	292.60	3.38	391.89
Non-listed MSHCP Fully-Covered Species[1]	13.85	234.19	0.66	248.70

[1] MSHCP fully-covered species

4.4.1 Threatened and Endangered Animal Species

Twenty-three federally or state-listed endangered and/or threatened species of animals are known to occur in the region (Appendix B). Fifteen of these species were determined to have potential to occur in the BSA based on species requirements and BSA conditions. These species include vernal pool fairy shrimp (*Branchinecta lynchi*), Riverside fairy shrimp (*Streptocephalus woottoni*), San Diego fairy shrimp (*Branchinecta sandiegonensis*), SWFL, LBV, tricolored blackbird (*Agelaius tricolor*), Crotch bumble bee (*Bombus crotchii*), monarch (*Danaus plexippus* pop. 1), Quino checkerspot (*Euphydryas editha quino*), arroyo toad (*Anaxyrus californicus*), bald eagle (*Haliaeetus leucocephalus*), coastal California gnatcatcher (*Polioptila californica californica*), San Bernardino kangaroo rat (*Dipodomys merriami parvus*), SKR, and mountain lion (*Puma concolor*). All except for San Diego fairy shrimp are covered species under the MSHCP; however, the fairy shrimp and riparian birds require focused studies within the BSA under the Plan (Volume I, Section 6.1.2). Appendix B summarizes the legal status and habitat requirements of each of these species.

Discussion of Listed Fairy Shrimp

Riverside fairy shrimp and San Diego fairy shrimp are federally listed as endangered, and vernal pool fairy shrimp is listed as federally threatened. They are not listed by the state; however, Riverside fairy shrimp and vernal pool fairy shrimp are MSHCP vernal pool species with survey requirements triggered when potentially suitable habitat is present (refer to Appendix B for a summary of the habitat requirements for each species).

Survey Results

During the 2019/2020 wet season survey, approximately 95 features were found in the BSA (LOD and up to a 100-foot buffer) that could potentially support fairy shrimp. An additional 36 features were identified

during the 2020/2021 wet season survey. Of these, 128 seasonal depressions were inundated for a sufficient time to collect samples, and approximately 23 features were found to support versatile fairy shrimp (*Branchinecta lindahli*), a common species within the region. Many of the features sampled were road ruts, ditches, or other depressions that had become inundated at some point during the wet season. None of the seasonal depressions are considered vernal pools given their lack of vernal pool indicators, such as vernal pool–associated vegetation, and have been degraded due to heavy and frequent vehicular traffic, and construction disturbances (refer to Appendix M, Figure 3, for the location of the surveyed seasonal depressions found in the BSA). Wet- and dry-season survey results are included in Appendix M. No listed fairy shrimp were found.

Project Impacts

During surveys in 2020 and 2021, no listed fairy shrimp were detected. Therefore, no impacts on listed fairy shrimp would occur.

FESA Determination. Caltrans has determined, in accordance with Section 7 of FESA, a "No Effect" finding for listed fairy shrimp.

Avoidance and Minimization Measures

Build Alternative

Because no listed fairy shrimp are present, no avoidance and/or minimization measures are required under the MSHCP.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Compensation is not necessary because listed fairy shrimp were not found in the BSA.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Effects

Build Alternative

Construction of the Build Alternative is not expected to result in cumulative impacts on listed fairy shrimp as they were not found in the BSA.

No-Build Alternative

If the Project is not constructed, it would not contribute to any cumulative impacts on listed fairy shrimp.

Discussion of Quino Checkerspot Butterfly

This species of butterfly is federally listed as endangered and is an MSHCP fully covered species with no survey requirement. Habitat associations for Quino checkerspot butterfly seem to be tied to both host plant species and topography. Larvae feed on *Plantago erecta, P. patagonia* (and possibly other Plantago species), *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Collinsia concolor*, and *Castilleja exserta*. Adults nectar feed mostly on small annuals and often occur on open or sparsely vegetated rounded hilltops, ridgelines, and occasionally rocky outcrops. Habitat components have been found in association with, but not restricted to, vernal pools, sage scrub, chaparral, native and nonnative grassland, and open oak and juniper woodland communities. The key component seems to be open-canopied habitats.

Survey Results

The potential for the species to occur is very low. Focused surveys are not required for this species under the MSHCP. There are 1,068.27 acres of potentially suitable habitat for Quino checkerspot butterfly in the BSA, including Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, and Scrub Oak Chaparral.

Project Impacts

Build Alternative

An estimated 13.84 acres of permanent impacts, 226.46 acres of temporary impacts, and 0.29 acre of shading impacts on potentially suitable habitat for Quino checkerspot butterfly in the LOD is proposed for potential removal under the Build Alternative (Table 4-6). If Quino checkerspot butterfly is present, there is the potential for direct mortality as well as loss of habitat. During construction, there is the risk of degradation of potentially suitable habitat adjacent to the LOD. Measures identified in *Avoidance and Minimization Measures* below are intended to avoid and/or minimize such potential indirect impacts.

Operation of the interstate is not expected to change. There is the potential for individual Quino checkerspot butterfly to fly over I-15 to access habitat on either side of the facility; however, this does not differ from existing conditions.

FESA Determination. Caltrans has determined that the Build Alternative would receive a "may affect, likely to adversely affect" finding for Quino checkerspot butterfly. Because the Project occurs within the MSHCP Plan boundary, formal Section 7 consultation with USFWS would occur through consistency with the MSHCP (refer to Chapter 5 for details).

No-Build Alternative

If this Project is not constructed, there is still a potential for impacts to occur on Quino checkerspot butterfly from vehicle strikes; however, this species is fully covered under the MSHCP. No additional analysis is required.

Avoidance and Minimization Measures

Build Alternative

Avoidance and minimization measures **BIO-2** through **BIO-11** in Appendix L ensure that indirect effects on potentially suitable habitat for Quino checkerspot butterfly adjacent to the LOD would not occur during construction of the Build Alternative. These measures are required for MSHCP consistency. They are not specific to Quino checkerspot butterfly but provide a level of protection to covered species outside a project footprint and are considered general requirements for construction projects.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

The MSHCP does not require compensation for impacts on Quino checkerspot butterfly unless the impact occurs on Public/Quasi-Public (PQP) lands with conservation value for Quino checkerspot butterfly. For the Project, none of the potential impacts on Quino checkerspot butterfly would occur on PQP lands. Consistency with all measures required by the MSHCP fully addresses potential impacts on Quino checkerspot butterfly.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Effects

Build Alternative

Construction of the Build Alternative is not expected to result in cumulatively considerable contribution to a regionally substantial decline of Quino checkerspot butterfly through removal of potential habitat. It is not known whether this species is present within potential habitat proposed for removal. This species uses a wide variety of open habitats, including grasslands, tarweed fields, and tarragon patches. Any cumulative effects from the Build Alternative would be fully mitigated through consistency with the MSHCP.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on Quino checkerspot butterfly.

Discussion of Crotch Bumble Bee

CDFW accepted Crotch bumble bee for consideration as endangered under CESA in June of 2019, and this species is considered a candidate species. CDFW is currently completing a status review of Crotch bumble bee. At the end of the review, CDFW will make its recommendation on listing to the California

Department of Fish and Game Commission. Under CESA, species classified as a candidate species are afforded the same protection as listed species, and as a result, Crotch bumble bee is CESA-protected during the review period.

Survey Results

The potential for the species to occur in the BSA is moderate, but the potential for this species to occur within the LOD is low due to the high level of disturbance in the LOD and lack of resources necessary for the natural life history of this species. There are 1,100.04 acres of potentially suitable habitat for Crotch bumble bee in the BSA, including Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, and Scrub Oak Chaparral.

Project Impacts

Build Alternative

Direct effects on suitable habitat in the LOD are not anticipated due to the highly disturbed nature of the ROW and lack of suitable resources. Indirect effects are possible as this species may occur in the BSA, and measures identified in *Avoidance and Minimization Measures* below are intended to avoid and/or minimize such potential indirect impacts.

Operation of the interstate is not expected to change as a result of the Build Alternative. There is a potential for individual Crotch bumble bee to fly over I-15 to access habitat on either side of the facility; however, this does not differ from existing conditions.

No-Build Alternative

If this Project is not constructed, then there is still a potential for impacts to occur on Crotch bumble bee from vehicle strikes. No additional analysis is required.

Avoidance and Minimization Measures

Build Alternative

Avoidance and minimization measures **BIO-2** through **BIO-11** and **BIO-29** in Appendix L ensure that indirect effects on potentially suitable habitat for Crotch bumble bee adjacent and within the LOD would not occur during construction of the Build Alternative.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Suitable habitat for Crotch bumble bee is not expected to occur within the LOD due to the disturbed nature of the habitat in the LOD. No compensatory mitigation is therefore anticipated for this species.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Effects

Build Alternative

Construction of the Build Alternative is not expected to result in cumulatively considerable contribution to a regionally substantial decline of Crotch bumble bee through removal of potential habitat. It is not known whether this species is present within potential habitat proposed for removal. This species uses a wide variety of open habitats and shrublands. Any cumulative effects from the Build Alternative would be fully mitigated through the implementation of the avoidance and minimization measures.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on Crotch bumble bee.

Discussion of Monarch Butterfly

The California overwintering population of the monarch butterfly has been designated as a candidate species for listing under the FESA due to significant population declines. An estimated 4.5 million monarchs overwintered on the California coast in the 1980s, whereas in 2020, the population estimate for migratory overwintering monarchs was less than 2,000 butterflies. This extreme population decline is due to multiple stressors across the monarch's range, including the loss and degradation of overwintering groves, pesticide use (particularly insecticides), loss of breeding and migratory habitat, climate change and parasites and disease.

Overwintering groves trees include Monterey pine (*Pinus radiata*) Monterey cypress (*Cupressus macrocarpa*), Coast redwood (*Sequoia sempervirens*), coast live oak (*Quercus agrifolia*), Douglas fir (*Pseudotsuga menzesii*), Torrey pine (*Pinus torreyana*), western sycamore (*Platanus racemosa*), bishop pine (*Pinus radiata*), and others. Monarchs are reliant on milkweeds (*Asclepias* spp.) as host plants for caterpillars, and adults require a diverse range of flowers for nectar as fuel during breeding.

Survey Results

The potential for the species to occur in the BSA is moderate, but the potential for this species to occur within the LOD is low due to the high level of disturbance in the LOD. There are 743.83 acres of potentially suitable habitat for monarch butterfly in the BSA, including Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Tarragon Patches, Arrow Weed Thickets, Coast Live Oak Woodland and Forest, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California

Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Quailbush Scrub, Eucalyptus-Tree of Heaven-Black Locust Groves, and California Sycamore Woodland.

Project Impacts

Build Alternative

Direct effects on occupied habitat in the LOD are not anticipated due to the highly disturbed nature of the ROW. Indirect effects are expected as this species may occur in the BSA, and measures identified in *Avoidance and Minimization Measures* below are intended to avoid and/or minimize such potential indirect impacts.

Operation of the interstate is not expected to change. There is the potential for individual monarch butterfly to fly over I-15 to access habitat on either side of the facility; however, this does not differ from existing conditions.

FESA Determination. Caltrans has determined that the Build Alternative would receive a "may affect, not likely to adversely affect" finding for monarch butterfly. Direct effects are not expected for this species.

No-Build Alternative

If this Project is not constructed, there is still a potential for impacts to occur on monarch butterfly from vehicle strikes. No additional analysis is required.

Avoidance and Minimization Measures

Build Alternative

Avoidance and minimization measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-30, Insect Measures** in Appendix L ensure that indirect effects on potentially suitable habitat for monarch butterfly adjacent and within the LOD would not occur during construction of the Build Alternative.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Suitable habitat for monarch butterfly is not expected to occur within the LOD due to the disturbed nature of the habitat in the LOD. No compensatory mitigation is therefore anticipated for this species.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Effects

Build Alternative

Construction of the Build Alternative is not expected to result in cumulatively considerable contribution to a regionally substantial decline of monarch butterfly through removal of potential habitat. It is not known whether this species is present within potential habitat proposed for removal. This species uses a wide variety of open habitats and shrublands. Any cumulative effects from the Build Alternative would be fully mitigated through the implementation of the avoidance and minimization measures.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on monarch butterfly.

Discussion of Arroyo Toad

The Arroyo toad is federally listed as endangered and is a species on the Additional Survey Needs and Procedures (Section 6.3.2) of the MSHCP. Arroyo toad surveys are required where suitable habitat is present as specified on the Amphibian Species Survey Area Map, Figure 6-3 of the MSHCP. Outside of the required survey area, this species is covered by the MSHCP. The Project is outside of the arroyo toad survey area.

Arroyo toad is found in riparian habitats and aestivate in upland adjacent coastal sage scrub, oak, and chaparral habitats. They are restricted to headwaters of large streams with persistent water from March to mid-June with shallow, gravely pools less than 18 inches deep, and adjacent sandy terraces. Breeding pools are an important component of suitable habitat, and the pools must be open and shallow with sand substrate overlain with silt and minimal current. Banks must have little herbaceous cover and a moderate canopy of cottonwood, willow, or oak. Heavily shaded pools are unsuitable due to lower water and soil temperatures (USFWS 2009, 2014). There are historic occurrences of arroyo toad near the southwest of Lake Elsinore in Temescal Wash with recent surveys locating populations in Temecula.

Survey Results

The potential for the species to occur is low. Focused surveys are not required for this species under the MSHCP as the Project is not within the mapped survey area for this species. There are 166.43 acres of potentially suitable habitat for arroyo toad in the BSA, including Coast Live Oak Woodland and Forest, Arrow Weed Thickets, Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, California Sycamore Woodland, Scale Broom Scrub, and Mulefat Thickets. Adjacent upland habitats within 0.75 mile of these habitat types would also be suitable for this species for estivation.

Project Impacts

Build Alternative

Of potentially suitable habitat, an estimated 2.65 acres would be temporarily removed, and 0.22 acre would be removed via shading effects for arroyo toad in the LOD under the Build Alternative (Table 4-6). If arroyo toad is present, there is the potential for direct mortality as well as loss of habitat. During construction, there is the risk of degradation of potentially suitable habitat adjacent to the LOD. Measures identified below are intended to avoid and/or minimize such potential indirect impacts.

Operation of the Project is not expected to change conditions. Vehicle strikes are not anticipated to increase due to the Project.

Overall, the Project could have a biologically substantial impact on arroyo toad due to the loss of habitat if the species is present, and this could be considered "take" under FESA.

FESA Determination. Caltrans has determined that the Build Alternative would receive a "may affect, likely to adversely affect" finding for arroyo toad. Because the Project occurs within the MSHCP Plan boundary, formal Section 7 consultation with USFWS would occur through consistency with the MSHCP (refer to Chapter 5 for details).

No-Build Alternative

If this Project is not constructed, it would not cause any impacts on arroyo toad.

Avoidance and Minimization Measures

Build Alternative

Avoidance and minimization measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation;** and **BIO-11, Access** in Appendix L ensure that indirect effects on potentially suitable habitat for arroyo toad adjacent to the LOD would not occur during construction of the Build Alternative. These measures are required by the MSHCP. They are not specific to arroyo toad, but provide a level of protection to covered species outside a project footprint. They are considered general requirements for construction projects. In addition, measures **BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs;** and **BIO-14, MSHCP Covered Species Avoidance** would reduce impacts on water quality and indirect effects on arroyo toad. Also, measure **BIO-20, Wildlife Undercrossings** maintains functional movement through Temescal Wash; measure **BIO-22, Temescal Wash – Biological Monitoring** would provide biomonitoring in the vicinity of Temescal Wash to prevent inadvertent impacts on biological resources; and measure **BIO-24, Waste Management** avoids attracting predators to or near the project site during construction, thereby minimizing project-related predation of arroyo toad.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

The MSHCP does not require compensation for impacts on arroyo toad unless the impact occurs on PQP lands with arroyo toad conservation value. None of the potential impacts on arroyo toad would occur on PQP lands. Consistency with all measures required by the MSHCP provides full mitigation of potential impacts on arroyo toad.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Effects

Build Alternative

Construction of the Build Alternative could make a cumulatively considerable contribution to a regionally substantial decline of arroyo toad through removal of potential habitat. It is not known whether this species is present within potential habitat proposed for removal. This species has specific habitat requirements and is restricted to the headwaters of large streams. However, any cumulative effect from the Build Alternative has been fully mitigated through consistency with the MSHCP.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on arroyo toad.

Discussion of Least Bell's Vireo

LBV is a federally listed as endangered and state endangered species. This species is covered under the MSHCP but is not yet adequately conserved. Focused studies are required when the species potentially occupies riparian/riverine vegetation and could be directly and/or indirectly affected (MSHCP Volume I, Section 6.1.2).

LBV is found as a summer resident of Southern California where it inhabits low riparian growth in the vicinity of water or dry river bottoms below 2,000 feet. Nests are found in dense vegetation located low in the riparian zones, most frequently in 5- to 10-year-old stands. When LBV nest in mature riparian woodlands, they nest in areas with a substantial robust understory of willows, as well as other plant species.

Survey Results

Suitable breeding habitat for LBV is mapped within the riparian vegetation communities in the BSA (**Appendix A, Figure 8**). Because of potential habitat for this species in the BSA, a focused survey was necessary, and this species was observed to be using the BSA for breeding. LBV surveys were conducted within suitable riparian habitat in the BSA in 2020 and 2021. During surveys in 2020, 11 LBV use areas were observed in the BSA. None of these use areas (previously Use Area #10, **Appendix A, Figure 8**, Sheet 7) occurred within the LOD, but the Project was redesigned to avoid this area. Most of the use areas

are associated with Temescal Wash. No additional use areas were identified in 2021. There are 99.50 acres of potentially suitable habitat for LBV within the BSA, and this habitat is mapped in **Appendix A, Figure 8**.

Federal designated critical habitat for LBV is not present within the BSA and would not be affected by the Build Alternative.

Project Impacts

Build Alternative

There are no LBV use areas that would be directly affected by the Project. An estimated 2.95 acres of potentially suitable LBV habitat would be affected, consisting of 2.76 acres that would be temporarily removed and 0.19 acre that would be degraded and/or removed via shading in the LOD under the Build Alternative (Table 4-6). The majority of occupied LBV habitat occurs outside of the LOD. No impacts on the LBV use areas are expected (**Appendix A, Figure 8**).

In addition to direct removal of suitable habitat, the Build Alternative would cause temporary indirect effects on LBV adjacent to the LOD from noise and dust generated during construction. Indirect impacts from noise associated with construction could potentially be substantial if construction is to occur during the breeding season. Shading effects are expected to be minimal.

Operation of the widened bridges would have the potential for indirect impacts, such as depredation due to traffic noise and degradation of habitat from increased surface flow runoff. Both impacts are expected to be no greater than the impacts under existing conditions with potential surface flow runoff improving (**BIO-12, Water Pollution and Erosion Control Plans**).

Overall, the Project could have a biologically substantial impact on LBV due to the loss of habitat if the species is present, and this could be considered "take" under FESA, CESA, MBTA, and similar provisions of the California Fish and Game Code.

FESA Determination. Caltrans has determined that the Project would receive a "may affect, likely to adversely affect" finding for LBV. Because the Project is in the boundaries of the MSHCP, take of LBV would be addressed through formal Section 7 FESA consultation completed as part of the MSHCP consistency review (refer to Section 5.1 for additional details).

No-Build Alternative

If this Project is not constructed, this Project would not cause any impacts on LBV beyond what might occur under existing conditions.

Avoidance and Minimization Efforts

Build Alternative

Measure **BIO-1, Vegetation Clearing Restrictions** ensures that potentially occupied LBV habitat would not be removed during the species' core breeding season. Measures **BIO-2, Dust Control; BIO-3, Fire**

Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; and **BIO-18, Night Lighting Management** provide protection to LBV occurring adjacent to the disturbance footprint during construction. Measure **BIO-20, Wildlife Undercrossings** maintains functional movement through Temescal Wash. Measure **BIO-24, Waste Management** avoids attracting predators to or near the project site during construction, thereby minimizing project-related predation of LBV. Measure **BIO-28, Nesting Bird Management Plan** prevents disturbance of active nests.

A full list of avoidance and minimization measures for the Project required under the MSHCP is provided in Appendix L. Measure **BIO-15, DBESP** is intended to avoid or minimize potential indirect impacts (permanent) on LBV. Those measures that apply to riparian/riverine vegetation also apply to LBV occupied habitat. Measure **BIO-21, Temescal Wash – Nesting Season Noise Requirements** would ensure that potential indirect impacts on nesting LBV would be avoided and minimized.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Though no impacts on LBV use areas are anticipated, if they were to occur compensation for direct impacts on LBV use areas and adjacent potential habitat would be necessary to ensure no net loss of occupied LBV habitat (i.e., equivalent or superior preservation). No direct impacts on LBV use areas are anticipated with the current project design. The ratio of compensation for impacts depends on whether the impact would be permanent or temporary. Permanent impact compensation would occur at no less than a 2:1 ratio, whereas temporary impacts would be compensated at no less than a 1.25:1 ratio (refer to measure **BIO-23 LBV Habitat Compensation** in Appendix L for details). A DBESP (Appendix L, measure **BIO-15, DBESP**) would be prepared to detail compensatory requirements for LBV. The DBESP would ensure that the Project would be consistent with the MSHCP.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Effects

Build Alternative

Approximately 2.95 acres of LBV-suitable habitat would be affected under the Build Alternative. Project design to avoid LBV use areas and measures identified in Appendix L would ensure no take of individuals during construction. The compensatory measures in Appendix L, including preparation of the DBESP, would ensure no net loss of suitable habitat and full consistency with the MSHCP. No direct impacts on LBV are anticipated. The Build Alternative may incrementally increase pollution and noise,

although having the HOV lanes may reduce air pollution through less traffic congestion. It is expected that the Build Alternative would not result in a cumulatively considerable contribution to a regional decline in LBV numbers.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on LBV or suitable habitat.

Discussion of Southwestern Willow Flycatcher

SWFL is a federal- and state-listed endangered species. This species is covered under the MSHCP but is not yet adequately conserved. Focused studies are required when potentially suitable habitat is present, and a potential impact is foreseeable (MSHCP Volume I, Section 6.1.2) (refer to Appendix B for a summary of this species' habitat requirements).

SWFL is found from late spring to summer in Southern California where it inhabits dense riparian vegetation occurring along streams or other wetlands (Sogge et al. 2010). The structure of these habitats typically consists of a dense midstory and understory and can also include a dense canopy (USFWS 1995). However, suitable vegetation is not uniformly dense and typically includes interspersed patches of open habitat.

Survey Results

Because of potential habitat for SWFL in the BSA, a focused survey was necessary and conducted within suitable riparian habitat in 2020 and 2021 (**Appendix A, Figure 8**). Appendix H provides the focused survey reports for the 2020 and 2021 survey work. During focused surveys, SWFL were not detected in the BSA. There are 61.32 acres of potentially suitable habitat for SWFL within the BSA. This habitat is mapped in **Appendix A, Figure 8**.

Federal designated critical habitat for SWFL is not present within the BSA and so would not be affected by the Build Alternative.

Project Impacts

Build Alternative

Based on 2020/2021 survey results, no impacts on SWFL would occur from the Project because the species is absent.

FESA Determination. A FESA determination for SWFL can be made once surveys in 2021 are complete. It is anticipated that a "no effect" determination would be made because the species is expected to be absent.

No-Build Alternative

If this Project is not constructed, it would not cause any impacts on SWFL.

Avoidance and Minimization Efforts

Build Alternative

SWFL is not present in the BSA. Currently no impacts on SWFL would occur because the species is absent from the BSA, and, therefore, avoidance and minimization measures are not applicable.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

No compensatory mitigation is necessary.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Effects

Build Alternative

Based on the 2020/2021 survey results, SWFL does not occur in the BSA; therefore, no cumulatively considerable impacts on the species would occur.

No-Build Alternative

If this Project is not constructed, it would not contribute to any cumulative impacts on SWFL or suitable habitat.

Discussion of Tricolored Blackbird

Tricolored blackbird is state listed as threatened. This is also a covered species under the MSHCP, with no survey requirement. Most historical large colonies of tricolored blackbirds were associated with freshwater emergent wetlands. The species is found in cattail marshes and other freshwater marshes, nesting in canopies of willows and other riparian trees, sometimes building nests on the ground. Basic requirements for selecting a breeding site are: open accessible water; a protected nesting substrate including vegetation; and a suitable foraging space providing adequate insect prey within a few miles of the nesting colony. Wetlands, marshes, alkali flats, native grasslands, riparian forests, oak forests, irrigated agricultural areas, and seasonal wetlands all form suitable habitat for this species (Shuford and Gardali 2008).

Survey Results

Habitat that is suitable to support tricolored blackbird in the BSA was mapped as a part of the reconnaissance surveys and vegetation mapping. Approximately 144.17 acres of potentially suitable habitat in the BSA for tricolored blackbird occurs in Coast Live Oak Woodland and Forest, Goodding's

Willow-Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Mulefat Thickets, Salt Grass Flats, Tamarisk Thickets, and California Sycamore Woodland.

Project Impacts

Build Alternative

Construction of the Build Alternative would have a temporarily impact on 3.38 acres and cause shading impacts on 0.19 acre of potentially suitable habitat for tricolored blackbird (Table 4-6). Additional direct effects on suitable tricolored blackbird habitat and individuals during construction activities could occur from increased risk of fire and strikes with construction equipment. Indirect effects during construction may include impacts on individuals breeding adjacent to the LOD because of noise and vibrations from construction equipment, habitat fragmentation, and edge effects that reduce the quality of habitat.

The potential exists for direct and indirect effects on tricolored blackbird from operation of the Build Alternative. Tricolored blackbird would be at increased risk of vehicle strikes from the increase in the number of vehicle lanes (removal of median). Maintenance (e.g., mowing for weed abatement) within the ROW could remove occupied habitat or contribute to fragmentation of adjacent suitable habitat. It would be unlikely for any of these potential operational impacts to be greater than the existing condition.

The proposed removal of 3.57 acres of potentially suitable habitat for tricolored blackbird would be biologically substantial and would trigger CESA, MBTA, and similar provisions under the California Fish and Game Code. However, tricolored blackbird is a covered species under the MSHCP. MSHCP consistency would provide full mitigation under CESA (refer to Section 5.6).

No-Build Alternative

Under the No-Build Alternative, there would be no impacts on tricolored blackbird and suitable habitat from the Project.

Avoidance and Minimization Efforts

Build Alternative

Full avoidance and minimization measures for tricolored blackbird are provided in Appendix L. Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance;** and **BIO-18, Night Lighting Management** reduce degradation of suitable tricolored blackbird habitat occurring adjacent to the disturbance footprint during construction. **BIO-20, Wildlife Undercrossings** maintains functional movement through Temescal Wash and measure **BIO-24, Waste Management** avoids attracting predators to or near the project site during construction, thereby minimizing project-related predation of tricolored blackbird. Measure **BIO-28, Nesting Bird Management Plan** ensures that no breeding individuals would be directly harmed during project construction. Nesting bird surveys would be completed, and no active nests would be disturbed. These

measures are sufficient to ensure that impacts on tricolored blackbird would be minimized and avoided per the requirements of the MSHCP.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Full mitigation of potential direct and indirect impacts on tricolored blackbird would be provided through consistency with the MSHCP. Implementation of the avoidance and minimization measures, along with all other measures provided in this document, provides full consistency with the MSHCP for tricolored blackbird. No additional measures beyond those required by the MSHCP would be necessary.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Effects

Build Alternative

Potentially suitable and/or occupied tricolored blackbird habitat would be removed by the Build Alternative. However, the potentially occupied habitat that would be affected is directly adjacent to the existing interstate and within a ROW that receives routine maintenance and disturbance; thus, it is judged to have low function and value as tricolored blackbird habitat. Because the habitat is low quality and occurs as linear patches, it is less than reasonable to assume that the incremental potential loss of 2.85 acres of low-quality, potentially occupied tricolored blackbird habitat would be a cumulatively considerable loss to regional populations of tricolored blackbird.

No-Build Alternative

The No-Build Alternative is not expected to add cumulative impacts on tricolored blackbird or suitable habitat.

Discussion of Coastal California Gnatcatcher

Coastal California gnatcatcher is federally listed as threatened and a state SSC. This is also a covered species under the MSHCP, with no survey requirement. Coastal California gnatcatcher is essentially a year-round obligate inhabitant of sage scrub. The species is known to include the edges of riparian habitat as part of its foraging grounds, particularly during drought years and post-breeding dispersal.

Survey Results

During reconnaissance surveys and vegetation mapping within the BSA, suitable habitat for coastal California gnatcatcher was identified within the 644.46 acres of Riversidian sage scrub habitats (Brittle Bush Scrub, California Buckwheat Scrub, California Sagebrush– California Black Sage Scrub, and Deer

Weed Scrub). In addition, it is important to identify potential habitat because there are habitat removal constraints if suitable habitat occurs within a criteria cell and/or on PQP lands. The species was also incidentally observed during biological studies.

Federal USFWS designated critical habitat for coastal California gnatcatcher occurs in the BSA at Nichols Road in Lake Elsinore, but just outside the LOD. USFWS critical habitat is exempt from covered activities within the MSHCP area.

Project Impacts

Build Alternative

Approximately 132.55 acres of potentially suitable habitat for coastal California gnatcatcher would potentially be directly removed in the LOD during construction of the Build Alternative. Of this 132.55 acres, 3.33 acres would be removed due to permanent impacts, 129.15 acres would be removed due to temporary impacts, and 0.07 acre would be removed due to shading impacts (Table 4-6). Additional direct effects on suitable coastal California gnatcatcher habitat and individuals during construction could occur from increased risk of fire and strikes with construction equipment. Indirect effects during construction may include impacts on individuals breeding adjacent to the LOD because of noise and vibrations from construction equipment, habitat fragmentation, and edge effects that reduce the quality of habitat.

The potential exists for direct and indirect effects on coastal California gnatcatcher from operation of the Build Alternative. Coastal California gnatcatcher is a low-flying species, and any individuals traversing the highway would be at increased risk of vehicle strikes from the increase in the number of vehicle lanes (removal of median). Maintenance (e.g., mowing for weed abatement) within the ROW could remove occupied habitat or contribute to fragmentation of adjacent suitable habitat. It would be unlikely for any of these potential operational impacts to be greater than the existing condition.

In all, the potential removal of 132.55 acres of potentially suitable habitat for coastal California gnatcatcher would be biologically substantial and would trigger FESA, MBTA, and similar provisions under the California Fish and Game Code.

FESA Determination. Caltrans has determined that the Project would receive a “may affect, likely to adversely affect” finding for coastal California gnatcatcher and “adverse modification” of critical habitat. Formal Section 7 consultation under FESA would be necessary; however, because the Project is an MSHCP covered project and the critical habitat for coastal California gnatcatcher within the Plan area is excluded, the consultation would be expedited, involving only a review of the Project by USFWS for consistency with the MSHCP (refer to Section 5.1 for details).

No-Build Alternative

Under the No-Build Alternative, there would be no impacts on coastal California gnatcatcher and suitable habitat from the Project.

Avoidance and Minimization Efforts

Build Alternative

Full avoidance and minimization measures for coastal California gnatcatcher are provided in Appendix L. Measure **BIO-1, Vegetation Clearing Restrictions** ensures that potentially occupied coastal California gnatcatcher habitat would not be removed during the species' core breeding season (it can be removed if preconstruction surveys confirm the species is absent). Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-18, Night Lighting Management** reduce the potential degradation of coastal California gnatcatcher habitat adjacent to the disturbance footprint during construction. **BIO-24, Waste Management** avoids attracting predators to or near the project site during construction, thereby minimizing project-related predation of coastal California gnatcatcher. Measure **BIO-28, Nesting Bird Management Plan** is a nesting bird management plan.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Full mitigation of potential direct and indirect impacts on coastal California gnatcatcher would be provided through consistency with the MSHCP. Implementation of the avoidance and minimization measures, along with all other measures provided in this document, provides full consistency with the MSHCP for coastal California gnatcatcher. During formal Section 7 consultation, USFWS would perform a review of the Project's consistency with the MSHCP, resulting in the issuance of a streamlined biological opinion. No additional measures beyond those required by the MSHCP would be necessary.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Effects

Build Alternative

An estimated 132.55 acres of potentially suitable and/or occupied coastal California gnatcatcher habitat may be removed by the Build Alternative. However, the potentially occupied habitat that would be affected is directly adjacent to the existing interstate and within an existing ROW that receives routine maintenance; thus, it is judged to have low function and value as coastal California gnatcatcher habitat. Because the habitat is low quality and occurs as linear patches, it is less than reasonable to assume that the incremental loss of 132.55 acres of low-quality, potentially occupied coastal California gnatcatcher habitat would be a cumulatively considerable loss to regional populations of coastal California gnatcatcher.

No-Build Alternative

The No-Build Alternative is not expected to add cumulative impacts on coastal California gnatcatcher or suitable habitat.

Discussion of Stephens' Kangaroo Rat

SKR is a federally listed as endangered and state threatened species. The Project occurs within the boundaries of the SKR long-term HCP (SKR HCP; Riverside County Habitat Conservation Agency [RCHCA] 1996) and is a fully covered species under the MSHCP.

SKR is found almost exclusively in open grasslands or sparse shrublands with cover of less than 50 percent during the summer. The species avoids dense grasses. Soil type is an important habitat factor, and SKR is typically found in sandy and sandy loam soils with low clay-to-gravel content. Slope is also a factor in occupied lands with the highest abundance of this species occurring on gentle slopes.

Survey Results

There are no survey requirements for this species under the MSHCP or SKR HCP. Potentially suitable habitat is found in the BSA in the form of grassland, agricultural areas and Riversidian sage scrub, including Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Salt Grass Flats, Brittle Bush Scrub, Scale Broom Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, and Agriculture, for a total of 1,027.85 acres. Although survey work was not performed, it is highly probable that the species occupies at least a portion of the potential habitat within the BSA. Whether it inhabits potential habitat within the LOD is much less clear because these lands reside within the existing ROW and have endured routine ROW maintenance over decades, as well as being adjacent to the interstate. While ROW maintenance is likely beneficial for this species, keeping vegetation low and open, the disturbance of burrows and introduction of invasive species would be deleterious.

Project Impacts

Build Alternative

Under the Build Alternative, up to 240.11 acres of potentially suitable SKR habitat may be directly potentially removed during construction, including 13.84 acres of permanent impacts, 225.80 acres of temporary impacts, and 0.47 acre of shading impacts in the LOD under the Build Alternative (Table 4-6). There are no MSHCP linkages or cores within the LOD with potential habitat for SKR. The majority of potential SKR habitat occurs within narrow linear strips of grassland and Riversidian sage scrub. These linear strips have increased edge effects and are therefore not expected to be used by SKR given the ongoing disturbances from maintenance along the highway, such as mowing for weed abatement. There may be an incremental increase in indirect effects during construction, including the potential introduction of invasive weeds, an increase in dust, and increased risk of fire, which would decrease the quality of potential habitat adjacent to the LOD. However, these temporary indirect effects would be avoided and/or greatly minimized with implementation of the measures in Appendix L.

Operation and maintenance associated with the Build Alternative is not expected to differ measurably from existing operating conditions along I-15. The potential direct and indirect effects associated with operation and maintenance of the Build Alternative include the introduction of invasive weeds, air pollution, noise, and risk of fire. These potential indirect effects would not be greater than existing conditions. The replacement of the median with two traffic lanes increases roadway surface area and therefore increases potential for vehicle strikes if individual SKR attempt to cross the interstate, hence potentially further fragmenting occupied lands east and west of I-15.

Overall, potential impacts on SKR from the Build Alternative could be biologically substantial and would trigger FESA and CESA considerations.

FESA Determination. Caltrans has determined that the Project would receive a "may affect, likely to adversely affect" finding for SKR. USFWS would perform a consistency review to confirm that the Build Alternative is consistent with the SKR HCP/MSHCP and issue a streamlined biological opinion. Consistency with the SKR HCP/MSHCP provides full mitigation under FESA (refer to Section 5.1 for additional details).

No-Build Alternative

Under the No-Build Alternative, there would be no impacts on SKR and suitable habitat from the Project.

Avoidance and Minimization Efforts

Build Alternative

There are no specific avoidance measures required for SKR under the MSHCP; however, measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings;** and **BIO-24, Waste Management** in Appendix L minimize potential indirect effects on suitable SKR habitat during construction. These measures are consistent with general MSHCP avoidance and minimization requirements for covered projects.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Full mitigation of potential direct and indirect impacts on SKR would be provided through consistency with the MSHCP. Implementation of the avoidance and minimization measures, along with all other measures provided in this document, provides full consistency with the MSHCP for SKR. During formal Section 7 consultation, USFWS would perform a review of the Project's consistency with the MSHCP

and issue a streamlined biological opinion. No additional measures beyond those required by the MSHCP would be necessary.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Effects

Build Alternative

The Build Alternative would result in the potential removal of approximately 240.11 acres of suitable SKR habitat. Other planned projects in the region are also likely to remove suitable and/or occupied habitat for SKR. This potentially suitable/occupied SKR habitat consists of degraded habitat within the existing state ROW that has been routinely maintained for decades. This acreage estimate also includes a shrub habitat that may be too dense for SKR. Continued operation of the interstate once the Build Alternative is constructed could result in an incremental increase in potential impacts on SKR in the form of mortality to individuals when attempting to cross the improved facility (i.e., two additional lanes of traffic in the existing median). However, given the wide regional distribution of SKR and the location and quality of potential habitat proposed for removal and potentially affected, it is unlikely that the Project would make a cumulatively considerable contribution to a regional decline in SKR.

No-Build Alternative

The No-Build Alternative is not expected to add cumulative impacts on SKR or suitable habitat.

Discussion of San Bernardino Kangaroo Rat

San Bernardino kangaroo rat (SBKR) is federally listed as endangered and state listed as candidate endangered. SBKR is on the MSHCP Additional Survey Needs and Procedures (Section 6.3.2) list of the MSHCP and surveys for this species are required as a part of the project review in specified areas where suitable habitat is present. The BSA is outside of the required survey area for this species.

The main populations of SBKR in the MSHCP Plan area are in the San Jacinto River and Bautista Creek. There is known occupied habitat in the San Jacinto River, ranging from the San Bernardino National Forest boundary to the east and SR-79 to the west. Suitable habitat for this species includes Riversidian alluvial fan sage scrub, Riversidian sage scrub, chaparral, and grasslands within and adjacent to the San Jacinto River, Bautista Creek, San Timoteo Creek, the Santa Ana River, and an area at the base of the Jurupa Mountains. While most current records are north and east of the BSA, the current USFWS range map for this species includes the BSA.

Survey Results

Potentially suitable habitat is found in the BSA in the form of Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Arrow Weed Thickets, Salt Grass Flats, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, and

Scrub Oak Chaparral, for a total of 875.06 acres. Survey work was not performed for this species. Despite the USFWS range map including the BSA, it is unlikely that this species is present in the BSA as it is most commonly observed associated with the San Jacinto River and Bautista Creek. It is unlikely this species occupies the BSA and even less likely it inhabits the more disturbed habitat in the LOD.

Project Impacts

Build Alternative

Under the Build Alternative, up to 204.60 acres of potentially suitable SBKR habitat may be directly impacted during construction, including 13.67 acres of permanent impacts, 190.46 acres of temporary impacts, and 0.47 acre of shading impacts in the LOD under the Build Alternative (Table 4-6). There are no MSHCP linkages or cores within the LOD with potential habitat for SBKR. The majority of potential SBKR habitat occurs within narrow linear strips of Riversidian alluvial fan sage scrub, Riversidian sage scrub, chaparral, and grasslands. These linear strips have increased edge effects and are therefore not expected to be used by SBKR given the ongoing disturbances from maintenance along the highway, such as mowing for weed abatement. There may be an incremental increase in indirect effects during construction, including the potential introduction of invasive weeds, an increase in dust, and increased risk of fire, which would decrease the quality of potential habitat adjacent to the LOD. However, these temporary indirect effects would be avoided and/or greatly minimized with implementation of the measures in Appendix L.

Operation and maintenance associated with the Build Alternative is not expected to differ measurably from existing operating conditions along I-15. The potential direct and indirect effects associated with operation and maintenance of the Build Alternative include the introduction of invasive weeds, air pollution, noise, and risk of fire. These potential indirect effects would not be greater than existing conditions. The replacement of the median with two traffic lanes increases roadway surface area and therefore increases potential for vehicle strikes if individual SBKR attempt to cross the highway surface, hence potentially further fragmenting occupied lands east and west of the I-15.

Overall, potential impacts on SBKR from the Build Alternative could be biologically substantial and would trigger FESA and CESA considerations.

FESA Determination. Caltrans has determined that the Project would receive a “may affect, likely to adversely affect” finding for SBKR. USFWS would perform a consistency review to confirm that the Build Alternative is consistent with the MSHCP and would issue a streamlined biological opinion. Consistency with the MSHCP provides full mitigation under FESA (refer to Chapter 5 for additional details).

No-Build Alternative

Under the No-Build Alternative, there would be no impacts on SBKR and suitable habitat from the Project.

Avoidance and Minimization Efforts

Build Alternative

There are no specific avoidance measures required for SBKR under the MSHCP; however, measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings;** and **BIO-24, Waste Management** in Appendix L minimize potential indirect effects on suitable SBKR habitat during construction. These measures are consistent with general MSHCP avoidance and minimization requirements for covered projects.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Full mitigation of potential direct and indirect impacts on SBKR would be provided through consistency with the MSHCP. Implementation of the avoidance and minimization measures, along with all other measures provided in this document, provides full consistency with the MSHCP for SBKR. During formal Section 7 consultation, USFWS would perform a review of the project's consistency with the MSHCP, resulting in a streamlined biological opinion. No additional measures beyond those required by the MSHCP would be necessary.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Effects

Build Alternative

The Build Alternative could result in the potential removal of approximately 204.60 acres of potentially occupied SBKR habitat. Other planned projects in the region are also likely to remove suitable and/or occupied habitat for SBKR. This potentially suitable/occupied SBKR habitat consists of degraded habitat within the existing state ROW that has for decades been routinely maintained. This acreage estimate also includes a shrub habitat that may be too dense for SBKR. Continued operation of the interstate once the Build Alternative is constructed could result in an incremental increase in potential impacts on SBKR in the form of mortality to individuals when attempting to cross the improved facility (i.e., two additional lanes of traffic in the existing median). However, given the wide regional distribution of SBKR and the location and quality of potential habitat proposed for removal and potentially affected, it is unlikely that the Project would make a cumulatively considerable contribution to a regional decline in SBKR.

No-Build Alternative

The No-Build Alternative is not expected to add cumulative impacts on SBKR or suitable habitat.

Discussion of Mountain Lion

The evolutionary significant unit (ESU) of mountain lions in southern and central coastal California were accepted by CDFW for consideration as threatened or endangered under CESA in April of 2020 and are considered a candidate species. CDFW is currently completing a status review of mountain lions within the proposed ESU. At the end of the review, CDFW would make its recommendation on listing to the California Department of Fish and Game Commission. Under CESA, species classified as a candidate species are afforded the same protection as listed species, and as a result, mountain lions in this proposed ESU are CESA protected during the review period. Mountain lion are covered species under the MSHCP.

Suitable habitat for mountains lions within Western Riverside County includes chaparral, coastal sage scrub, desert scrub, Riversidian alluvial fan sage scrub, pinyon juniper woodland, riparian areas, coniferous forests, grasslands, and oak woodlands and forests. Mountain lions are mainly found in the Agua Tibia Mountains, the San Bernardino Mountains, the San Jacinto Foothills and Mountains, and the Santa Ana Mountains, as well as in the desert transition area. Except for the Santa Ana Mountains, these ranges provide continuous habitat for the species throughout Southern California. The only potential large mammal connections between Lake Mathews-Estelle Mountain and the Santa Ana Mountains are along Indian Canyon and possibly Horsethief Canyon.

Approximately 71 percent of the habitat suitable in the MSHCP Plan area for this species would be conserved in the MSHCP Conservation Area. Specific objectives have been incorporated into the MSHCP conservation strategy to minimize the risk to dispersing mountain lions. The primary threats to mountain lions are habitat fragmentation, collisions with vehicles, animal control measures (rodenticides), and loss of natural prey base.

Survey Results

Potentially suitable habitat is found in the BSA in the form of Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Arrow Weed Thickets, Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Mulefat Thickets, Salt Grass Flats, Tamarisk Thickets, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, Scrub Oak Chaparral, California Sycamore Woodland, Eucalyptus–Tree of Heaven–Black Locust Groves, and Pepper Tree or Myoporum Forest and Woodland, for a total of 1,293.24 acres. Survey work was not performed for this species.

Project Impacts

Build Alternative

Under the Build Alternative, up to 248.70 acres of potentially suitable mountain lion habitat may be directly impacted during construction, including 13.85 acres of permanent impacts, 234.19 acres of temporary impacts, and 0.66 acre of shading impacts in the LOD under the Build Alternative (Table 4-6).

Proposed Extension of Existing Core 2 (Lake Mathews/Estelle Mountain Extension), Proposed Linkage 1 (foothills of Santa Ana Mountains), and Proposed Constrained Linkage 5 (Horsethief Canyon) all overlap with the BSA and the LOD and all have mountain lion as a planning species. The majority of potentially suitable habitat occurs within the LOD in these areas and contains linear strips of suitable habitat associated with drainages that flow under I-15. The main project effect at these locations would be an increase in shading at wildlife crossings. There may be an incremental increase in indirect effects during construction, including the potential introduction of invasive weeds, an increase in dust, and increased risk of fire, which would decrease the quality of potential habitat adjacent to the LOD. However, these temporary indirect effects would be avoided and/or greatly minimized with implementation of the measures in Appendix L.

Except for increased shading at wildlife crossings, operation and maintenance associated with the Build Alternative is not expected to differ measurably from existing operating conditions along I-15. The potential direct and indirect effects associated with operation and maintenance of the Build Alternative includes the introduction of invasive weeds, air pollution, noise, and risk of fire. These potential indirect effects would not be greater than existing conditions. The replacement of the median with two traffic lanes increases roadway surface area and therefore increases potential for vehicle strikes if mountain lions attempt to cross the highway surface, hence potentially further fragmenting occupied lands east and west of the I-15.

Overall, due to an increase in shading at wildlife crossings, potential impacts on mountain lion from the Build Alternative could be biologically substantial and would trigger CESA considerations. However, this species is fully covered under the MSHCP.

No-Build Alternative

Under the No-Build Alternative, there would be no impacts on mountain lion and suitable habitat from the Project.

Avoidance and Minimization Efforts

Build Alternative

There are no specific avoidance measures required for mountain lion under the MSHCP; however, measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings;** and **BIO-24, Waste Management** in Appendix L minimize potential

indirect effects on suitable mountain lion habitat during construction. These measures are consistent with general MSHCP avoidance and minimization requirements for covered projects.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Full mitigation of potential direct and indirect impacts on mountain lion would be provided through consistency with the MSHCP. Implementation of the avoidance and minimization measures, along with all other measures provided in this document, provides full consistency with the MSHCP for mountain lion. No additional measures beyond those required by the MSHCP would be necessary.

No-Build Alternative

No compensatory measures would apply under a No-Build Alternative.

Cumulative Effects

Build Alternative

The Build Alternative could result in the potential removal of approximately 248.70 acres of potentially occupied mountain lion habitat. Other planned projects in the region are also likely to remove suitable and/or occupied habitat for mountain lion. This potentially suitable/occupied mountain lion habitat within the BSA consists of constrained linkages between the Santa Ana Mountains and Lake Mathews/Estelle Mountain. Continued operation of the interstate once the Build Alternative is constructed could result in an incremental increase in potential impacts on mountain lions in the form of mortality to individuals when attempting to cross the improved facility (i.e., two additional lanes of traffic in the existing median) and a reluctance to use the existing undercrossing due to increased shading effects, which decreases the openness in the crossing. Mountain lions are covered under the MSHCP, and the majority of habitat conserved for this species did not include the Lake Mathews-Estelle Mountain/Santa Ana Mountain connection due to the constrained nature of these connections. Given the wide regional distribution of mountain lion and the location and quality of potential habitat proposed for removal and potentially affected, it is unlikely that the Project would make a cumulatively considerable contribution to a regional decline in mountain lion.

No-Build Alternative

The No-Build Alternative is not expected to add cumulative impacts on mountain lion or suitable habitat.

4.4.2 Non-Listed Special-Status Animal Species

Thirty-four species of non-listed, special-status animals were initially determined to have potential for occurrence in the study area based on known range and the presence of suitable habitat (Appendix B). These include arroyo chub (*Gila orcuttii*), coast range newt (*Taricha torosa torosa*), western spadefoot (*Scaphiopus hammondii*), California glossy snake (*Arizona elegans occidentalis*), coastal whiptail

(*Aspidoscelis tigris stejnegeri*), Belding's orange-throated whiptail (*Aspidocelis hyperythrus beldingi*), California legless lizard (*Anniella stebbinsi*), red-diamond rattlesnake (*Crotalus ruber*), Coronado skink (*Eumeces skiltonianus interparietalis*), coast western patch-nosed snake (*Salvadora hexalepis virgultea*), San Diego coast horned lizard (*Phrynosoma coronatum blainvillii*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus hudsonius*), golden eagle (*Aquila chrysaetos*), peregrine falcon (*Falco peregrinus anatum*), burrowing owl, long-eared owl (*Asio otus*), loggerhead shrike (*Lanius ludovicianus*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), grasshopper sparrow (*Ammodramus savannarum*), yellow warbler, yellow-breasted chat (*Icteria virens*), pallid bat (*Antrozous pallidus*), Western mastiff bat (*Eumops perotis californicus*), western red bat (*Lasiurus blossevillii*), western yellow bat (*Lasiurus xanthinus*), pocketed free-tailed bat (*Nyctinomops [=Tadarida] femorosaccus*), big free-tailed bat (*Nyctinomops macrotis*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), Dulzura pocket mouse (*Chaetodipus californicus femoralis*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), San Diego desert woodrat (*Neotoma lepida intermedia*), and American badger (*Taxidea taxus*).

Of these, 22 species are fully covered under the MSHCP and 12 are not covered under the MSHCP or require additional study under the Plan. A focused survey was conducted only for burrowing owl, which is a covered species requiring additional study under the Plan.

Discussion of Non-MSHCP Special-Status Terrestrial Mammals

This section addresses potential effects of the Project on Dulzura pocket mouse and American badger. Both mammals have potential to occur in the BSA and are state SSC that are not covered species under the MSHCP.

The Dulzura pocket mouse occurs in the greatest abundance where grassland and chaparral are in close proximity. Other areas with high densities include rocky/gravelly areas with yucca and desert scrub near pinyon/juniper belts. Suitable habitats include chaparral, such as chamise-redshank chaparral, mixed chaparral, coastal scrub, sagebrush, desert wash, desert scrub, desert succulent scrub, desert washes, pinyon-juniper, and annual grasslands. Found in sandy herbaceous areas, the species is usually associated with rocks or coarse gravel.

American badger is generally found in a wide variety of open habitats, including grasslands, Riversidian sage scrub, plains, deserts, woodland edges, meadows, and other open habitat types.

Survey Results

No focused study for non-MSHCP non-listed special-status terrestrial mammals was conducted for the Project.

Approximately 1.027.76 acres of potentially suitable habitat for Dulzura pocket mouse occurs in the BSA as Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Arrow Weed Thickets, Salt Grass Flats, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, and Scrub Oak Chaparral (**Appendix A, Figure 7**).

The BSA provides up to 1,027.76 acres of potentially suitable habitat for American badger in the BSA as Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Arrow Weed Thickets, Salt Grass Flats, Brittle Bush Scrub, Scale Broom Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, and Quailbush Scrub (**Appendix A, Figure 7**).

Project Impacts

Build Alternative

During construction of the Build Alternative, potentially suitable habitat for both of these mammal species may be removed. Direct impacts on Dulzura pocket mouse include 241.07 acres, with 13.84 acres of these impacts being permanent, 226.76 acres being temporary, and 0.47 acre being due to shading effects in the LOD. Direct impacts on American badger include 241.07 acres, which includes 13.84 acres of permanent impacts, 226.76 acres of temporary impacts, and 0.47 acre of shading impacts in the LOD under the Build Alternative (Table 4-6). Most of these potential impacts would occur within the median, which is very low quality due to lack of foraging and high potential for mortality under existing conditions. The potential exists for temporary impacts on individuals in the LOD during construction; however, the number of individuals potentially affected is expected to be low given the low quality of suitable habitat proposed for removal. Shading effects on 0.47 acre would degrade suitable habitat and result in a permanent loss.

The potential also exists for indirect impacts (habitat degradation through noise, dust, human presence, increased risk of fire, etc.) on potential habitat adjacent to the LOD during construction. These indirect impacts are expected to be temporary and would be minimized and avoided with implementation of the measures identified.

The potential exists for direct effects on these species from operation of the Build Alternative. The increase in vehicle lanes would reduce the ability of the species to move across the highway safely, thus potentially increasing mortality rates. The number of individuals that may be affected in this way is not known, but it is not expected to be high given the low-quality habitat adjacent to the roadway, and the already-wide I-15 facility. Potential indirect impacts from operation of the Project would include continued degradation of potential habitat (adjacent to I-15) and introduction of invasive nonnative weeds. However, these potential indirect effects from operation of the highway are expected to remain the same as existing conditions. The proposed removal of low-quality potential habitat for either of these species, along with the potential low incremental increase in mortality of individuals attempting to cross the improved facility, would not be a biologically substantial impact.

No-Build Alternative

If the Project is not constructed, it is not expected to have impacts on non-MSHCP non-listed special-status mammals.

Avoidance and Minimization Efforts

Build Alternative

Although measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance;** and **BIO-18, Night Lighting Management** in Appendix L are not specifically required, they would provide protection to these species of mammals that may occur adjacent to the LOD during construction.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Compensation is not required.

No-Build Alternative

Compensation is not required.

Cumulative Effects

Build Alternative

The Build Alternative would permanently remove 241.07 acres of potentially suitable habitat for Dulzura pocket mouse and 241.07 acres of potentially suitable habitat for American badger and incrementally increase the risk of mortality to individuals crossing the interstate. Both species are state SSC. Removal of potential habitat for these species is expected to continue as future projects are constructed. Both species are uncommon in the region, and impacts, should they occur, are expected to be minimal and would affect only a small number of individuals (if at all); thus, the Project would not make a cumulatively considerable contribution to the regional decline of these species.

No-Build Alternative

The No-Build Alternative is not expected to add cumulative impacts on non-MSHCP, non-listed, special-status mammals or their suitable habitat.

Discussion of Non-MSHCP Special-Status Reptiles

This section addresses potential project effects on California glossy snake, coastal whiptail, California legless lizard, Coronado skink, and coast western patch-nosed snake. All five of these reptiles have potential to occur in the BSA and are state SSC that are not covered species under the MSHCP.

The California glossy snake is found in arid scrub, coastal sage, oak or pine woodlands, rocky washes, grasslands, and chaparral. This species appears to prefer areas that are open with loose soil for burrowing.

Coastal whiptails are found in chaparral, woodland, and riparian areas with sparse foliage.

The California legless lizard is a secretive species, found in loose and loamy soils under sparse vegetative cover (often with leaf litter) under the sparse vegetation of beaches, chaparral, or pine-oak woodland, and open, well-shaded terraces in mature riparian natural communities. The species is sensitive to soil disturbances.

The Coronado skink is found in a variety of habitats, including sage scrub, chaparral, and grassland with cover provided by rotting logs, surface litter, large flat stones, and sometimes trash or other human debris. Where present, the vegetation is most common in early successional stages. Heavy brush and densely forested areas are generally avoided.

The coast western patch-nosed snake is mostly restricted to habitats with a strong but broken shrub component, especially somewhat open chaparral and black sage or relatively mature, dense coastal sage scrub; the species may require ground burrows of unknown characteristics for overwintering and refuge.

Survey Results

Approximately 1,128.96 acres of potentially suitable habitat for California glossy snake occurs in the BSA as Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Arrow Weed Thickets, Coast Live Oak Woodland and Forest, Salt Grass Flats, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, and Scrub Oak Chaparral (**Appendix A, Figure 7**).

The BSA provides up to 905.57 acres of potentially suitable habitat for coastal whiptail in the BSA as Arrow Weed Thickets, Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Mulefat Thickets, Tamarisk Thickets, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, Scrub Oak Chaparral, California Sycamore Woodland, Eucalyptus–Tree of Heaven–Black Locust Groves, and Pepper Tree or Myoporum Forest and Woodland (**Appendix A, Figure 7**).

Approximately 128.90 acres of potentially suitable habitat for California legless lizard occur in the BSA as Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Scrub Oak Chaparral, and California Sycamore Woodland communities.

The BSA provides up to approximately 1,102.19 acres of suitable habitat for Coronado skink within portions of Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Arrow Weed

Thickets, Salt Grass Flats, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, and Scrub Oak Chaparral.

Suitable habitat for the coast western patch-nosed snake occurs within openings of Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, and Scrub Oak Chaparral. These communities account for approximately 712.45 acres within the BSA.

Project Impacts

Build Alternative

During construction of the Build Alternative, potentially suitable habitat for all five species of reptiles may potentially be removed. Direct impacts on California glossy snake include 241.14 acres, with 13.84 acres of these impacts being permanent, 226.79 acres being temporary, and 0.51 acre being due to shading effects. Direct impacts on coastal whiptail include 141.63 acres, with 3.34 acres of these impacts being permanent, 137.85 acres being temporary, and 0.44 acre being due to shading effects. Direct impacts on California legless lizard include 2.22 acres, with 2.18 acres being temporary, and 0.04 acre being due to shading effects. Direct impacts on Coronado skink include 241.07 acres, with 13.84 acres of these impacts being permanent, 226.76 acres being temporary, and 0.47 acre being due to shading effects. Direct impacts on coast western patch-nosed snake include 134.00 acres with 3.33 acres of these impacts being permanent, 130.42 acres being temporary, and 0.25 acre being due to shading effects in the LOD under the Build Alternative (Table 4-6).

Most of these permanent impacts would occur within the median, which is very low quality due to lack of foraging and high potential for mortality under existing conditions. The potential exists for direct temporary impacts on individuals in the LOD during construction; however, the number of individuals potentially affected is expected to be low given the low quality of suitable habitat within the LOD. Shading effects would degrade suitable habitat and result in a permanent loss.

The potential also exists for indirect impacts (habitat degradation through noise, dust, human presence, increased risk of fire, etc.) on potential habitat adjacent to the LOD during construction. These indirect impacts are expected to be temporary and would be minimized and avoided with implementation of the measures identified in Appendix L.

The potential exists for direct effects on these species from operation of the Build Alternative. The increase in vehicle lanes would reduce the ability of the species to move across the highway safely, thus potentially increasing mortality rates. The number of individuals that may be affected in this way is not known, but it is not expected to be high given the low-quality habitat adjacent to the roadway and the already-wide I-15 facility. Potential indirect impacts from operation of the Project would include continued degradation of potential habitat (adjacent to I-15) and introduction of invasive nonnative weeds. However, these potential indirect effects from operation of the highway are expected to remain the same as existing conditions. These five species of reptiles remain common to the region. The proposed removal of low-quality potential habitat for any one of these species, along with the potential low

incremental increase in mortality of individuals attempting to cross the improved facility, would not be a biologically substantial impact.

No-Build Alternative

If the Project is not constructed, it is not expected to have impacts on non-MSHCP non-listed reptiles.

Avoidance and Minimization Efforts

Build Alternative

Although measures (**BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance;** and **BIO-18, Night Lighting Management** in Appendix L are not specifically required, they would provide protection to these species of reptiles that may occur adjacent to the LOD during construction.

Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Compensation is not required.

No-Build Alternative

Compensation is not required.

Cumulative Effects

Build Alternative

The Build Alternative would potentially remove 241.07 acres (calculated by adding impacts for all potential suitable habitat impacts for all five species) of potentially suitable habitat for California legless lizard, Coronado skink, California glossy snake, coastal whiptail, and coast western patch-nosed snake potential habitat and incrementally increase the risk of mortality to individuals crossing the interstate. All six species are state SSC but remain common to the region. Removal of potential habitat for these species is expected to continue as future projects are constructed. However, because these species are still regionally common and the Project's degree of contribution to this impact would be limited, affecting only a small number of individuals (if at all), the Project would not make a cumulatively considerable contribution to the regional decline of California glossy snake, coastal whiptail, California legless lizard, Coronado skink, or coast western patch-nosed snake.

No-Build Alternative

The No-Build Alternative is not expected to add cumulative impacts on non-MSHCP non-listed reptiles or suitable habitat.

Discussion of Burrowing Owl

This section addresses potential effects on burrowing owl, a state SSC that is a covered species under the MSHCP. This species inhabits open, dry, level, or nearly level grassland, prairie, desert floor, and shrubland habitats when shrub cover is less than 30 percent. In coastal Southern California, a substantial number of birds are found in microhabitats that have been highly altered by man, including flood control and irrigation basins, dikes, and banks; abandoned fields surrounded by agriculture; and road cuts and margins. There is a strong association between burrowing owls and burrowing mammals, especially ground squirrels (*Spermophilus* spp.); however, they also occupy human-made niches such as banks and ditches, piles of broken concrete, and even abandoned structures.

Survey Results

Under the MSHCP, a burrowing owl focused survey is required in the MSHCP burrowing owl survey area (**Appendix A, Figure 4c**) when suitable habitat is present. In the BSA, approximately 819.70 acres of potentially suitable habitat occurs within the MSHCP burrowing owl survey area in the form of Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Arrow Weed Thickets, Salt Grass Flats, Brittle Bush Scrub, Scale Broom Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Quailbush Scrub, Agriculture, and Disturbed habitats. Habitat quality for burrowing owl within the BSA varies based on the level of human disturbance with some low-quality areas and some high-quality areas. In the BSA, potential habitat for burrowing owl occurs within and outside of MSHCP criteria cells. Both potential foraging and nesting habitat exists in the BSA.

The focused survey for burrowing owl was performed from February to July 2020 (Appendix G, Table G-8) where access was available. Additional surveys in areas where access was not possible in 2020 were completed in 2021. The location of the BSA for burrowing owl and potentially suitable burrow features are illustrated in **Appendix A, Figure 10**. No burrowing owl sign or individuals were detected in the BSA during the 2020/2021 focused survey work.

Project Impacts

Build Alternative

Approximately 114.89 acres of suitable habitat for burrowing owl within the MSHCP Survey Area would be affected during construction of the project (20.65 acres permanent, 93.83 acres temporary, and 0.41 acre shading). Based on survey results from 2020, the Project is not expected to affect burrowing owl during construction or operation of the facility because burrowing owl is absent from the BSA. Additional surveys were completed in 2021 in areas that were not previously accessible, and the species was not found. Burrowing owl is determined to be absent from the BSA; however, because burrowing owl is a highly mobile species, it can occur at any time of year and breed in the BSA area in the future. If

burrowing owl moves into the BSA prior to construction, avoidance and minimization measures would be required to ensure impacts on the species are avoided.

No-Build Alternative

If the Project is not constructed, it is not expected to have impacts on burrowing owl.

Avoidance and Minimization Efforts

Build Alternative

Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-18, Night Lighting Management;** and **BIO-24, Waste Management** would avoid or minimize potential direct and indirect impacts on burrowing owl if the species is present adjacent to or in the vicinity of the LOD during construction. A burrowing owl management plan would be drafted with final approval by RCA, USFWS, and CDFW (measure **BIO-25, Burrowing Owl Management Plan**). The management plan would ensure that an approach is available and agreed upon by the resource agencies for handling the species if the species moves into the LOD. This would avoid or minimize potential project delays and ensure compliance with the MSHCP.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Based on the survey results, no compensatory mitigation is necessary.

No-Build Alternative

Compensation is not required.

Cumulative Effects

Build Alternative

Based on the survey results and existing disturbances within the LOD, no cumulative impacts on burrowing owl are expected.

No-Build Alternative

The No-Build Alternative is not expected to add cumulative impacts on burrowing owl or suitable habitat.

Discussion of Long-Eared Owl

The long-eared owl is a state SSC and not a covered species under the MSHCP. In Southern California, the species breeds and roosts in extensive riparian and oak forests and hunts small mammals at night in adjacent open habitats. It is known to breed in Prado Basin, downstream of the study area. This species will tolerate only low-level disturbances where it roosts and nests; foraging grounds need to be in the vicinity.

Survey Results

The BSA contains 83.28 acres of suitable nesting and roosting habitat for long-eared owl within the riparian forest (Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, and California Sycamore Woodland). Potential foraging habitat for this species occurs within open lands.

Project Impacts

Build Alternative

Construction of the Build Alternative may result in the direct removal of an estimated 0.45 acre of potentially suitable short-term nesting and roosting habitat at Temescal Wash, including 0.41 acre of temporary impacts, and 0.04 acre of impacts due to shading effects in the LOD (Table 4-6). If the species is roosting in Temescal Wash, construction noise and activities could increase the risk of predation and degrade habitat. Measures identified here would avoid or minimize such potential indirect effects, including direct mortality, during construction.

It is less than reasonable to assume that operation and maintenance of the Project would affect long-eared owl beyond existing baseline conditions. There is a low likelihood for the species' presence, and only a very low number of individuals (if present) could be affected by the Project; therefore, the risk of vehicle strikes from a widened median is not expected to increase. The Project would not pose a biologically substantial risk to long-eared owl.

No-Build Alternative

If the Project is not constructed, it is not expected to have impacts on long-eared owl.

Avoidance and Minimization Efforts

Build Alternative

Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-18, Night Lighting Management; BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-24, Waste Management;** and **BIO-28, Nesting Bird Management Plan,** which are being applied for MSHCP consistency, would also provide protection to potentially suitable habitat adjacent to the Project.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

No compensation is required for long-eared owl.

No-Build Alternative

Compensation is not required.

Cumulative Effects

Build Alternative

The Project would remove a limited amount of potential short-term nesting and roosting habitat for long-eared owl. This species has very low to low potential for occurrence in the BSA. The probability of this species being affected by the Project is also very low, with the number of individuals affected over time estimated to be few to none. The Project has a less-than-reasonable chance of contributing to a regional decline of long-eared owl at a cumulatively considerable level.

No-Build Alternative

The No-Build Alternative is not expected to add cumulative impacts on long-eared owl or suitable habitat.

Discussion of Grasshopper Sparrow

The grasshopper sparrow is a state SSC. Under the MSHCP, there are species-specific conservation objectives that need to be met before this is a fully covered species. These conservation objectives have not yet been met for the Plan. Therefore, this species is essentially treated in this report as not covered by the MSHCP. The species occurs predominantly in open grassland, with use of some other habitats, including alluvial playa and sparse coastal sage scrub when enough intermittent grass or grassland habitat are available (MSHCP Volume II). Prior to 2005, the grasshopper sparrow was found throughout western Riverside County (Shuford and Gardali 2008). Since then, many of the occupied areas have been developed, and the species has become rare.

Survey Results

The BSA contains 387.67 acres of suitable habitat for grasshopper sparrow within grassland habitats including Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, and Salt Grass Flats. This species was not detected during any of the field studies for the Project, but there is a moderate likelihood that it is present.

Project Impacts

Build Alternative

Construction of the Build Alternative would result in the potential direct removal of an estimated 107.07 acres of suitable habitat including permanent impacts of 10.51 acres, temporary impacts of 96.34 acres, and temporary effects of 0.22 acre due to shading in the LOD (Table 4-6). Direct removal of habitat could affect breeding individuals and remove potential foraging habitat.

Indirect impacts, such as degradation of potential habitat through an increase in dust and noise during construction, could conceivably affect the species in the vicinity of the LOD; however, this is very unlikely. The measures identified here would ensure that impacts on areas adjacent to the Project would be minimized or avoided.

The low likelihood for grasshopper sparrow to occur adjacent to the highway in any measurable numbers (if at all) greatly reduces the potential of the Project to impact grasshopper sparrows above existing baseline conditions. The number of individuals potentially killed from vehicle strikes or affected by existing highway noise and pollution is so low that the addition of lanes within the existing median by the Build Alternative is not expected to increase this potential impact.

No-Build Alternative

If the Project is not constructed, it is not expected to have impacts on grasshopper sparrow.

Avoidance and Minimization Efforts

Build Alternative

Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-18, Night Lighting Management; BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-24, Waste Management;** and **BIO-28, Nesting Bird Management Plan** would provide protection to potentially suitable habitat adjacent to the Project.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

No compensation is required for grasshopper sparrow.

No-Build Alternative

Compensation is not required.

Cumulative Effects

Build Alternative

Grasshopper sparrows are intolerant to a high degree of disturbance, so it is unlikely that this species is present within the LOD. Therefore, it is expected that only indirect effects would occur for this species. Operation of the Project could conceivably affect a few grasshopper sparrows, but it would not be reasonable to conclude that the Project would contribute to a potentially cumulative impact.

No-Build Alternative

The No-Build Alternative is not expected to add cumulative impacts on grasshopper sparrows or suitable habitat.

Discussion of Bat Species

This section addresses potential effects on special-status bats, which are not covered by the MSHCP. The special-status bats with potential to occur in the BSA include: pallid bat, western mastiff bat, western red bat, western yellow bat, pocketed free-tailed bat, and big free-tailed bat. All of these species are state SSC.

Pallid bats are found in grasslands, and in mixed conifer forest, shrublands, woodlands, and forest; they are most common in open, dry habitats with rocky areas for roosting; and are a yearlong resident in most of the region. This species is thought to roost in rock crevices, old buildings, bridges, caves, mines, and hollow trees.

Suitable habitat for western mastiff bats includes mountain meadows, dry desert washes, floodplains, chaparral, oak woodland, grassland, and agricultural areas, where primarily moths are consumed. This species has a low potential to use bridges and buildings as roosting sites, as they prefer to roost in high structures such as cliffs and high buildings, but possibly tall palm trees.

Suitable roosts for western red bats include California Sycamore Woodland and Fremont Cottonwood Forest and Woodland habitat present in the BSA. Orchard trees in agricultural areas provide additional roost sites.

Western yellow bats are often associated with palm oases, but may be expanding their range to palms used in landscaping. Suitable roost sites for this species include woodland and shrubland areas containing palms (Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Mulefat Thickets, Eucalyptus–Tree of Heaven–Black Locust Groves, and Pepper Tree or Myoporum Forest and Woodland).

Pocketed free-tailed bats occur in a variety of habitats in California including desert scrub, desert riparian, chaparral, and pine-oak forests. This species roosts in high rock crevices, bridges, roofs, buildings, and cliffs, and they forage primarily on large moths, especially over water. Big free-tailed bats require high

crevices in cliffs/rock outcrops for roosting, but also roost in buildings, caves, and holes in trees. This species is found associated with desert scrub, arroyo, and woodland habitats.

Many other species of bats have potential to occur but have no special-status. However, they would benefit from the protective measures identified in this section. CDFW has increased its requirements for projects to ensure that direct mortality to all bat species does not occur, regardless of whether or not the species has special-status. Bat populations throughout the state of California have declined greatly in the past decade because of human development (habitat loss and degradation), increased predation pressures, and possibly disease.

Survey Results

Both foraging and roosting habitat is present for several special-status bat species in the BSA. Temescal Wash and surrounding vegetation and bridges have the highest potential for foraging and roosting habitat in the BSA.

Suitable roosting habitat for pallid bats would potentially include all areas under bridges (2.25 acres) and habitats (132.31 acres) containing trees, including Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Mulefat Thickets, Salt Grass Flats, Tamarisk Thickets, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, Scrub Oak Chaparral, California Sycamore Woodland, Eucalyptus–Tree of Heaven–Black Locust Groves, and Pepper Tree or Myoporum Forest and Woodland habitat, for a total of 134.56 acres.

Suitable roosting habitat for western mastiff bats would include 143.86 acres only in areas with tall palm trees, which could include Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Mulefat Thickets, Eucalyptus–Tree of Heaven–Black Locust Groves, and Pepper Tree or Myoporum Forest and Woodland.

Suitable roost sites for western red bats would potentially include 58.90 acres of habitat in Fremont Cottonwood Forest and Woodland, California Sycamore Woodland, and Agriculture.

Western yellow bats roost sites would potentially include 143.86 acres of habitat associated with palm oases with suitable roost sites for this species potentially occurring in Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Mulefat Thickets, Eucalyptus–Tree of Heaven–Black Locust Groves, and Pepper Tree or Myoporum Forest and Woodland.

Pocketed free-tailed bats roost in high rock crevices, bridges, roofs, buildings, and cliffs and suitable roosting habitat would be present in the BSA only in the bridges. Potentially suitable habitat for this species includes approximately 2.25 acres under the bridges at Temescal Canyon Road, to the north of this bridge where Mayhew Wash crosses I-15, and at the bridge at Coldwater Wash.

Big free-tailed bats require high crevices in cliffs/rock outcrops for roosting, but also roost in buildings, caves, and holes in trees. Suitable roosting for this species would be found in bridges (2.25 acres) with an additional 132.31 acres of potentially suitable roosting habitat in Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, California Sycamore Woodland, Eucalyptus–Tree of Heaven–Black Locust Groves, and Pepper Tree or Myoporum Forest and Woodland, for a total of 134.56 acres of potential roosting habitat.

Potential foraging habitat all of the special-status bat species is present throughout the BSA with a general estimate of 1,640 acres, including Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Arrow Weed Thickets, Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Mulefat Thickets, Salt Grass Flats, Tamarisk Thickets, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, Scrub Oak Chaparral, California Sycamore Woodland, Eucalyptus–Tree of Heaven–Black Locust Groves, Pepper Tree or Myoporum Forest and Woodland, Agriculture, and Disturbed communities.

Habitat assessments were conducted in May 2020 and January 2022. Sites 1, 3, 5, 6, and 7 were surveyed once. Sites 2 and 4 were surveyed twice because the culverts had high potential for bats and only a few calls were recorded on the first night. Sites 8, 9, 10, and 11a were surveyed twice, as these surveys were required as a part of a preconstruction survey. Site 12 was not surveyed for bats but will be surveyed during preconstruction surveys. The survey results are included in Table 4-7. No special-status bat species were detected at any of the 12 sites. These surveys provide some information regarding special-status bat species use of the BSA, but they cannot definitively rule out the presence of these species in the BSA.

Five sites were identified as having high potential for large colonies of day roosting bats to roost during the habitat assessment (**Appendix A, Figure 11**), Sites 1, 2, 3, 4, and 11a. Sites 1 and 2 are concrete box culverts under I-15. Approximately 30 to 40 bats emerged from the culvert at Site 1, with approximately 30 bats exiting the culvert at Site 2. *Myotis* sp., Yuma myotis (*Myotis yumanensis*), canyon bat (*Parastrellus hesperus*), and Mexican free-tailed bat (*Tadarida brasiliensis*) were detected at Site 1. Silver-haired bat (*Lasionycteris noctivagans*) was observed at Site 2. Site 3 is a bridge over Coldwater Creek. Approximately 30 to 40 bats emerged from the culvert at Site 3. California myotis (*Myotis californicus*), Yuma myotis, big brown bat (*Eptesicus fuscus)*, and canyon bat were observed at Site 3. Site 4 consists of two bridges, one over Mayhew Wash and one over Temescal Canyon Road. Only one bat was observed leaving Site 4 and one poor quality call was recorded. The bat species in the call could not be identified. Site 11a includes the Bedford Wash Bridges (Bridge Nos. 56-0540L and 56-0540R), where expansion joints and bridge gaps were identified as potential bat roosting sites. One area of guano deposition below the NB bridge and staining on the bridge soffit above was determined to be the location of a bat night roost. Numerous canyon bat (*Parastrellus hesperus*) calls and one potential Mexican free-tailed bat (*Tadarida brasiliensis*) call were recorded by the Bedford Wash Bridges. It is likely that canyon bats are using the wash as a flyway for feeding.

Six sites were identified as having moderate potential for bat species to roost; Sites 5, 6, 7, 8, 9, and 12. Acoustic/emergence surveys for those areas were conducted in 2021. Site 5 is a culvert west of the SB I-

15 off-ramp at Lake Street. The box culvert at Site 6 occurs east of the I-15 along Walker Canyon Road and has moderate potential for bats. Site 7 also occurs east of I-15 just south of Site 6, and it consists of a bridge and the adjacent culvert.

Site 8 is the Cajalco Road overcrossing [Bridge Number (No.) 56-0863]). There are some vertical openings on the northern wingwall suitable for bat roosting. The vertical gaps are of poor quality for roosting, having openings at the top that expose the gaps to the elements. There were small signs of bat urination on the southern wingwall present. Although drainage holes were present under the bridge, all of the holes that were visible had a wire mesh covering them.

Site 9 is the palm grove between the Cajalco Road overcrossing and the Bedford Wash Bridges. These areas are suitable for western yellow bat (*Lasiurus xanthinus*). No bat calls were recorded during the emergence surveys at the palm grove, and no guano was observed at the base of the palm trees.

Site 12 is the Weirick Road undercrossing. A central covered gap within each span in Weirick Road (potential bat night roosts) and drainage holes (potential bat day roosts) provide potential bat habitat to be evaluated during the bat preconstruction surveys.

Site 10 is the pond adjacent to the palm grove and is not currently within the LOD. Site 10 would only be used for foraging, and not for roosting. Numerous canyon bat (*Parastrellus hesperus*) calls were recorded and observed over the pond. These recordings indicate bat presence in the area, and it is likely the canyon bats were using Bedford Wash as a flyway for feeding.

Site 11b is the NB Cajalco Road off-ramp bridge (Bridge No. 58-0864S) to the northeast of the Bedford Wash bridges, and it has a low potential for bat roost sites. Some weep holes were observed under this bridge during the April 20, 2022 surveys; however, it was noted that there was no evidence these were used by bats. A swallow species was flying in and out of the drainage holes of this bridge and were potentially nesting within the bridge.

Table 4-7. Bat Survey Results

Site	Date	Start/End Times	Observations	Species detected
Site 1 (concrete box culvert under I-15, PM 34.2)	5/8/2020	Habitat assessment • Start 15:16 • End 21:20	• High potential for bat roosting. Two swell joints provide suitable bat roost habitat. Evidence (droppings) of activity.	• None
	9/15/2020	• Start 18:30 = 88°F, 0–1 mph, hazy/smoky skies • End 20:30 = 77°F, calm, hazy/smoky skies	• First bat observed at 19:07. • Observed approximately 30–40 bats emerging from culvert.	• *Myotis* sp. • Yuma myotis • Canyon bat • Mexican free-tailed bat
Site 2 (concrete box culvert under I-15, PM 33.9)	5/8/2020	Habitat assessment • Start 15:16 • End 21:20	• Active, bats observed roosting in swell crack.	• Unknown bat species
	9/15/2020	• Start 18:30 = 88°F, 0–1 mph, hazy/smoky skies • End 20:30 = 77°F, calm, hazy/smoky skies	• First bat observed at 19:02 • Observed approximately 30 bats fly out of culvert, with 4 bats flying over. • At 19:30 light from adjoining property turned on.	• Silver-haired bat*
	9/28/2020	• Start 18:30 = 90°◦F, 0–1 mph, clear skies • End 20:30 = 86°F, 1–3 mph, clear skies	• Site was resurveyed to determine if more bats could be recorded.	• California myotis • Yuma myotis • Canyon bat • Mexican free-tailed bat • Silver-haired bat or big brown bat (not enough info in the recording to definitively identify; could be either of those species) • Hoary bat (*Lasiurus cinereus*) or Mexican free-tailed bat (poor quality cannot definitively identify, likely hoary bat)

Table 4-7. Bat Survey Results

Site	Date	Start/End Times	Observations	Species detected
Site 3 (bridge over Coldwater Creek, PM 33.0)	5/8/2020	Habitat assessment • Start 15:16 • End 21:20	• Moderate potential for bat roosting. Swell crack on west side of NB bridge provides suitable roosting habitat. Also weep holes on NB and SB bridges. White-throated swifts nesting in weep holes.	• None
	9/16/2020	• Start 18:30 = 88°F, 2-4 mph, clear skies • End 20:30 = 82°F, 1–3 mph, clear skies	• First bat observed at 19:07. • Observed approximately 30–40 bats emerging from culvert	• California myotis • Yuma myotis • Big brown bat • Canyon bat
Site 4 (two bridges – Mayhew Wash, Temescal Canyon Road, PM 31.9)	5/8/2020	Habitat assessment • Start 15:16 • End 21:20	• High potential for bat roosting. Crevice on east side of SB bridge at bridge abutment. Droppings on ground. Weep holes at bridge abutments. Bats may be using old swallow nests on both bridges.	• None
	9/16/2020	• Start 18:30 = 90°F, 0–1 mph, clear skies • End 20:30 = 86°F, 1–3 mph, clear skies	• Only one at observed at 19:16. Not observed emerging from overpass.	• One poor quality call. Bat species could not be identified.
	9/28/2020	• Start 18:30 = 85°F, 2–5 mph, clear skies • End 20:30 = 82°F, 1–3 mph, clear skies	• Site was resurveyed because only one bat was detected during previous survey. • Only one observed at 19:02. Not observed emerging from overpass.	• No bats were recorded.
Site 5 (culvert I-15 and Lake Street, PM 27.9)	5/16/2020	Habitat assessment • Start 14:00 • End 16:00	• Unknown potential for bat roosting. Did not enter because could not see opposite side.	• None
	7/28/2021	• Start 19:35 = 90°F, 0–1 mph, clear skies • End 20:45 = 82°F, 0–1 mph, clear skies	• Observed approximately 74 bats emerging from culvert between 20:06 and 20:28.	• Canyon bat • Silver-haired bat (only one call recorded)

Table 4-7. Bat Survey Results

Site	Date	Start/End Times	Observations	Species detected
Site 6 (box culvert, Walker Canyon Road, PM 26.5)	5/8/2020	Habitat assessment • Start 15:16 • End 21:20	• Possibly moderate potential for bat roosting. Culvert. Did not enter.	• None
	7/28/2021	• Start 19:35 = 87°F, 1–2 mph, high humidity, mostly clear skies • End 20:45 = 84°F, 1–2 mph, humid, mostly clear skies	• No bats observed emerging from culvert. • Observed 1–3 bats flying/foraging in trees north of culvert between 20:15 and 20:36.	• Mexican free-tailed bat - (only one call recorded) • California myotis or Yuma myotis (*Myotis* sp.) (several high frequency myotis calls that were all very poor quality)
Site 7 (bridge and adjacent culvert, south of Site 6, PM 25.48)	5/14/2020	Habitat assessment • Start 17:30 • End 18:00	• Low/moderate potential for bat roosting. Three-foot-tall box culvert. Did not enter.	• None
	7/28/2021	• Start 19:35 = 87°F, 1–2 mph, high humidity, mostly clear skies • End 20:45 = 84°F, 1–2 mph, humid, mostly clear skies	• Two bats observed in flight circling within the culvert. • A third bat was observed hanging from a joint in the culvert and then flew off. • By 20:07 all three bats had left the culvert and flew to the northwest toward Site 6. • No other bats were observed.	• California myotis or Yuma myotis (several-high frequency myotis calls that were all very poor quality)
Site 8 (Cajalco Road OC, Bridge No. 56-0863, PM 36.9)	5/8/2020	Habitat assessment • Start 15:16 • End 21:20	• No suitable bat roosting habitat. No swell joints or weep holes. An additional habitat assessment was conducted in 2022.	• None

Table 4-7. Bat Survey Results

Site	Date	Start/End Times	Observations	Species detected
Site 8 (Cajalco Road OC, western end, Bridge No. 56-0863, PM 36.9)	1/26/2022	Habitat assessment • Start 10:30 = mid-60°F, 0–5 mph, clear with a few clouds • End 11:45 = mid-60°F, 0–5 mph, clear with a few clouds	• A potential bat roost, a vertical crevice, was observed on the northwest abutment of Cajalco Road overcrossing. • Drainage holes were present under the bridge, but they appeared to all be blocked with a wire mesh. • A covered gap was present under the length of the bridge providing a potential area for bat night roosts.	• No bats were recorded.
	4/20/2022	• Start 18:00 • End 21:20 = high-50°F, mostly clear	• Drainage holes (6-inch) under overcrossing were vacant. • Urine stains were observed on the southwest corner of the overcrossing. • On the northern wingwall of the overcrossing, there are some vertical openings (possible uneven settlement) with no bats or signs of bat activity. • On southern wingwall, there is small sign of bat urination, but no nesting or other signs, such as guano. • No bats were observed. • No calls were recorded.	• No bats were recorded.
	5/18/2022	• Start: 19:51 • End: 21:21	• Two vertical gaps in the north-facing side of the Cajalco Road OC Bridge are structurally suitable for bat roosting, but they are of poor quality, having openings at the top that expose the gaps to the elements. • No bats were observed. • No calls were recorded.	• No bats were recorded.

Table 4-7. Bat Survey Results

Site	Date	Start/End Times	Observations	Species detected
Site 9 (Palm Grove, PM 36.7)	1/26/2022	Habitat assessment • Start 10:30 = mid-60°F, 0–5 mph, clear with a few clouds • End 11:45 = mid-60°F, 0–5 mph, clear with a few clouds	• Potential bat day roost sites under dead fronds. • No bats or bat evidence observed.	• No bats were recorded.
	4/20/2022	• Start 18:00 • End 21:20 = high-50°F, mostly clear	• No bats were observed. • No calls were recorded.	• No bats were recorded.
	5/18/2022	• Start: 19:51 • End: 21:21	• No bats were observed. • No calls were recorded.	• No bats were recorded.
Site 10 (pond – foraging only, PM 36.6)	4/20/2022	• Start 18:00 • End 21:20 = high-50°F, mostly clear	• No bats were observed. • No calls were recorded.	• No bats were recorded.
	5/18/2022	• Start: 19:51 • End: 21:21	• No bats were observed. • Numerous canyon bat over the pond. Likely that the canyon bats are using the wash as a flyway for feeding.	• Canyon bat
Site 11a (Bedford Wash Bridges, Bridge Nos. 56-0540L and 56-0540R PM 36.58)	1/26/2022	Habitat assessment • Start 10:30 = mid-60°F, 0–5 mph, clear with a few clouds • End 11:45 = mid-60°F, 0–5 mph, clear with a few clouds	• The underside of each of the NB and SB spans had open box girders which could be potential sites for bat night roosts.	• No bats were recorded.
	4/20/2022	• Start 18:00 • End 21:20 = high-50°F, mostly clear	• No bats were observed. • Bat night roost found under the NB Bedford Wash Bridge. • The roost observed under Bedford Wash bridge is likely a night roost to stop at temporarily during night foraging. • Unlikely that day roosting occurs. • Several culverts surveyed in/near the wash (up close and at a distance with binoculars).	• Canyon bat • Mexican free-tailed bat

Table 4-7. Bat Survey Results

Site	Date	Start/End Times	Observations	Species detected
			• Numerous canyon bat calls and one potential Mexican free-tailed bat call were recorded. It is likely that the canyon bats are using the wash as a flyway for feeding.	
	5/18/2022	• Start: 19:51 • End: 21:21	• No bats were observed. • No calls were recorded.	• No bats were recorded.
Site 11b (NB Cajalco Road off-ramp bridge [Bridge No. 56-0864S])	4/20/2022	• Start 18:00 • End 21:20 = high-50°F, mostly clear	• There were some weep holes under the NB Cajalco Road offramp bridge, but they were not used by bats. However, there is still a low potential for bat roosts in this bridge due to the presence of these weep/drainage holes. • A swallow species was flying in and out of the drainage holes of the NB Cajalco Road off-ramp bridge over Bedford Wash and was potentially nesting within the NB Cajalco Road off-ramp bridge. • Numerous canyon bat calls and one potential Mexican free-tailed bat call were recorded. It is likely that the canyon bats are using the wash as a flyway for feeding.	• Canyon bat • Mexican free-tailed bat
	5/18/2022	• Start: 19:51 • End: 21:21	• No bats were observed. • No calls were recorded.	• No bats were recorded.

Table 4-7. Bat Survey Results

Site	Date	Start/End Times	Observations	Species detected
Site 12 (Weirick Road Undercrossing, PM 35.7)	5/8/2020	Habitat assessment • Start 15:16 • End 21:20	• Low potential for bat roosting. Weep holes on NB and SB lane bridges provide low potential. White-throated swifts nesting in weep holes.	• None
	1/26/2022	Habitat assessment • Start 10:30 = mid-60°F, 0–5 mph, clear with a few clouds • End 11:45 = mid-60°F, 0–5 mph, clear with a few clouds	• Two spans of Weirick Road undercrossing have potential for bat roosts (day roosts) in the drainage holes and the covered gap underneath each span (night roosts).	• No bats were recorded.

* Likely the species recorded, but due to the poor quality of the recording definitive identification could not be made.

Project Impacts

Build Alternative

Direct impacts on pallid bat roosting habitat include 6.76 acres with 0.01 acre of these impacts being permanent, 6.41 acres being temporary, and 0.34 acre being due to shading effects. Direct impacts on western mastiff bat roosting habitat include 4.78 acres with 0.01 acre of these impacts being permanent, 4.73 acres being temporary, and 0.04 acre being due to shading effects. Direct impacts on western red bat roosting habitat includes 0.38 acre of temporary impact, and no permanent or shading effects. Direct impacts on western yellow bat roosting habitat include 4.78 acres with 0.01 acre of these impacts being permanent, 4.73 acres being temporary, and 0.04 acre being due to shading effects. Direct impacts on pocketed free-tailed bat roosting habitat include 2.25 acres with no permanent effects, 1.95 acre of temporary impacts, and 0.30 acre being due to shading effects. Direct impacts on big free-tailed bat roosting habitat include 6.76 acres with 0.01 acre of these impacts being permanent, 6.41 acres being temporary, and 0.34 acre being due to shading effects. The overall direct effects of the Project on bat foraging habitat include 391.89 acres with 95.51 acres of permanent impacts, 292.60 acres of temporary impacts, and 3.38 acres of shading effects in the LOD under the Build Alternative (Table 4-6). Potential foraging and roosting habitat associated with the drainages and bridges over drainages is judged to be of moderate to high quality. During construction, roosting habitat would be temporarily unavailable for the duration of construction at Temescal Wash and associated tributaries, woodland areas (where palms or cottonwoods are present), and if bats are present at other structures, they too may be affected this way. This would occur at bridges (i.e., within hinges or other structural components) or trees that support bat habitat. For some locations, it may not be the actual roost habitat that would be manipulated during construction, but the bats may still avoid the structure because of human presence and vibration during construction.

Operation of the Build Alternative may have the potential to affect bats negatively, but whether this would differ from existing baseline conditions is difficult to ascertain. As discussed previously, bats are not expected to forage directly adjacent to the ROW, and any bats present at the Temescal Wash would most likely not suffer any greater risk of vehicle strike than what currently exists. Increases in shading effects for species that use bridges (including pallid bat, pocketed free-tailed bat, and big free-tailed bat) may reduce foraging areas but, at the same time, increase potential roost sites for these species, which would be beneficial. The closure of the gap between the bridges may also reduce the risk of vehicle strikes from bats leaving roosts, also creating a beneficial effect. Indirect effects may occur if night work is to occur. This may disrupt foraging at water sources, or in areas with night lighting that may be disturbed. Increases in night lighting may also draw bats into or near the work areas, increasing direct effects due to collisions with construction-related equipment.

No-Build Alternative

The No-Build Alternative is not expected to add impacts on special-status bats or suitable habitat.

Avoidance and Minimization Efforts

Build Alternative

Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-18, Night Lighting Management; BIO-21, Temescal Wash – Nesting Season Noise Requirements;** and **BIO-24, Waste Management**, which are being implemented for MSHCP consistency, would coincidentally provide protection to potential bat foraging and roosting habitat adjacent to the LOD during construction. The Bat Management Plan (measure **BIO-26, Bat Management Plan**) reduces the potential that direct mortality of bats would not occur and that a streamlined approach to handling the presence of bats would be created for the Project to avoid or minimize potential project delays. In addition, measure **BIO-26, Bat Management Plan** ensures temporary replacement of any occupied bat roosting/nursery habitat during construction. Non-special-status bats would also benefit from these measures.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

Bat roosts or nurseries for colonial bats are likely at Sites 1, 2, 3, and 5 as many individuals emerged from one site. Measure **BIO-27, Bat Roosting Habitat** ensures no permanent loss of roosting habitat.

No-Build Alternative

Compensation is not required.

Cumulative Effects

Build Alternative

The Build Alternative would remove potentially suitable foraging habitat for six state SSC bats within Temescal Wash, in wooded areas, and in adjacent open lands. With implementation of the measures identified here, no loss of potential bat roosting habitat would occur for these six species. With implementation of these measures, there remains the question of whether the Project would substantially contribute to potential cumulative impacts on these species. Because the Project would occur within the existing I-15 ROW, it is difficult to conclude that the Project would make a cumulative contribution to a regional decline in these species of bats. The lands proposed for removal within the Caltrans ROW are not expected to support bat foraging habitat due to the high degree of disturbance within the planned work areas. Additionally, it is unlikely that the increased traffic would increase mortality of bats. The potential exists for the Project to increase air pollution and noise, but it is less than reasonable to assume that this

would be different from the No-Build Alternative's contribution. Cumulative impacts are not judged to be considerable.

No-Build Alternative

The No-Build Alternative is not expected to add cumulative impacts on special-status bats or suitable habitat.

Discussion of Non-Listed MSHCP Fully Covered Animal Species

There are 18 non-listed, special-status species that are fully covered under the MSHCP and have potential to occur within the BSA. These species, which do not require additional study at the species level, include arroyo chub, coast range newt, western spadefoot, Belding's orange-throated whiptail, red-diamond rattlesnake, San Diego coast horned lizard, white-tailed kite, northern harrier, golden eagle, American peregrine falcon, loggerhead shrike, coastal cactus wren, yellow warbler, yellow-breasted chat, San Diego black-tailed jackrabbit, northwestern San Diego pocket mouse, Los Angeles pocket mouse, and San Diego desert woodrat. Although all of these species are covered under the Plan, the birds and their active nests are protected under the MBTA, BGEPA, and California Fish and Game Code (refer to Appendix B for a summary of the habitat requirements and status of each species).

The only species with a MSHCP survey area is Los Angeles pocket mouse; however, the MSHCP survey area for this species occurs outside of the BSA. Therefore, no survey was required, and it is afforded full coverage.

All 18 species are state SSC, with white-tailed kite also being a fully protected species under California Fish and Game Code.

Survey Results

The BSA contains 1,295.63 acres of suitable habitat for these non-listed MSHCP covered animal species in the form of Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Oats and Annual Brome Grasslands, Upland Mustard and Star Thistle Fields, Wild Tarragon Patches, Arrow Weed Thickets, Coast Live Oak Woodland and Forest, Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Mulefat Thickets, Salt Grass Flats, Tamarisk Thickets, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, Scrub Oak Chaparral, California Sycamore Woodland, Eucalyptus–Tree of Heaven–Black Locust Groves, Pepper Tree or Myoporum Forest and Woodland, and Agricultural areas. Potential suitability of the habitats ranges from low quality to high quality with areas within and directly adjacent to the LOD providing low quality and areas farther from the LOD providing higher quality.

Project Impacts

Build Alternative

Approximately 248.70 acres of potentially suitable habitat for non-listed animals fully covered under the MSHCP may be removed during construction of the Project, with 13.85 acres of these impacts being permanent, 234.19 acres being temporary, and 0.66 acre being due to shading effects in the LOD under the Build Alternative (Table 4-6). The potential habitat proposed for potential removal is of low to moderate quality because of the adjacency to I-15 and maintained ROW. During construction, the potential indirect effects on habitat adjacent to the LOD include, but are not limited to, reduced habitat quality from dust, litter, air pollution, and the transport of invasive species, along with habitat avoidance from noise and increased human activity. The potential exists for direct impacts on active bird nests during construction of the Project. The removal of an active nest would trigger consideration of the MBTA and California Fish and Game Code. The measures identified below would protect nesting birds and ensure that the Project would not result in direct mortality of any of the bird species, including white-tailed kite.

No-Build Alternative

If the Project is not constructed, it is not expected to have impacts on non-listed animals fully covered under the MSHCP.

Avoidance and Minimization Efforts

Build Alternative

Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-15, DBESP; BIO-16, Riparian/Riverine Compensation; BIO-17, Compensatory Mitigation; BIO-18, Night Lighting Management; BIO-19, Oak Tree Management; BIO-20, Wildlife Undercrossings; BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-22, Temescal Wash – Biological Monitoring; BIO-25, Burrowing Owl Management Plan;** and **BIO-28, Nesting Bird Management Plan** provide the necessary means to avoid direct and indirect impacts on nesting birds. If construction begins during the breeding season, measure **BIO-28, Nesting Bird Management Plan** ensures that active nests will not be affected during construction. Implementation of these measures would ensure consistency with the MSHCP during construction activities.

No-Build Alternative

Avoidance or minimization measures would not apply under a No-Build Alternative.

Compensatory Mitigation

Build Alternative

No compensation is required for non-listed animals fully covered under the MSHCP.

No-Build Alternative

Compensation is not required.

Cumulative Effects

Build Alternative

Most of these species are relatively common throughout western Riverside County, and the number of individuals directly affected is expected to be low. Implementation of the Project would not make a cumulatively considerable contribution to a regional decline in any of these species, excluding loggerhead shrike. The degree to which the Project would affect these species (not including loggerhead shrike) in relationship to future planned projects is too low to trigger considerable cumulative effects. Because of the decline of loggerhead shrike over the past decade, there is potential for the Project to make a cumulatively considerable contribution to a regional decline of loggerhead shrike. However, any potential cumulative impacts on these species (including loggerhead shrike) would be fully mitigated by the MSHCP.

No-Build Alternative

The No-Build Alternative is not expected to add cumulative impacts on non-listed MSHCP-fully covered animals or suitable habitat.

5 Conclusions and Regulatory Determinations

5.1 Federal Endangered Species Act Consultation Summary

There has been no FESA consultation to date. Consultation will commence once Caltrans approves the NES and the necessary documents, including the DBESP, are provided to USFWS. As RCTC is a permittee of the MSHCP, take authorization would occur through the Project's consistency with the MSHCP. This would occur through the JPR process, whereby the JPR application and supporting documentation will be reviewed and concurrence with the Project's consistency with the MSHCP would be provided.

Fifteen federally listed species were determined to have potential to occur in the BSA and be affected by the Project. In addition, the following four species are fully covered species under the MSHCP with no survey requirement, and take authorization for these species would be provided under the MSHCP: Quino checkerspot butterfly, coastal California gnatcatcher, SBKR, and SKR. For SKR, take authorization would be provided by the MSHCP where the SKR HCP does not provide coverage. For potential take of SKR within the SKR HCP boundaries, the SKR HCP would provide take authorization. With implementation of the avoidance and minimization measures (**BIO-1** through **BIO-14, BIO-18, BIO-21**, **BIO-22,** and **BIO-24**) listed in Appendix L, the Project would be in conformance with the MSHCP.

Potential habitat for Riverside fairy shrimp, vernal pool fairy shrimp, and San Diego fairy shrimp was determined to be present in the BSA. A focused survey for these three species was performed in 2020 and 2021 within the entire LOD and within the 100-foot buffer where access was available. All three species were absent from wet- and dry- season surveys. No potential impacts on these species are anticipated.

Potential habitat for SWFL and LBV was determined to be present in the BSA. Focused studies were conducted for these species in 2020 and 2021. SWFL are absent from the BSA, and no impacts would occur. Eleven LBV use areas were detected. Under the Build Alternative, occupied LBV habitat would be directly removed at Temescal Wash and associated tributaries containing riparian vegetation. Potential indirect impacts on remaining occupied LBV habitat during construction would be avoided or minimized with implementation of measures **BIO-1** through **BIO-14, BIO-18, BIO-21**, and **BIO-24**, as listed in Appendix L. Under the MSHCP, a DBESP (Measure **BIO-15**) and compensation would be required for impacts on LBV, as detailed in measure **BIO-23**. Consistency with the MSHCP would provide take coverage for this listed species with the consistency review performed by RCA, USFWS, and CDFW.

Critical habitat for CAGN and San Diego ambrosia occurs within the BSA. However, the critical habitat for these species was designated as excluded within the MSHCP boundary. Because of this, no additional actions beyond demonstrating consistency with the MSHCP would be required.

Formal Section 7 consultation under FESA would be triggered by the Project, with Caltrans being the lead agency. Because all of the federally listed species with potential to be affected are MSHCP planning species, the consultation would be streamlined through MSHCP consistency.

The Project occurs within the jurisdictional boundaries of the National Marine Fisheries Service (NMFS) and a species list from the NOAA Fisheries was requested on December 4, 2020. No other consultation with NMFS has occurred to date. Only one species, Southern California steelhead DPS, was on the species list; however, no suitable habitat is present within the BSA, therefore the species would not occur.

Caltrans has determined that the Build Alternative would have a "May Affect Not Likely to Adversely Affect" determination for Quino checkerspot, arroyo toad, LBV, coastal California gnatcatcher, SKR, and SBKR based on the presence of suitable habitat in the vicinity of the Project.

Caltrans has determined that the Build Alternative would have a "No Effect" determination for Munz's onion, San Diego ambrosia, thread-leaved brodiaea, slender-horned spineflower, Southern California steelhead DPS, Riverside fairy shrimp, San Diego fairy shrimp, vernal pool fairy shrimp, and SWFL due to lack of suitable habitat or negative results during focused studies. Table 5-1 summarizes the Caltrans FESA determinations for the Project. A list of threatened and endangered species that may occur within the Project area was obtained from the USFWS (Consultation Code: 08ECAR00-2021-SL1-0332).

Table 5-1. Summary of Caltrans Federal Endangered Species Act Determinations

Species	Federal Endangered Species Act Determination	
	Species Determination	**Critical Habitat**
Munz's onion	No Effect	N/A
San Diego ambrosia	No Effect	May Affect, Not Likely to Adversely Affect[1]
Thread-leaved brodiaea	No Effect	N/A
Slender-horned spineflower	No Effect	N/A
San Jacinto Valley crownscale	No Effect	N/A
Riverside fairy shrimp	No Effect	N/A
Vernal pool fairy shrimp	No Effect	N/A
San Diego fairy shrimp	No Effect	N/A
Quino checkerspot butterfly	May Affect, Likely to Adversely Affect	N/A
Monarch butterfly	May Affect, Not Likely to Adversely Affect	N/A
Arroyo toad	May Affect, Likely to Adversely Affect	N/A
Least Bell's vireo	May Affect, Likely to Adversely Affect	N/A
Southwestern willow flycatcher	No Effect	N/A
Coastal California gnatcatcher	May Affect, Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect[1]
Stephens' kangaroo rat	May Affect, Likely to Adversely Affect	N/A
San Bernardino kangaroo rat	May Affect, Likely to Adversely Affect	N/A

[1] Because this project is covered under the MSHCP, all species Critical Habitat in the project vicinity is excluded.

5.2 Essential Fish Habitat Consultation Summary

There is no essential fish habitat within the BSA. No consultation with NOAA Fisheries is necessary.

5.3 California Endangered Species Act Consultation Summary

Consultation with CDFW has not occurred to date. As the RCTC is a permittee of the MSHCP, take authorization for covered species would occur through the Project's consistency with the MSHCP. This would occur through the JPR process, whereby the JPR application and supporting documentation will be reviewed and concurrence with the Project's consistency with the MSHCP would be provided.

The state-listed tricolored blackbird, bald eagle, SKR, SBKR, and mountain lion are potentially present due to the presence of suitable habitat. The Build Alternative would remove potentially suitable habitat. If these species are present, take coverage for these species would be provided by the MSHCP. The state-listed LBV is present (refer to Section 4.5.4) and would be affected by the Project. This species is a covered species under the MSHCP but is not yet adequately conserved. Consistency with the MSHCP would provide take coverage for this listed species, with the consistency review performed by RCA, USFWS, and CDFW. Avoidance or minimization measures **BIO-1** through **BIO-14, BIO-18, BIO-21,** and **BIO-24** and compensation provided by measures **BIO-15** and **BIO-23** would provide consistency with the MSHCP.

No focused studies were conducted for Crotch bumble bee. Moderately suitable habitat occurs within the BSA; however, the highly disturbed LOD does not provide the resources necessary for the species. There is a potential for indirect effects on the species; however, implementation of **BIO-2** through **BIO-11** and **BIO-29** would reduce any potential indirect effects.

Focused studies verified that slender-horned spineflower, Munz's onion, thread-leaved brodiaea, and SWFL are absent from the LOD. The Project lacks suitable habitat for marsh sandwort, Nevin's barberry, salt marsh bird's beak, San Fernando Valley spineflower, Santa Ana River woollystar, San Diego button-celery, Parish's meadowfoam, California Orcutt grass, western yellow-billed cuckoo, California black rail, and Swainson's hawk; therefore, these species would not occur. Table 5-2 summarizes the state-listed species' presence and absence.

Table 5-2. Summary of California Endangered Species Act Listed Species Presence/Absence

Species	Status[1]	Species Present/Absent[2]
Slender-horned spineflower	E	Absent
Munz's onion	T	Absent
Marsh sandwort	E	No suitable habitat
Nevin's barberry	E	No suitable habitat
Thread-leaved brodiaea	E	Absent
Salt marsh bird's beak	E	No suitable habitat
San Fernando Valley spineflower	E	No suitable habitat
Santa Ana River woollystar	E	No suitable habitat; MSHCP covered
San Diego button-celery	E	No suitable habitat; MSHCP covered
Parish's meadowfoam	E	No suitable habitat
California Orcutt grass	E	No suitable habitat
Crotch bumble bee	SC	Suitable habitat present
Southwestern willow flycatcher	E	Absent
Least Bell's vireo	E	Present
Western yellow-billed cuckoo	E	No suitable habitat
Tricolored blackbird	T	Suitable habitat present; MSHCP covered
California black rail	T	No suitable habitat
Bald eagle	E	Foraging habitat present (only); MSHCP covered
Swainson's hawk	T	No suitable habitat
San Bernardino kangaroo rat	SC	Suitable habitat present; MSHCP covered
Stephens' kangaroo rat	T	Suitable habitat present; MSHCP covered
Mountain lion	SC	Suitable habitat present; MSHCP covered

[1]E= Endangered; T= Threatened; SC=State Candidate for Listing

[2] If not suitable habitat is present, the species is assumed absent.

5.4 Wetlands and Other Waters Coordination Summary

Consultation with USACE and RWQCB has not occurred to date.

5.4.1 Clean Water Act

Encroachment into federal waters of the United States would occur under the Build Alternative.

USACE/RWQCB Jurisdiction

The Jurisdictional Delineation report (Appendix I) provides an analysis of all aquatic resources that are, or may be, federally jurisdictional. All features observed within the study area were delineated with the understanding that a request for a Preliminary Jurisdictional Determination would be submitted for the Project. As such, all non-wetland water features exhibiting an OHWM and wetlands meeting the three wetland parameters (hydrophytic vegetation, hydric soils, and hydrology) were analyzed as jurisdictional waters of the United States subject to regulation by USACE under Section 404 of the CWA and the RWQCB under Section 401 of the CWA or under Porter-Cologne.

A total of 145 features with an identifiable OHWM were observed within the jurisdictional delineation study area. Indicators used to delineate the OHWM within features in the JSA commonly included terracing, sediment deposition, destruction of terrestrial vegetation, changes in the character of the soil, an abrupt change in a plant community, flow patterns, a natural line impressed on the bank, the presence of litter and debris, and the presence of a wrack line. Three of these features were determined not to be subject to USACE jurisdiction per *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers* (SWANCC) as they were isolated from any downstream waters. Ninety features within the JSA were determined to be potentially subject to USACE jurisdiction pursuant to Section 404 of the CWA based on the presence of an OHWM, location within a historical flowline or 100-year floodplain, and downstream connection to a traditional navigable water (Santa Ana River via Temescal Wash). Both wetland and non-wetland waters of the United States occur within the BSA. Total USACE jurisdiction within the BSA is detailed in Appendix I (HDR 2021). Findings presented in the Jurisdictional Delineation Report are preliminary and subject to verification by USACE.

An additional 52 features within the jurisdictional study area exhibited an OHWM but are best characterized as ephemeral ditches constructed in upland areas, which are not generally regulated by USACE according to 2008 guidance issued by USACE (USACE 2008). These are labeled as Constructed in Uplands on **Appendix A, Figure 12**. These features are detailed in Appendix I (HDR 2021).

Three features that were isolated from any downstream waters are not to be subject to USACE jurisdiction per SWANCC, but they are considered waters of the State and regulated by the RWQCB pursuant to Porter-Cologne (refer to Section 5.4.3 for requirements under the Porter-Cologne Water Quality Control Act). These features are detailed in Appendix I (HDR 2021).

Under the Build Alternative, impacts would occur on jurisdictional waters identified within the LOD. The Project would result in impacts on a total of 2.54 acres of non-wetland and wetland USACE/RWQCB waters of the United States pursuant to CWA Sections 404 (regulated by the USACE) and Section 401 (regulated by the RWQCB) (**Appendix K**, Table K-1).

Table 5-3 summarizes the proposed permanent impacts on USACE/RWQCB jurisdictional non-wetland and wetlands waters of the United States. The total impacts for each feature that would have impacts is provided in Appendix K (Table K-1), and these features are mapped in **Appendix A, Figure 12**.

Table 5-3. USACE/RWQCB Jurisdictional Impacts

Agency/Jurisdiction	Hydrology	Permanent Impact (acres)	Temporary Impacts (acres)	Shading Impacts (acres)
CWA Section 404/401 Non-Wetland	Ephemeral, Intermittent, and Perennial	0.01	2.04	0.47
CWA Section 404/401 Wetland	Wetland	--	0.03	--
Grand Total CWA Section 404/401 Non-	--	**0.01**	**2.07**	**0.47**

Table 5-3. USACE/RWQCB Jurisdictional Impacts

Agency/Jurisdiction	Hydrology	Permanent Impact (acres)	Temporary Impacts (acres)	Shading Impacts (acres)
Wetland and Wetlands[1]				
Porter-Cologne Wetland	Wetland (Isolated)	--	--	--
Potential Non-Jurisdictional Non-Wetland	Constructed in Uplands	0.01	0.19	--
Grand Total Porter-Cologne Non-Wetland and Wetlands[1,2]	--	**0.01**	**0.19**	--

-- not applicable

[1]Totals may not match due to rounding.

[2]Totals include features identified as "Constructed in Uplands" that may not be considered RWQCB jurisdictional.

5.4.2 California Fish and Game Code, Section 1600–1616

The analysis of CDFW jurisdictional streambeds, including the locations, is provided in the jurisdictional delineation report (HDR 2021, Appendix I). Construction of the Project would result in potential permanent impacts on 0.07 acre, temporary impacts on 3.82 acres, and shading impacts on 1.00 acre of CDFW jurisdictional streambeds, with an additional 0.02 acre of permanent impacts and 0.91 acre of temporary impacts on potentially non-jurisdictional streambed. The Project would result in permanent impacts of less than 0.01 acre of associated riparian vegetation, temporary impacts of 1.80 acre, and shading impacts of 0.46 acre (**Appendix K**, Table K-2). A Streambed Alteration Agreement would be necessary and acquired from CDFW.

Table 5-4 summarizes the proposed impacts on CDFW streambed and associated riparian vegetation resulting from the Build Alternative. The proposed impact on each feature is provided in **Appendix K** (Table K-2) and the features are mapped in **Appendix A, Figure 13**.

Table 5-4. Summary of Proposed Impacts on CDFW Streambeds and Associated Riparian Vegetation

CDFW Jurisdictional Resource	Permanent Impact (acres)	Temporary Impact (acres)	Shading Impacts (acres)*
CDFW Unvegetated Streambed	0.07	3.82	1.00
Potential Non-Jurisdictional Unvegetated Streambed – Constructed in Uplands	0.02	0.91	--
Total Streambed[1]	***0.09***	***4.73***	***1.00***

Table 5-4. Summary of Proposed Impacts on CDFW Streambeds and Associated Riparian Vegetation

CDFW Jurisdictional Resource	Permanent Impact (acres)	Temporary Impact (acres)	Shading Impacts (acres)*
CDFW Riparian	<0.01	1.80	0.46
Total Riparian[1]	***<0.01***	***1.80***	***0.46***
GRAND TOTAL [1,2]	**0.09**	**6.53**	**1.46**

[1]Totals may not match due to rounding.

[2]Totals include features identified as "Constructed in Uplands" that may not be considered CDFW jurisdictional.

* Closure of the median with new bridges will cause new shading effect on a CDFW Riparian area and Riverine areas. Although the work area would be temporary, the effect on CDFW Riparian and Riverine areas would be a permanent indirect effect.

5.4.3 Porter-Cologne Water Quality Control Act

Under Porter-Cologne, the SWRCB and RWQCBs assert jurisdiction over discharges into waters of the State. Where resources are subject to both state and federal regulations, Porter-Cologne compliance is coordinated with CWA Section 401 certification. Jurisdiction includes those water features having an OHWM as well as features not regulated by USACE because of a lack of connectivity with a navigable water body or lack of an OHWM.

The Build Alternative would affect 0.20 acre of potentially jurisdictional waters of the State that are not considered to be CWA jurisdictional, pursuant to Porter-Cologne (see above information on the proposed impacts on features that are both CWA and RWQCB jurisdictional). Table 5-3 summarizes the proposed impacts on waters of the State. The total impacts for each feature proposed to be impacted is provided in **Appendix K** (Table K-1), and these features are mapped in **Appendix A, Figure 12**.

5.5 Invasive Species, Executive Order 13112

Invasive plant species can be spread to natural open spaces through a variety of mechanisms including tracking seeds or tubers on vehicle tires or heavy equipment, use of erosion control materials with weed seed, grazing and seed dispersal by nonnative animals, increases in fire frequency due to human activities, and routine land maintenance, such as mowing and disking increasing wind dispersal of seeds. Invasive plant species often outcompete native Southern California vegetation and provide lesser quality or unsuitable habitat for native wildlife species. To avoid further introduction of invasive species, measures are recommended to reduce and/or further avoid the transport of invasive species into natural open space areas. Because this Project is federalized, Executive Order 13112 is triggered, which states that federal agencies are required to combat the introduction or spread of invasive species in the United States.

More than 40 plants that have been classified as invasive by Cal-IPC (2021b) were detected within the BSA and are included in Table 3-2. These are classified as exotic pest plants by Cal-IPC (2021b) and are known to invade natural open space areas and degrade native ecosystems in the state of California. Six species are high on the Cal-IPC watch list: giant reed (*Arundo donax*), red brome (*Bromus madritensis ssp. rubens*), yellow starthistle (*Centaurea solstitialis*), stinknet (*Oncosiphon pilulifer*), and two species of

tamarisk (*Tamarix parviflora* and *T. ramosissima*). An additional 18 species are on the moderate list, with the remaining species of limited risk.

Measures **BIO-2, BIO-3, BIO-5** through **BIO-10, BIO-12** through **BIO-14**, and **BIO-17**, as provided in Appendix L, ensure compliance with federal Executive Order 13112.

5.6 Migratory Bird Treaty Act

Many species of native birds are expected to occur within the BSA (Appendix J includes a list of avian species observed during surveys). Most lack special-status, but all are protected under the MBTA. Colonial nesting species (barn swallow, cliff swallow, northern rough-winged swallow, and white-throated swift) are known to nest on several undercrossings, overcrossings, and bridges. During bat surveys on April 20, 2022, a swallow species was observed flying in and out of drainage holes of the NB Cajalco Road off-ramp bridge over Bedford Wash, and it is possibly nesting within the bridge. Ground nesters, such as killdeer, California quail, and horned larks, may nest in the open areas. Raptors, such as red-tailed hawk and white-tailed kite may nest in the mature trees along the alignment. Measures **BIO-1, BIO-5, BIO-6, BIO-18, BIO-21, BIO-24, BIO-25**, and **BIO-28** (Appendix L) ensure compliance with the MBTA.

5.7 Protection of Wetlands, Executive Order 11990

The Build Alternative would temporarily affect 0.03 acre of wetlands. The Build Alternative would require a CWA Section 404 Nationwide Permit from USACE and a CWA Section 401 Water Quality Certification and Porter-Cologne Waste Discharge Requirements (WDR) from RWQCB. Acquisition of a Nationwide Permit and a CWA Section 401 Water Quality Certification and WDR would ensure compliance with Executive Order 11990.

5.8 California Fully Protected Species

The Project has the potential to affect a fully protected species, white-tailed kite. Measures **BIO-1, BIO-18, BIO-21**, and **BIO-28** (Appendix L) ensure no take of white-tailed kite.

5.9 California Fish and Game Code, Sections 3503, 3503.5, 3505, 3800, and 3801.6

Many species of native birds are expected to occur within the BSA and could potentially be affected during construction. Most lack special-status but all are protected under the California Fish and Game Code. Compliance with the California Fish and Game Code is provided through measures **BIO-1, BIO-18, BIO-21**, and **BIO-28** to protect native birds (Appendix L).

5.10 County of Riverside Oak Tree Management Guidelines

Oaks and oak woodland occur within the BSA. If any are proposed for removal, then compliance with **BIO-19** would be required.

5.11 Stephens' Kangaroo Rat Habitat Conservation Plan

SKR is a covered species under both the MSHCP and the long-term SKR HCP with surveys not required under either of the HCPs. The Build Alternative is expected to remove potentially suitable habitat for SKR. For projects that occur within the MSHCP and the SKR HCP boundaries, take of SKR is covered under the SKR HCP, not the MSHCP. The Project is outside the limits of the SKR HCP core reserve areas, but within the SKR HCP plan area. Therefore, potential take of SKR for this Project would be covered under the SKR HCP. Potential take of this species under FESA and CESA by the Project would be mitigated fully by the SKR HCP. No CESA consultation would be necessary.

5.12 Western Riverside Multiple Species Habitat Conservation Plan

The Project is a Covered Activity and occurs within the Temescal Canyon and Elsinore Area Plans (refer to Chapter 2 for a summary of the MSHCP as it relates to the Project).

In compliance with the MSHCP, focused surveys were performed for Riverside fairy shrimp, vernal pool fairy shrimp, SWFL, LBV, burrowing owl, Narrow Endemic plants, and Criteria Area plants. In summary, the Project would potentially affect natural vegetation communities (nonnative grassland, sage scrub, and riparian), listed animals (Quino checkerspot butterfly, coastal California gnatcatcher, SKR, LBV), and non-listed special-status plants and animals. For complete details regarding resource, level of impact, and mitigation, refer to Chapter 4. The MSHCP Consistency Analysis is provided in Appendix N.

Under the MSHCP, a project needs to address potential indirect effects associated with locating development in proximity to MSHCP conservation areas through potential degradation of water quality by drainages, the introduction of toxics, night lighting, noise, and invasive species (Volume I, Section 6.1.4, Guidelines Pertaining to the Urban/Wildlands Interface). The necessary avoidance and minimization measures for consistency with the MSHCP are presented in Appendix L of this report. Water pollution and erosion control plans would be created and implemented (for drainage and toxics) (measures **BIO-12** and **BIO-13** in Appendix L) per MSHCP requirements, along with measures **BIO-18** and **BIO-21** (lighting and noise), measures **BIO-3** and **BIO-5** through **BIO-10** (invasives), and measures **BIO-6** and **BIO-13** (barriers).

To ensure consistency with the MSHCP, the RCA, USFWS, and CDFW would review the documents and a consistency letter would be provided to the permittees (Caltrans and RCTC). Appendix N provides an MSHCP consistency analysis for the Project.

5.12.1 Summary of Consistency Findings

The MSHCP requirements for the Project can be found in Volume I, Sections 3.2.3, 6.1.2, 6.1.3, 6.1.4, 6.3.2, 7.3.5, 7.5.1, 7.5.2, and 7.5.3, and Appendix C of the MSHCP document. Each requirement is listed below along with its applicability to the Project.

- *Section 3.2.3 of Volume I of the MSHCP* (Cores and Linkages within the MSHCP Conservation Area). The applicable portions of Section 3.2.3 of the MSHCP for the Project are Proposed Core 1, Proposed Extension of Existing Core 2, Proposed Linkage 1, Proposed Linkage 2, Proposed Constrained Linkage 3, Proposed Constrained Linkage 5, and Proposed Constrained Linkage 6.

These cores and linkages were evaluated in Section 4.2 of this document in terms of biology and potential project effects. Beyond adhering to the Guidelines Pertaining to Urban/Wildlands Interface (see Section 6.1.4, Volume I, of the MSHCP document), no special considerations for the Project are needed for these cores and habitat block.

- *MSHCP Volume I, Section 6.1.2* (Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools). The Project provides a full evaluation of MSHCP Volume I, Section 6.1.2 in NES Chapter 2, Fairy Shrimp (Section 2.2.6), SWFL (Section 2.2.7), and LBV (Section 2.2.8); and Chapter 4, MSHCP Riparian/Riverine Resources (Section 4.2.7), Riverside Fairy Shrimp (Section 4.5.1), Vernal Pool Fairy Shrimp (Section 4.5.1), LBV (Section 4.5.4), and SWFL (Section 4.5.5). These species, except for LBV, were confirmed absent from the BSA. Proposed impacts on LBV, along with avoidance, minimization, and compensatory mitigation measures, are presented in Section 4.5.4.
- *MSHCP Volume I, Section 6.1.3* (Protection of Narrow Endemic Plant Species). The Project provides a full evaluation under NES Chapter 2, Special-Status Plants, and Chapter 4, Threatened and Endangered Plants (Section 4.3), and Non-Listed Special-Status Plants (Section 4.4.1).
- *MSHCP Volume I, Section 6.3.2* (Additional Survey Needs and Procedures). The Project provides a full evaluation of Section 6.3.2 in NES Chapter 2, Special-Status Plants (Section 2.2.5), and Burrowing Owl (Section 2.2.9); and Chapter 4, Threatened and Endangered Plant Species (Section 4.3), Non-Listed Special-Status Plant Species (Section 4.4.1), and Burrowing Owl (Section 4.6.3).
- *MSHCP Volume I, Section 7.5.1* (Guidelines for the Siting and Design of Planned Roads within the Criteria Area and Public/Quasi-Public Lands). Detailed here are the requirements presented in Section 7.5.1 of the MSHCP as applicable with Project information.
- *Planned roads will be located in the least environmentally sensitive location feasible* – For the Project, the Build Alternative is still in the design phase. Sensitive Natural Communities (Section 4.2), MSHCP Cores and Linkages (4.2.8), and LBV of this document describe the specific impacts on these resources, with the key ones being impacts on LBV and the removal of riparian/riverine resources, including LBV. As discussed in MSHCP Cores and Habitat Blocks, Riparian/Riverine Resources, and LBV, impacts would be avoided, minimized, and compensated by measures **BIO-1** through **BIO-21**, **BIO-24, BIO-26**, and **BIO-28**, located in Appendix L.
- *Planned roads will avoid, to the greatest extent feasible, impacts on covered species and wetlands* – The proposed Build Alternative design specifically avoids wetland areas as well as populations of LBV where feasible; however, some wetlands and one LBV use area would be affected. Section 4.2.7 (MSHCP Riparian/Riverine Resources) and Section 4.5.4 (LBV) of this document describe the specific impacts and compensatory mitigation for these resources (measures **BIO-1** through **BIO-18, BIO-21, BIO-22** through **BIO-24, BIO-26**, and **BIO-28** located in Appendix L).
- The design of planned roads will consider wildlife movement requirements, as further outlined below under Guidelines for Construction of Wildlife Corridors – The Project's effect on existing wildlife movement was reviewed in Section 4.2.8 of this document. The Project is not expected to result in an appreciable decline in the number of species or individuals using the proposed cores,

proposed linkages, and proposed constrained linkages, nor is it expected to increase the mortality rate of species currently using existing undercrossings. Construction activities could deter animals from moving into an area while construction is occurring, but measures **BIO-18** and **BIO-20** would avoid or minimize this temporary effect.

- Narrow Endemic plant species will be avoided and if avoidance is not feasible, then mitigation as described in the Narrow Endemics Plant Policy will be implemented – A rare plant survey was performed in 2020 and additional areas will be surveyed in 2021. No Narrow Endemic species required to be analyzed for the Project have been found to date. No measures are recommended.
- Clear natural vegetation outside the active breeding season (March 1 through June 30) – This has been incorporated into the document as measure **BIO-1** in Appendix L.
- Conduct biological surveys within the BSA for the facility, including vegetation mapping and species surveys and/or wetland delineations – For the Project, preliminary recommendations to avoid and/or minimize potential impacts on sensitive biological resources were communicated to the engineering team.
- *MSHCP Volume I, Section 7.5.2* (Guidelines for Construction of Wildlife Crossings). The following details Section 7.5.2 requirements and Project applicability and actions:
    - *Apply MSHCP guidelines in Section 6.6.2 E (2) for wildlife crossing recommendations where there is either known wildlife movement and/or in portions of the MSHCP conservation area assembled to provide for wildlife movement (MSHCP Section 3.2.3*) – Neither an overcrossing nor undercrossing is required for this Project. As discussed in Section 4.2.8, existing wildlife movement is not expected to be appreciably altered by the Project with implementation of the avoidance and minimization measures noted in Chapter 4 of this document.
    - *Maintain linkages for avian wildlife* – The Build Alternative is not expected to alter the rate at which avian species cross the interstate.
    - *Maintain wildlife crossing facilities for large wildlife (e.g., mountain lion, mule deer) and medium-sized wildlife (e.g., bobcat, coyote)* – As described in Section 4.6.1, large mammals may be deterred from crossing under the existing bridges as shading would be increased. Skylights are not recommended due to the increase in noise associated with vehicles traveling over skylights. Artificial lights are also not recommended, as wildlife will avoid artificially lit areas. No culvert or crossing structures would be modified and no new culverts are proposed by the Build Alternative.
    - *Within core/linkage area, use smooth-wire strand or barb-wire strand, post and rail, or some other similar method so that large wildlife are able to maintain normal movement routes* – No changes to movement routes as a part of the Project are anticipated.
    - *Design undercrossings, overcrossings, and culverts so they provide adequate movement opportunities for smaller terrestrial species* – There are no small terrestrial animals with specific movement corridors identified within the BSA. The Project is not expected to appreciably affect the movement ability of small terrestrial animals.

- *Locate crossing facilities for insects (i.e., Delhi Sands flower-loving fly, Quino checkerspot butterfly)* along known key movement routes – This measure does not apply because none of the planning species for the proposed cores and linkages include insects.

- Specific Initial Guidelines for Wildlife Movement Design Considerations within the Criteria Area:
  - *Direct small wildlife toward culverts, undercrossings, and overcrossings by constructing 3-ft walls with an 18-inch top project into the adjacent open space* – The Build Alternative does not propose impacts on MSHCP wildlife corridors or the passage of animals within the proposed cores and linkages.
  - *Space large crossings structures at greater intervals and smaller culverts at more frequent intervals* – This is not applicable to the Build Alternative. No culverts or crossing structures are being modified and no new culverts are proposed.
  - *Small culverts for reptile, amphibian, and small mammal species will be installed where a roadway or highway travels along a wetland/upland boundary* – This is not applicable to the Build Alternative. No new culverts are proposed.
  - *Crossing facilities should be placed at known travel routes, natural pinch points, or other topographically appropriate locations with at least one large mammal crossing every 1.5 kilometers* – This measure is not applicable to the Build Alternative. No culverts or animal crossings are proposed or would be affected. The existing ability of animals to move at Temescal Wash and other tributaries would remain unimpeded.
  - *Place crossings for small and medium sized mammals every 300 meters and vary the size of crossings to accommodate a variety of mammal species* – No new crossings are proposed. This is not applicable to the Project.
  - *Reduce human presence at culverts, overpasses, and underpass by not including trail systems, installing fencing that would discourage human intrusion, and installing built-in lockable boxes with at least 1-foot square removal doors and pre-wiring for electricity at large mammal culverts, overpasses, and underpasses* – Trails are not proposed and no existing trails are present. No new culverts are proposed. There is no need for monitoring of wildlife use.
  - *Ensure there are openings in concrete "K"-rail at regular intervals for small wildlife passage* –Existing "K" rails are present in some areas within the I-15 median. No new concrete "K" rail barriers are proposed under the Build Alternative.
  - Build berms between culvert, underpass, and overpass entrances or grate/skylight locations to reduce noise and light impacts at crossings – Berms are not proposed for the Project.

- *Install solid fencing or dense tall vegetation windrows adjacent to roadways and highways along Quino checkerspot core/linkage locations* – Quino checkerspot is not a planning species for the Project.

- *Cut new trails within densely vegetated areas to encourage wildlife to use trails at crossing locations* – This measure is not applicable because all proposed improvements are to occur within the existing I-15 facility.
- *Encourage use of crossings by mule deer by maintaining an appropriate openness index of 0.6 and a minimum 3 to 4 meters in height* – The Project would not affect any crossings that would be used by mule deer.
- *Do not add artificial lighting to the center of the crossing structure* – Installation of skylights or artificial lighting is not proposed. Measure **BIO-18** in Section 4.3 has been incorporated to ensure night lighting is directed away from MSHCP conservation area at Temescal Wash.
- *Install 1.0-to-1.5-meter culverts for use by medium sized mammals (e.g., coyote, raccoon)* – The Build Alternative would not alter existing culverts or structures supporting animal movement. All widening would occur within the existing median.
- *Install smaller, 0.5-to-1.0-meter culverts for use by small mammals, reptiles, and amphibians* – Under the Build Alternative, functional use of these undercrossings for small mammals, reptiles, and amphibian would remain unchanged.
- *Ensure sufficient vegetative cover is present near the entrances to culverts for increased effectiveness for carnivores and smaller wildlife* – Most of the culvert openings support scattered shrubs and/or scattered to dense ruderal vegetation cover. Any vegetation removal in the area of the key wildlife movement areas would be restored.
- *Install dirt, rock, or concrete benches on at least one side of large mammal crossing facilities in order to allow wildlife to cross during most storm events* – No new culverts or culvert extensions would occur (measure **BIO-21**).
- *Design overpasses so they are at least 50 meters wide at the ends and no less than 8 meters in the middle, so they the blend naturally into the landscape* – As discussed in MSHCP Section 3.2.3, no overpasses are planned for this section of I-15.

Avoidance and minimization measures from Section 7.5.3 and Appendix C in Volume I of the MSHCP have been implemented and would ensure consistency with the Plan. These measures are discussed throughout Chapter 4 and identified in Appendix L of this document. With full implementation of the measures presented in Chapters 2 and 4 and Appendix L of this document, the Project would be fully consistent with the MSHCP.

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Appendix A Biological Study Area Boundaries and Results Maps

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Figure 1
Regional Vicinity
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

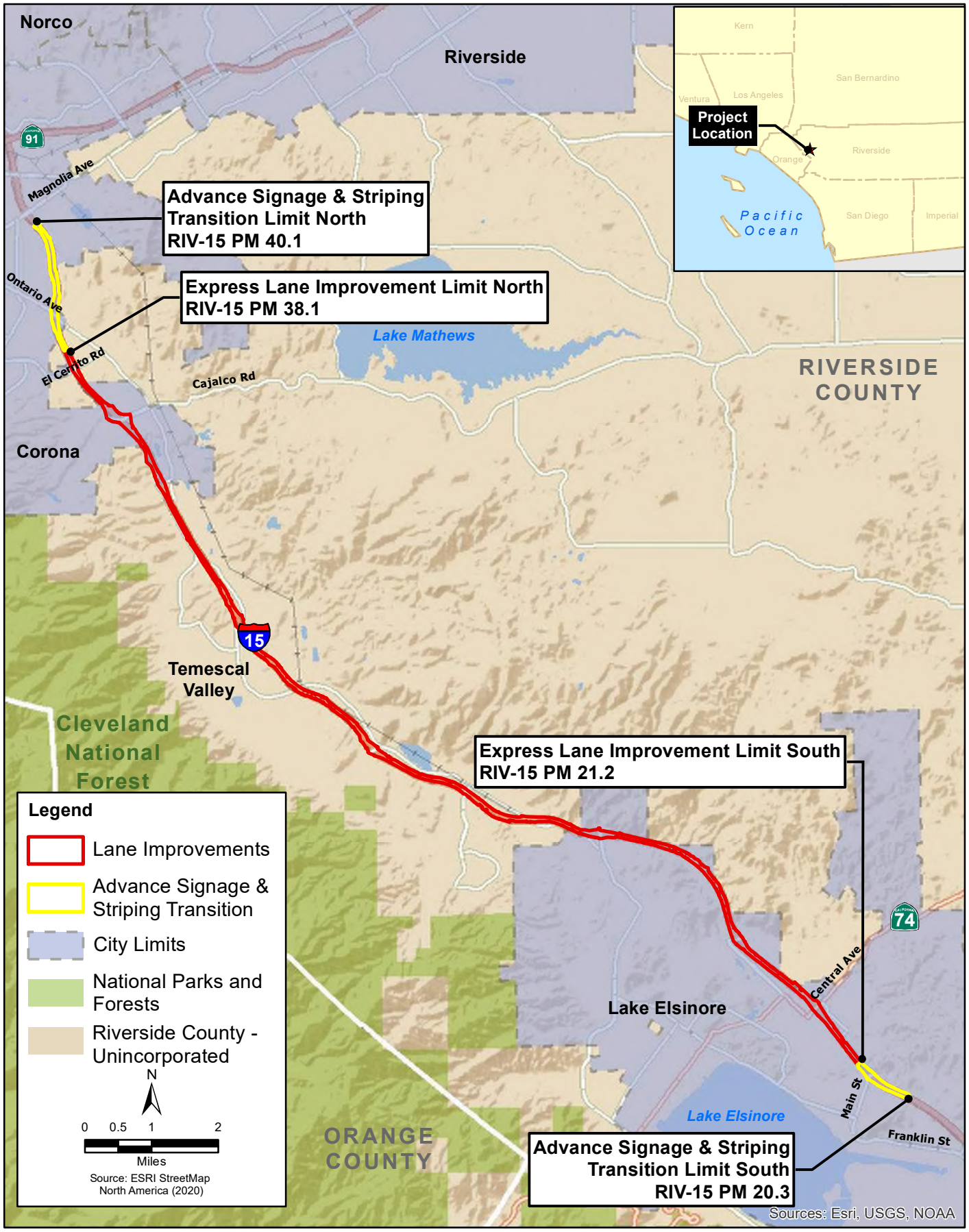

Figure 2
Project Location
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

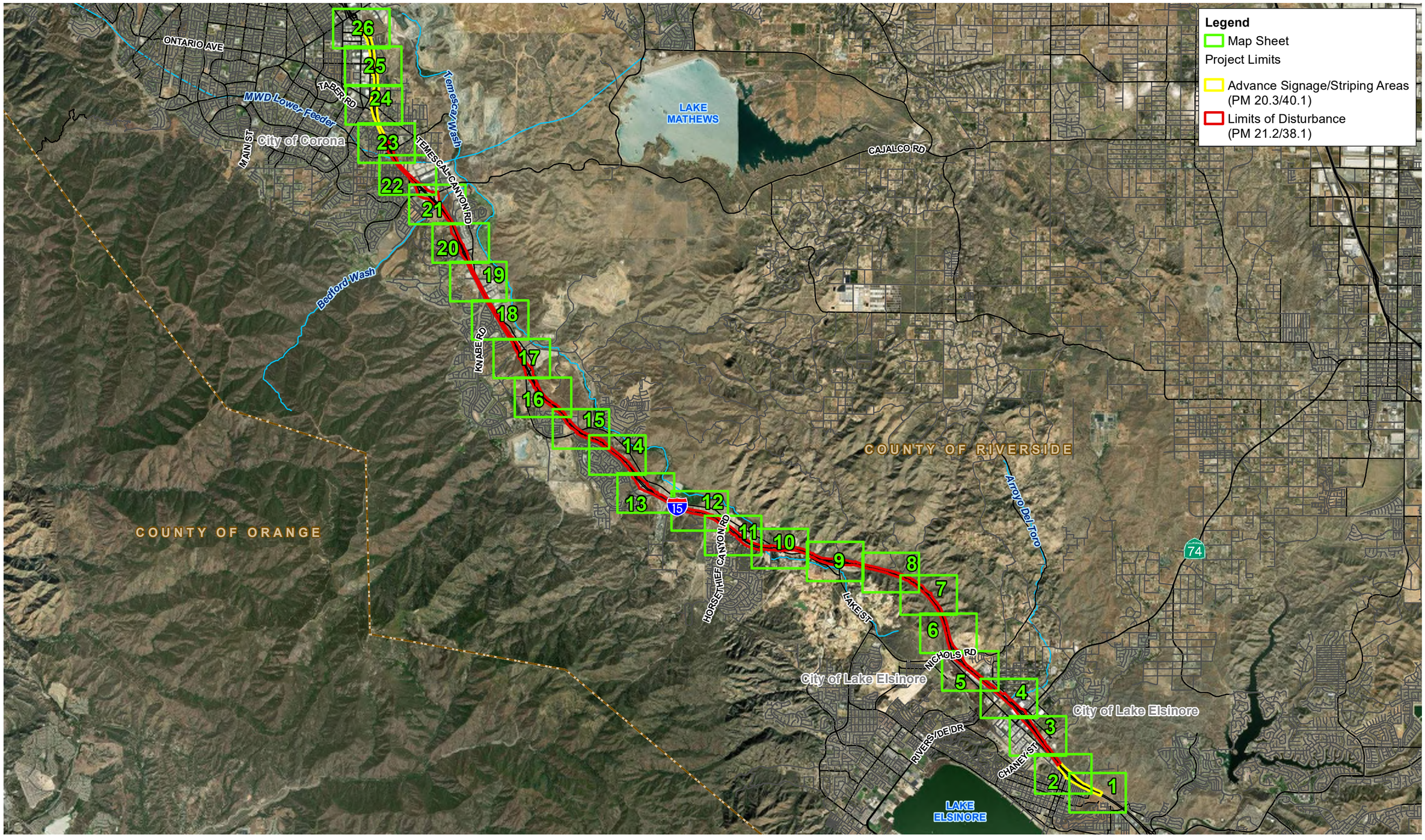

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Figure 3 - Map Index
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension

Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 1
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension

Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
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- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

N

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Figure 3 - Sheet 2
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension

Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
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- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

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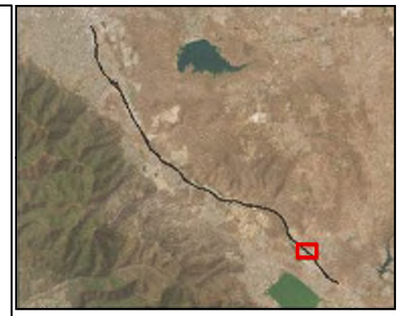
Figure 3 - Sheet 3
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
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- Proposed Bridge Improvements
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- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

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Figure 3 - Sheet 4
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension

Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

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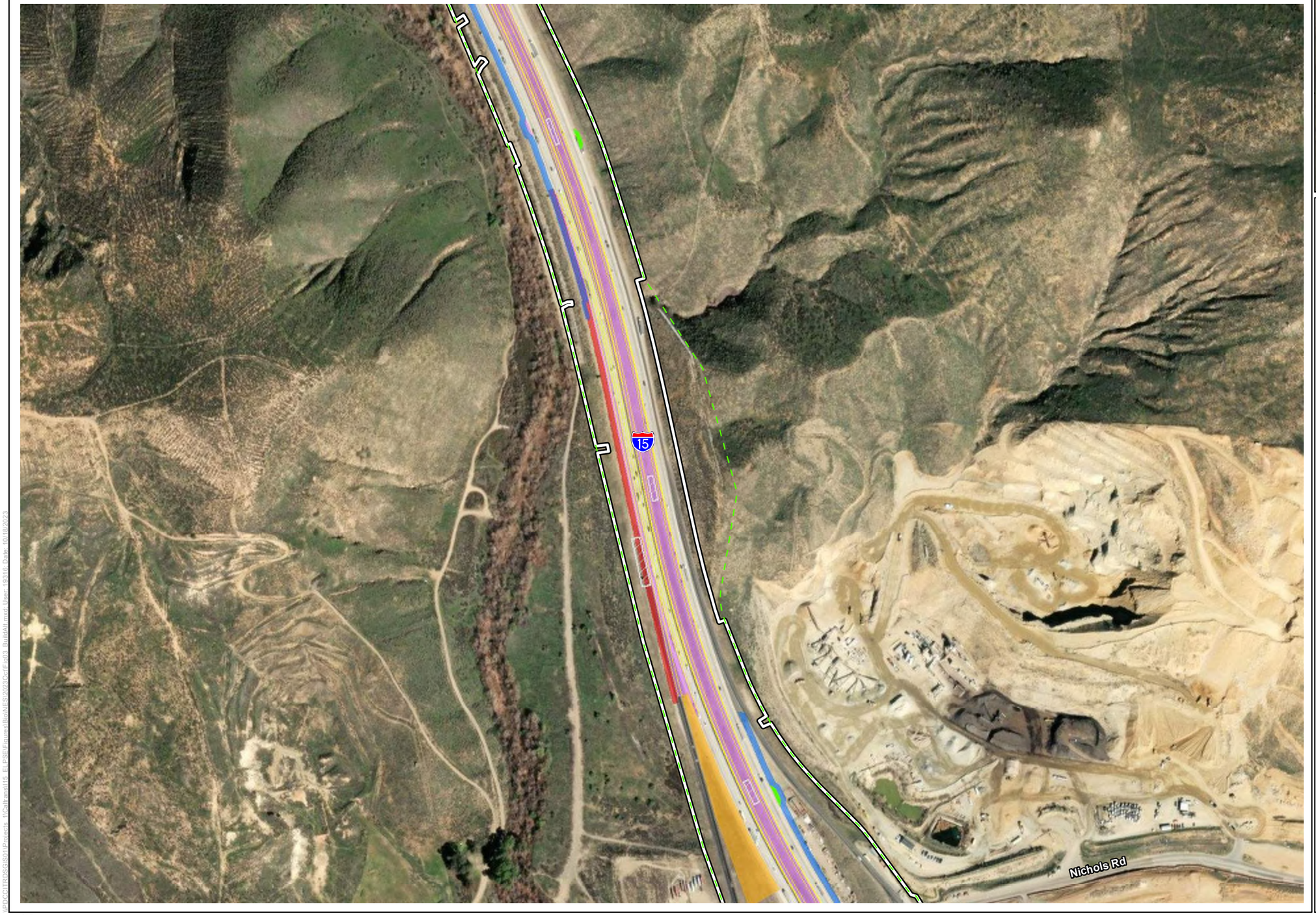
Figure 3 - Sheet 5
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



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- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
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- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

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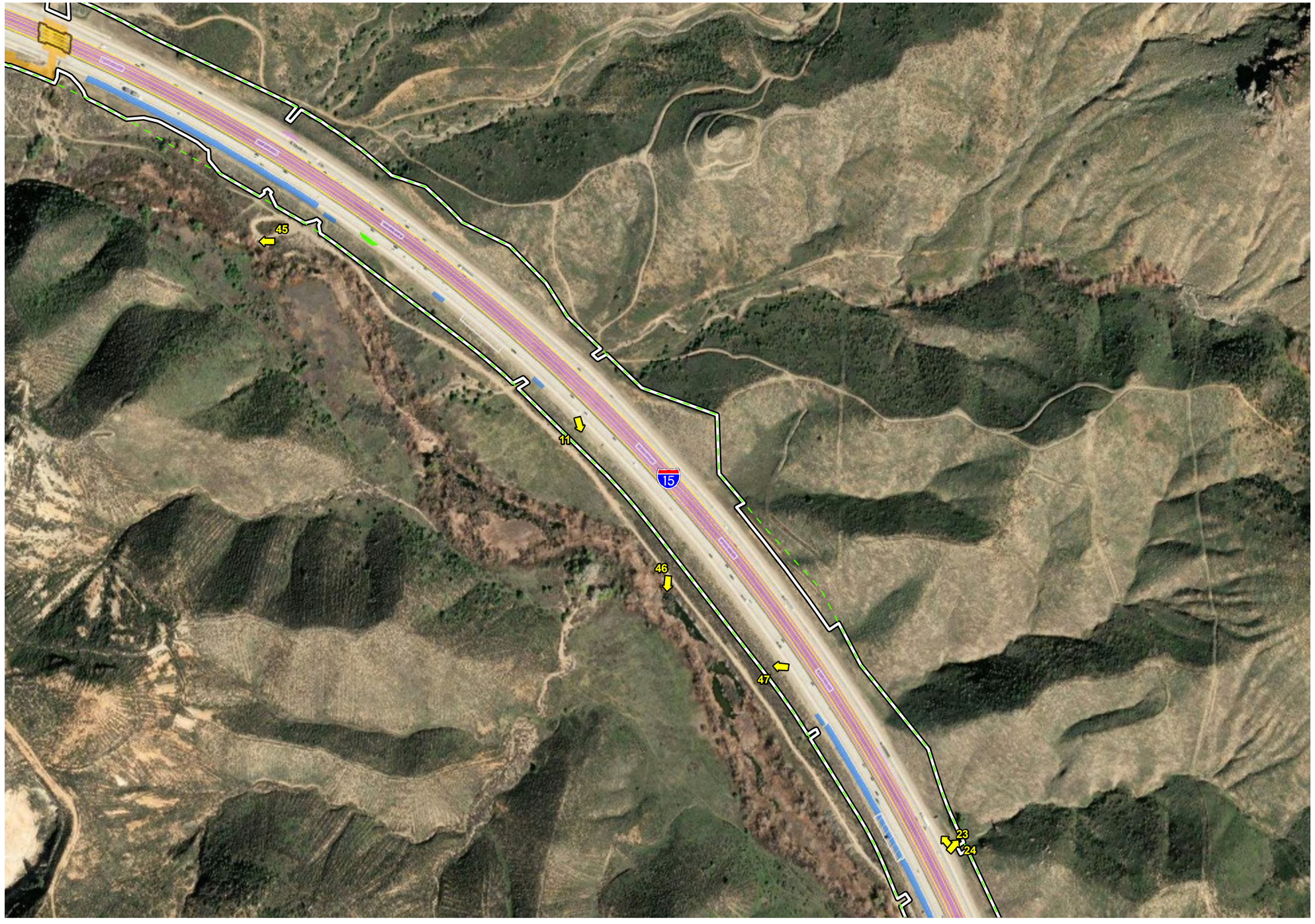
Figure 3 - Sheet 6
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

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Figure 3 - Sheet 7
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension

Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

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Figure 3 - Sheet 8
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension

Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

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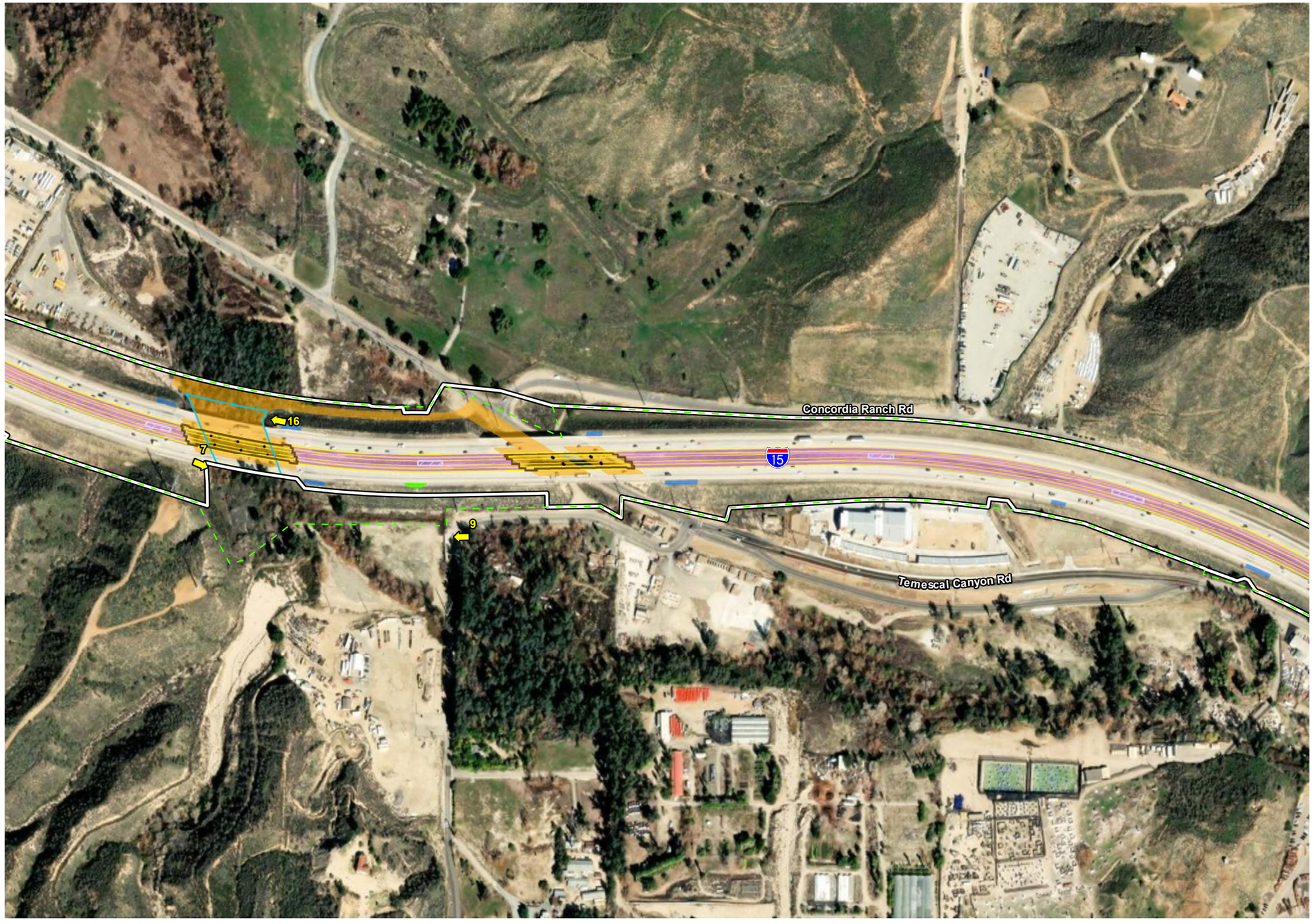
Figure 3 - Sheet 9
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



Legend

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- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

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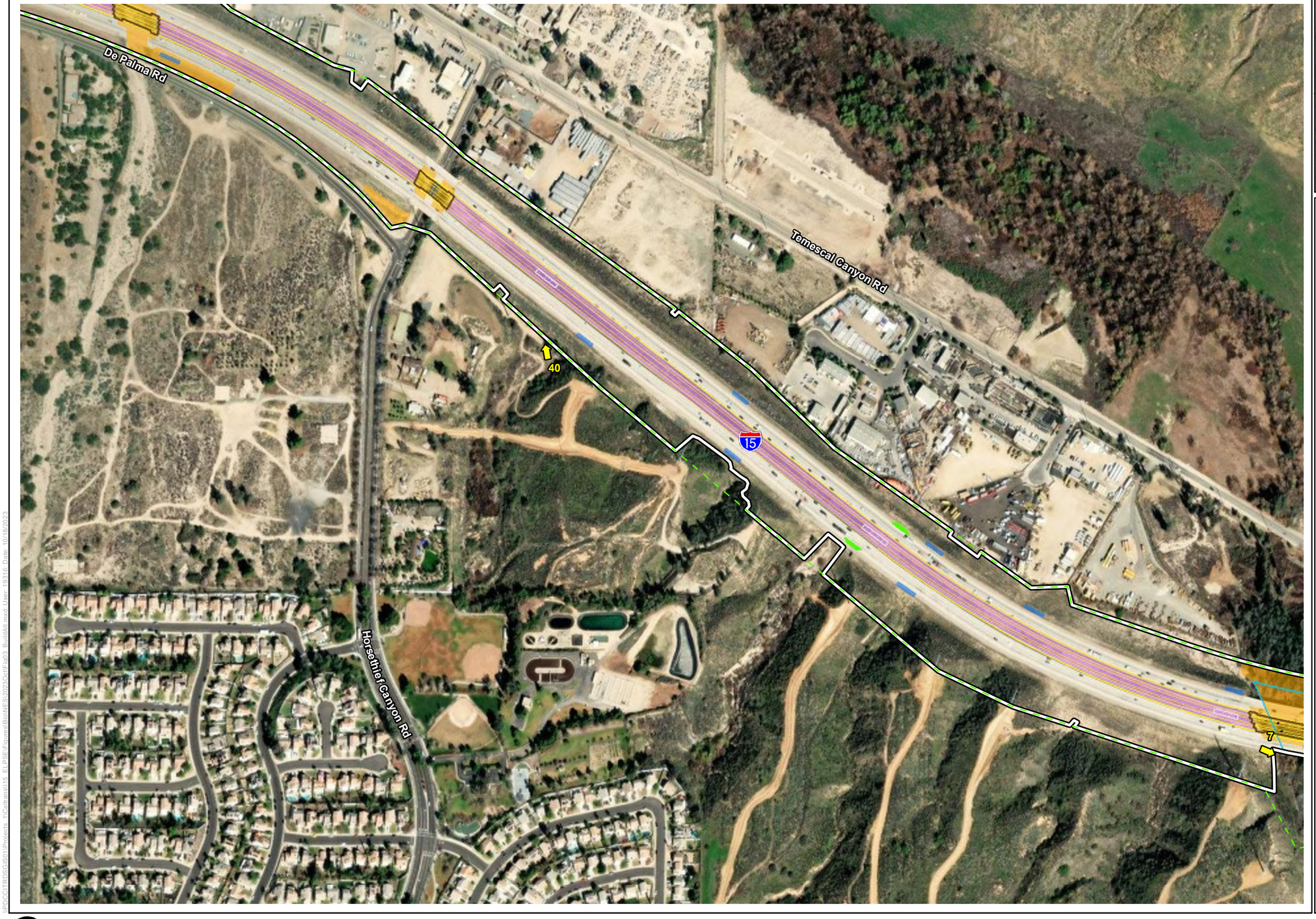
Figure 3 - Sheet 10
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
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- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

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Figure 3 - Sheet 11
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension

Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

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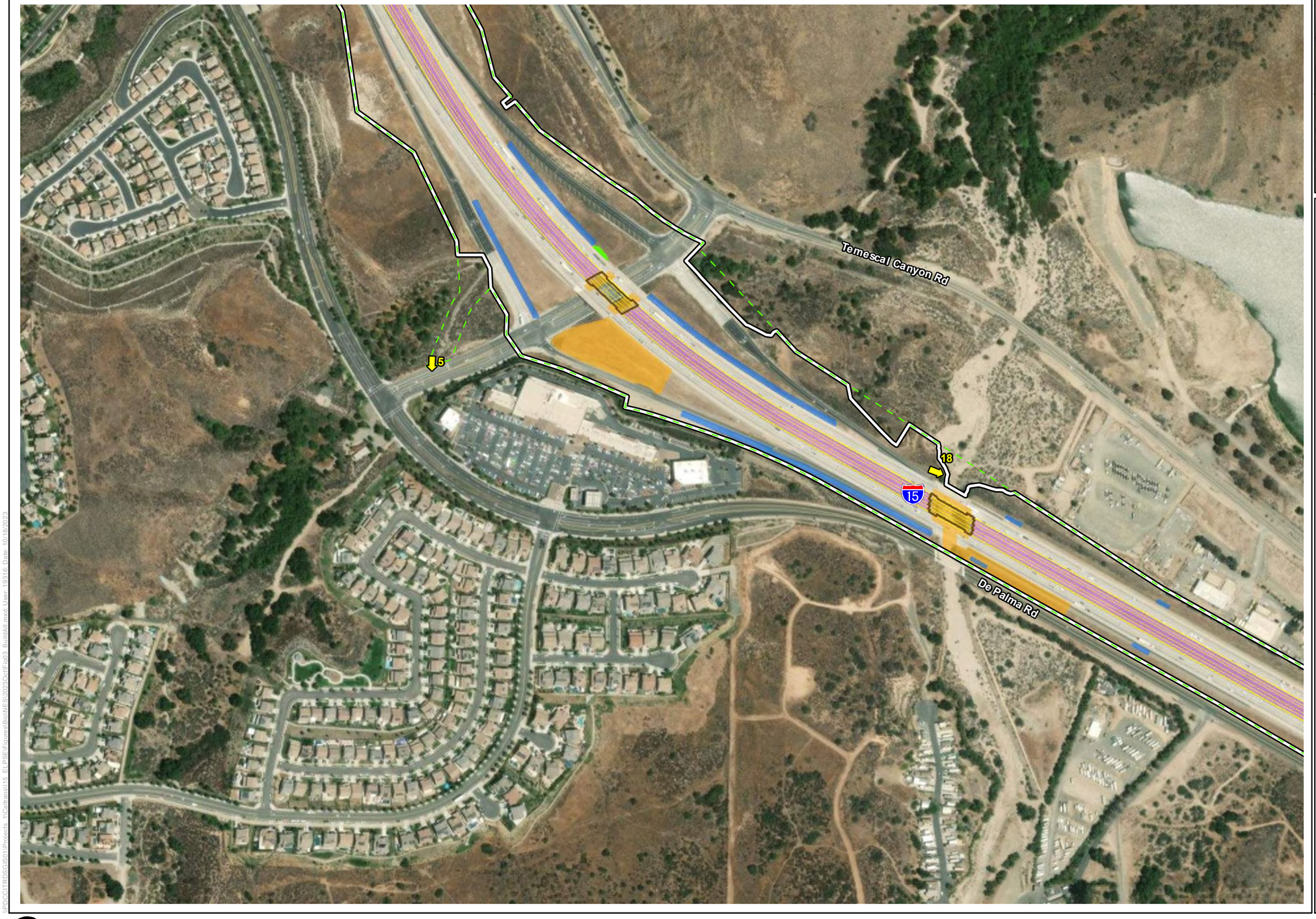
Figure 3 - Sheet 12
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



Legend

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- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
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- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

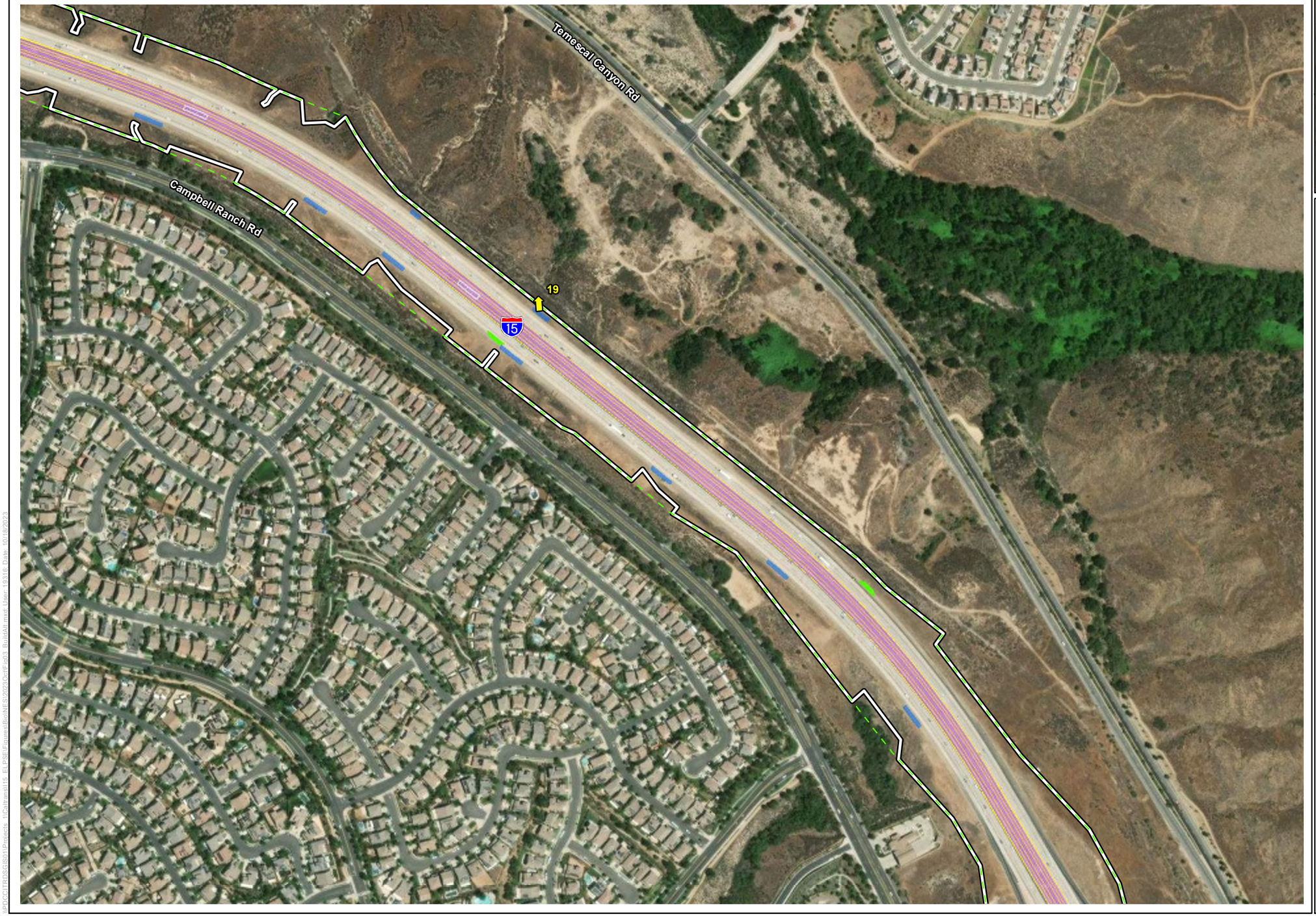
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 13
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

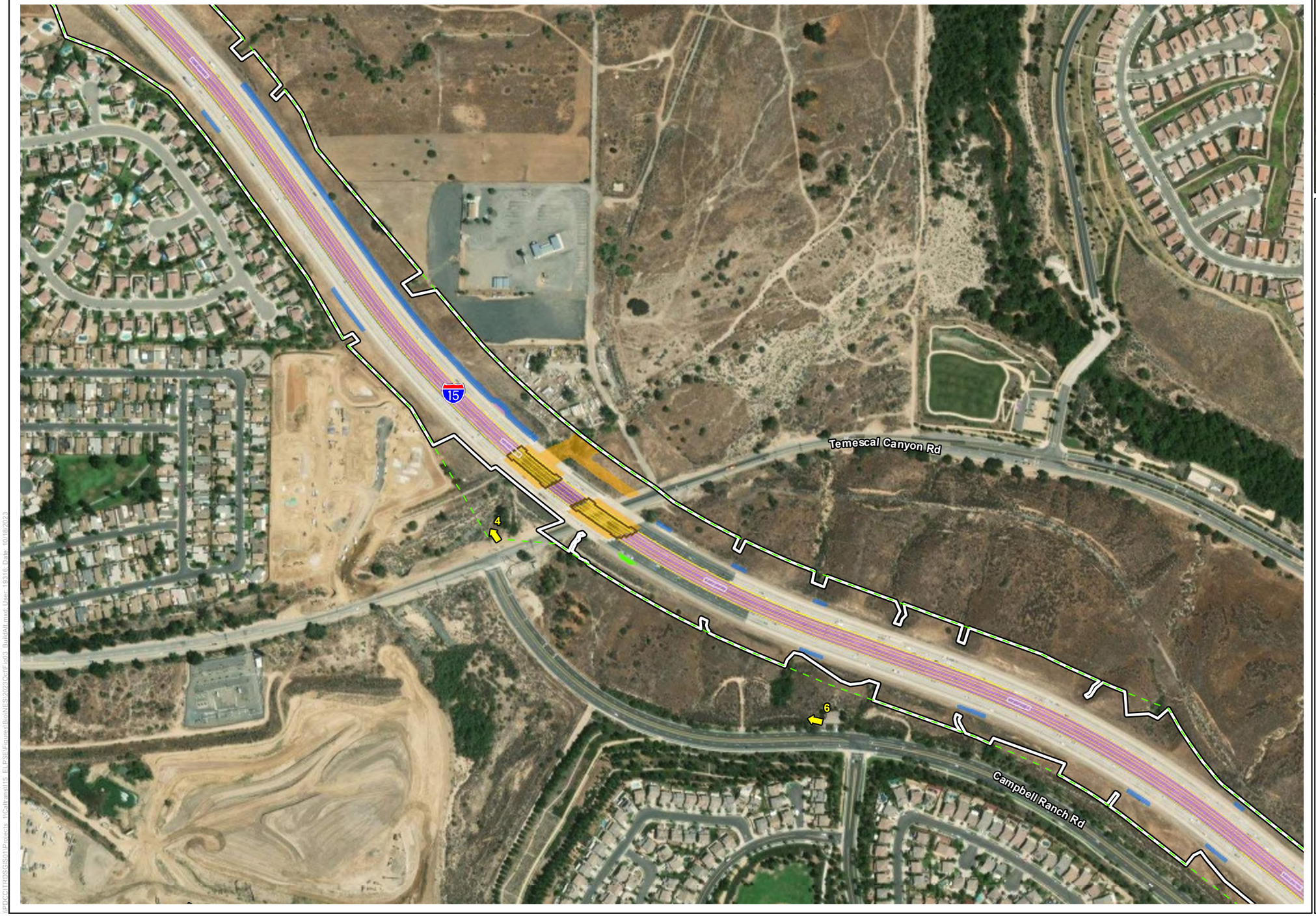
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 14
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

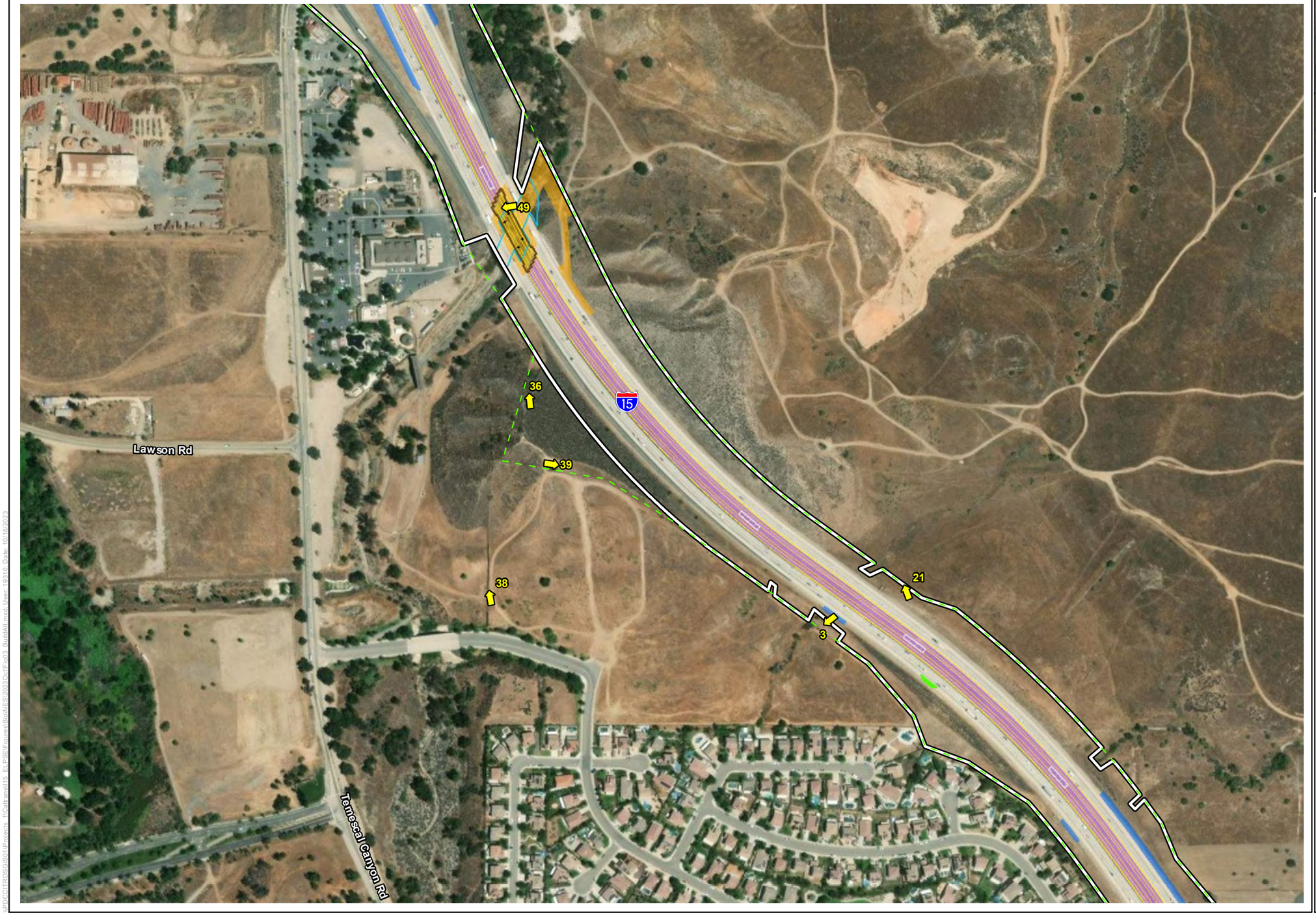
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 15
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

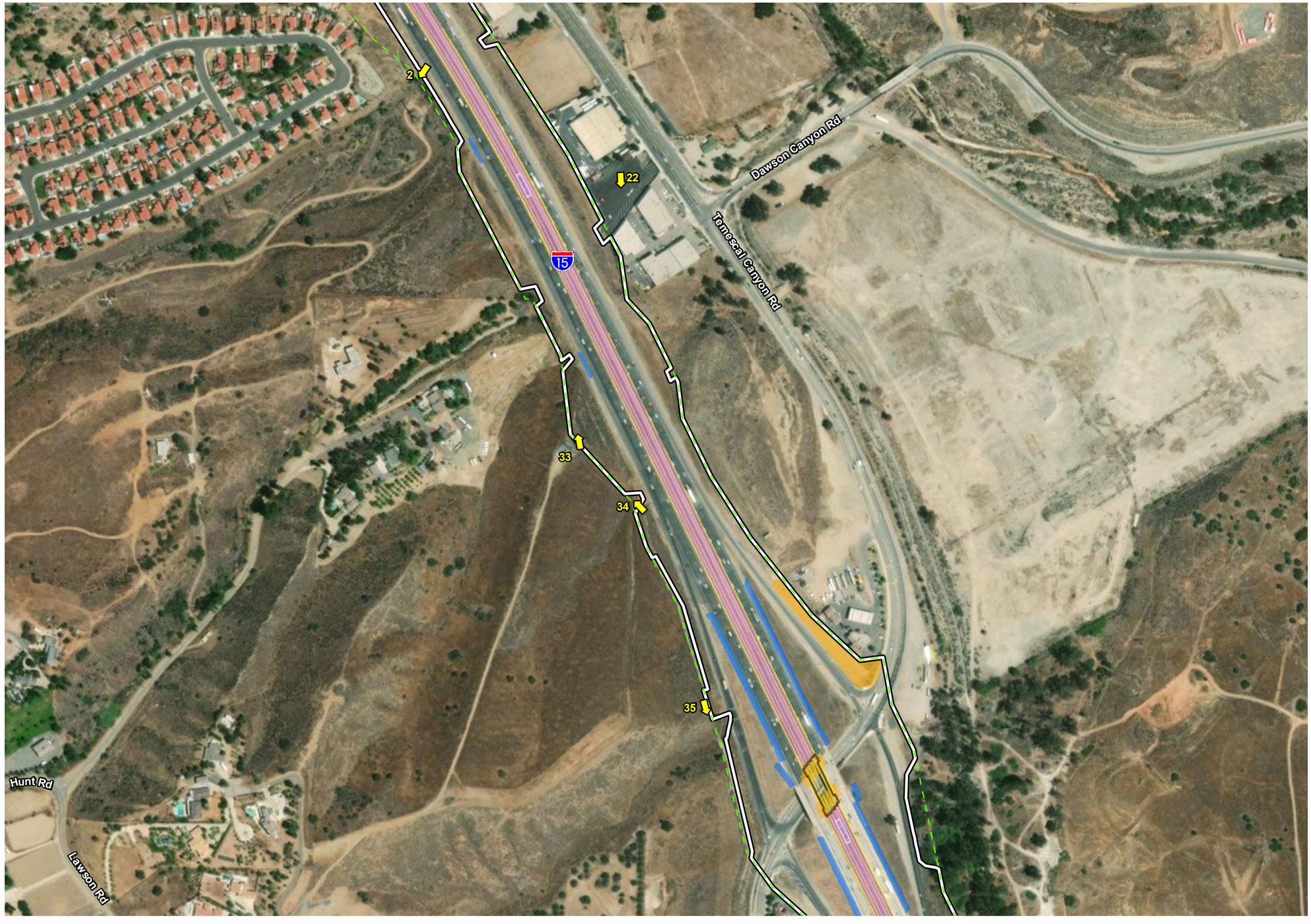
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 16
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

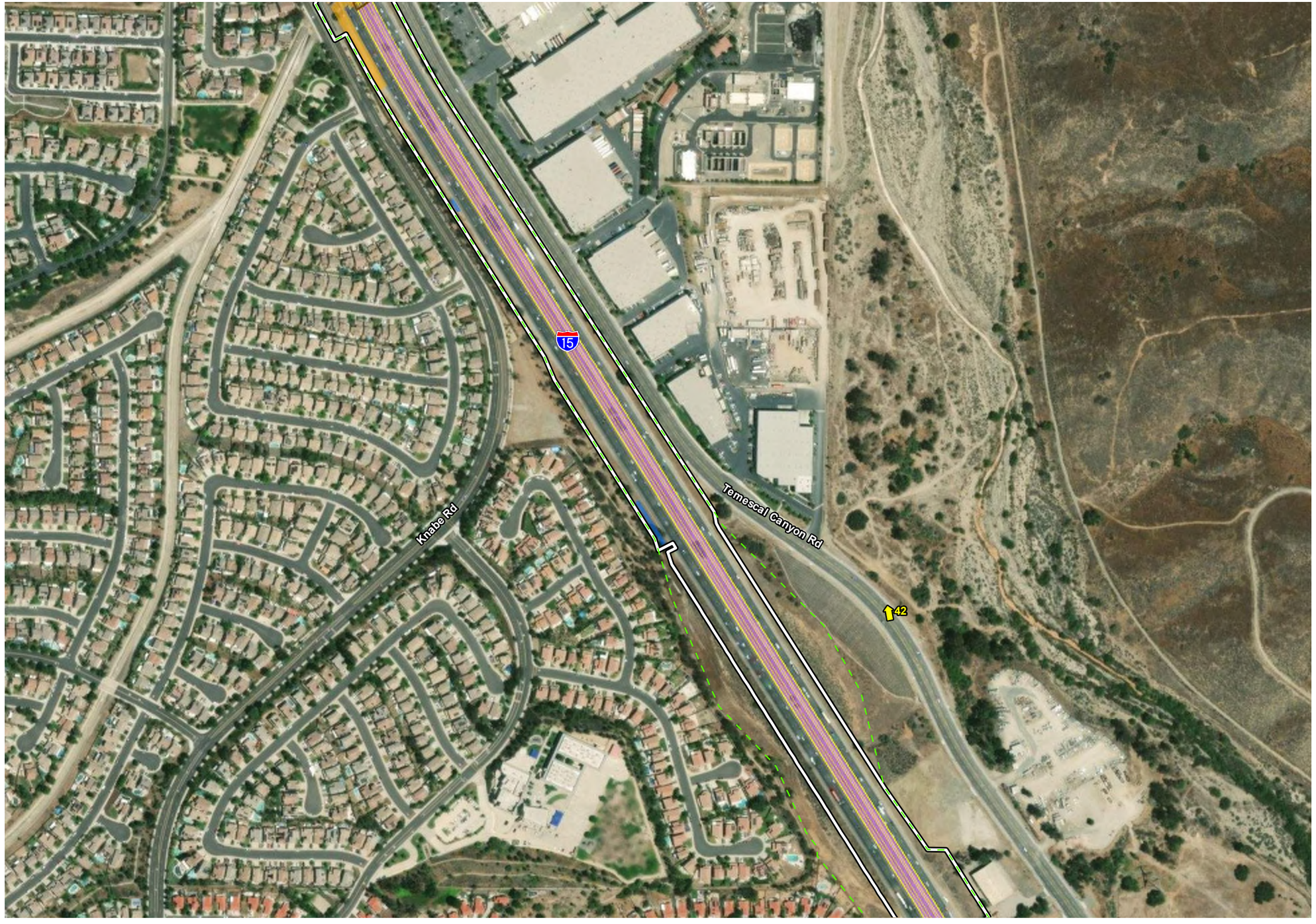
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 17
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 18
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension

Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

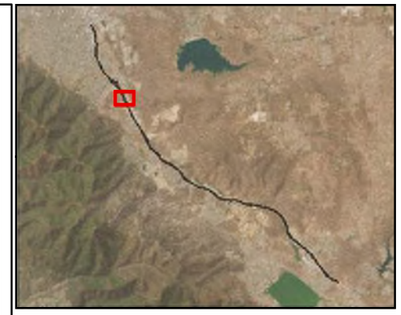
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 19
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 20
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension

Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

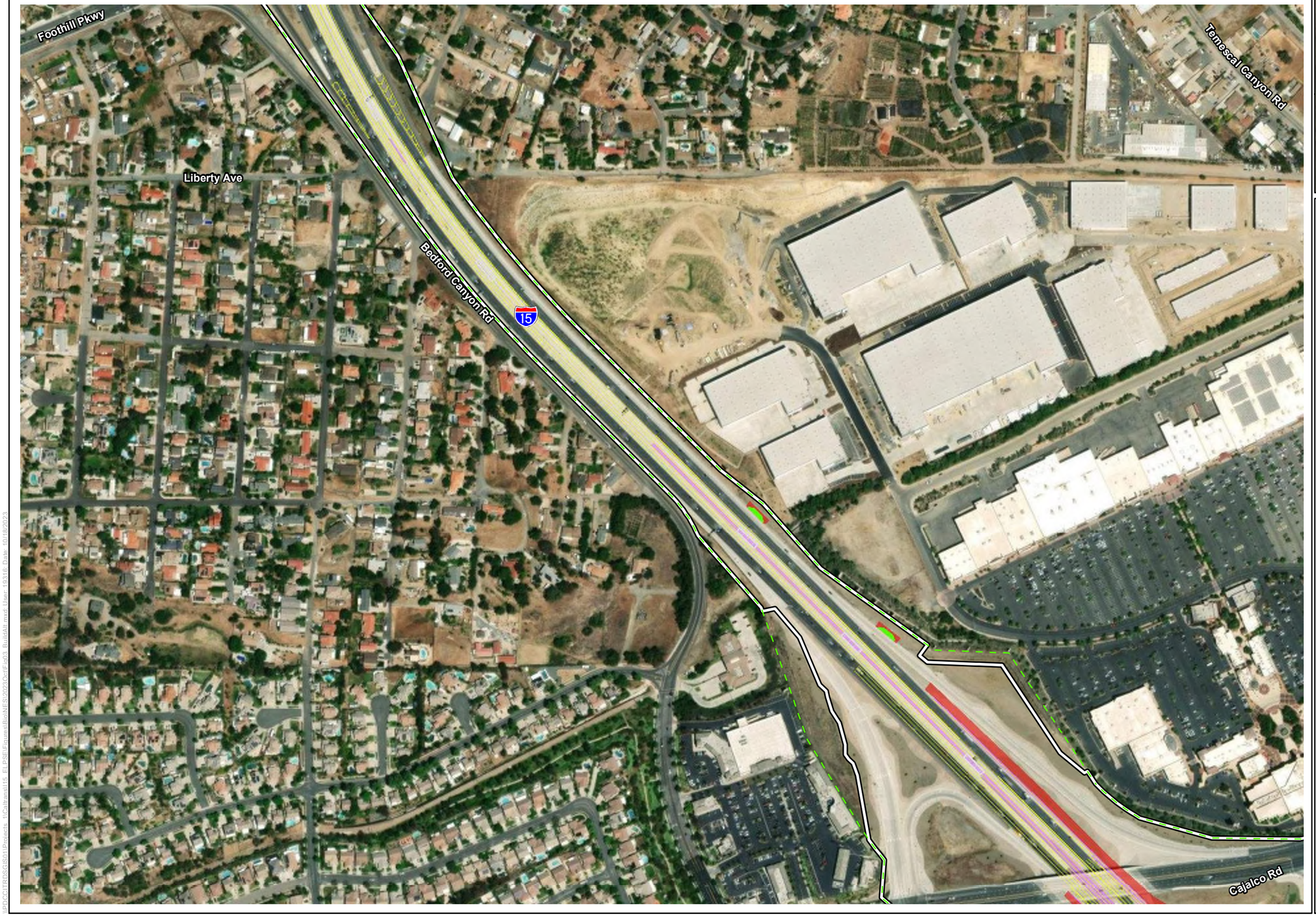
Source: ESRI USA Imagery

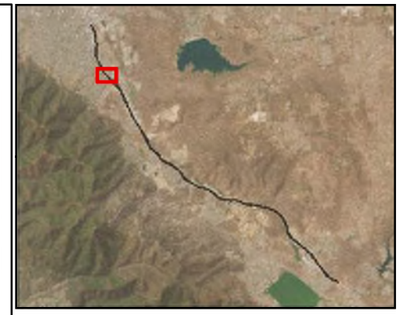
N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 21
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension





Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

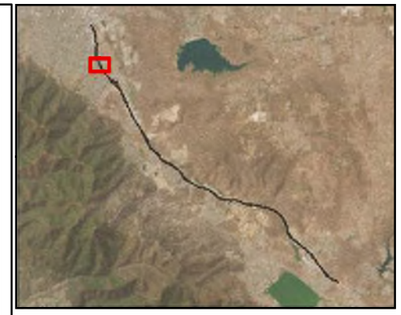
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 22
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

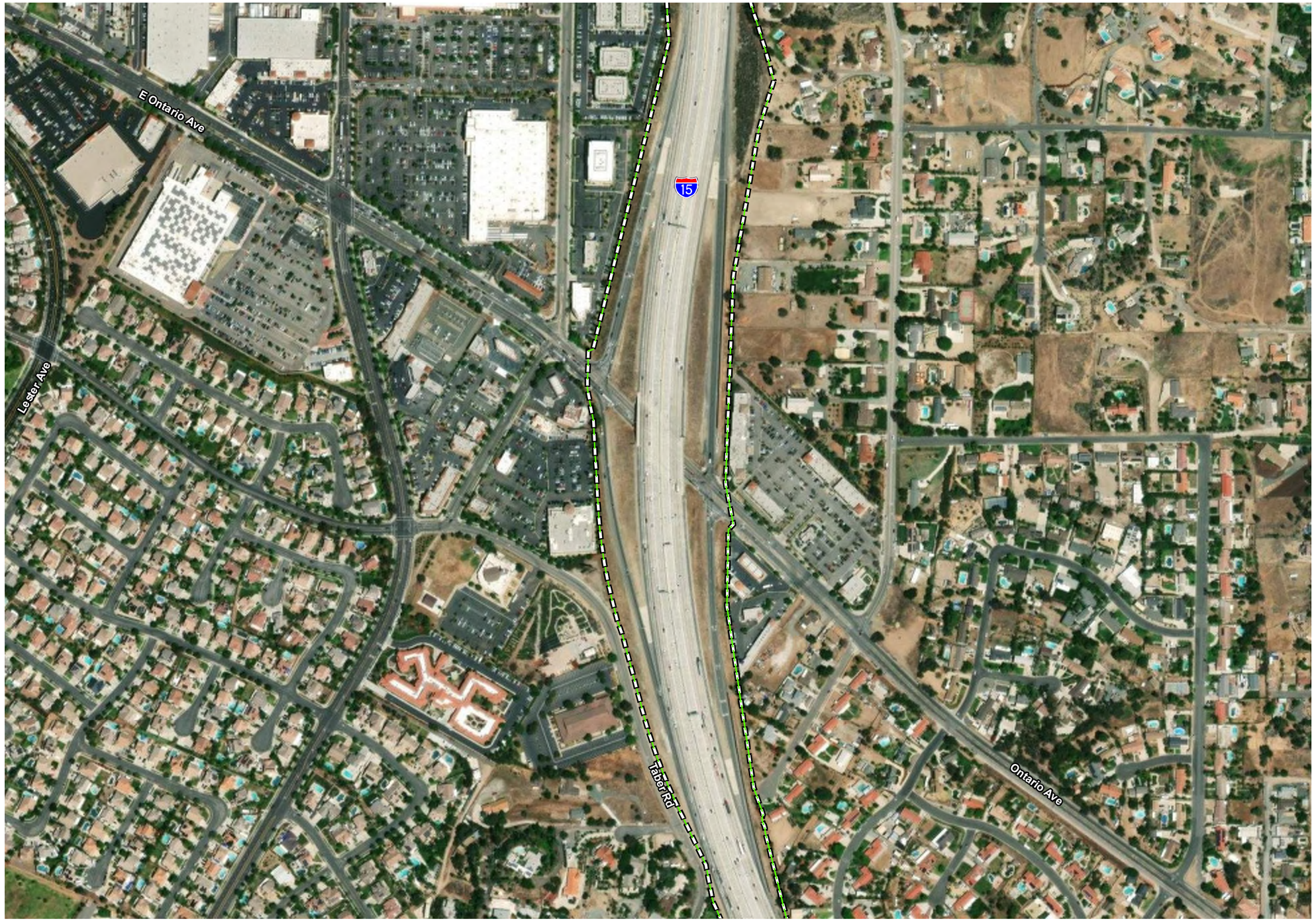
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 23
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

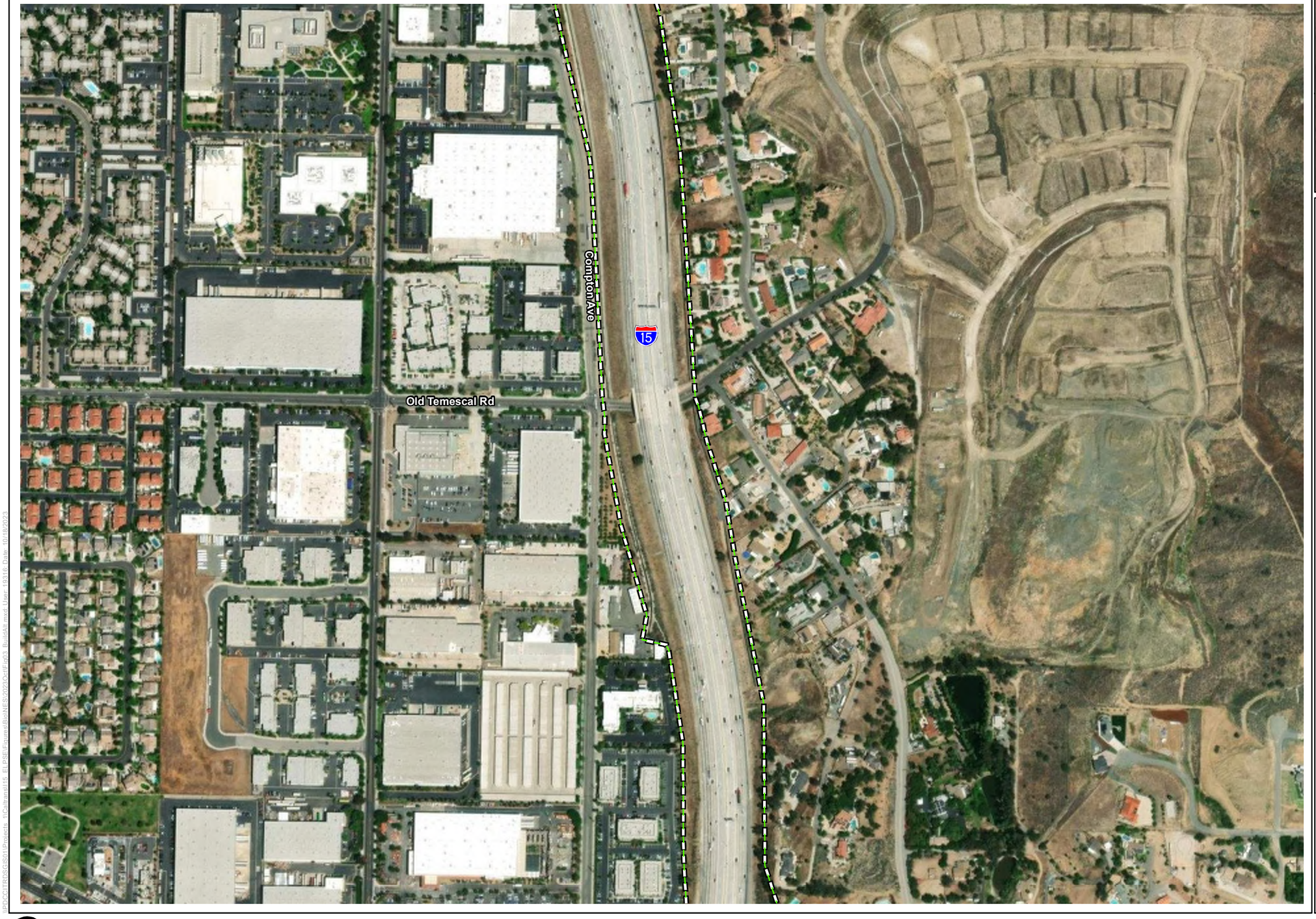
Source: ESRI USA Imagery

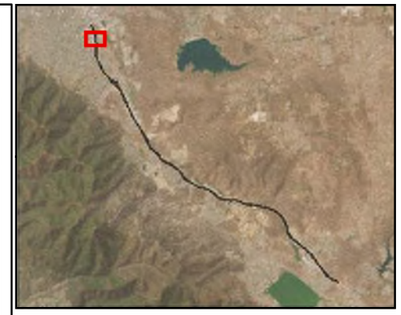
N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 24
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension





Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

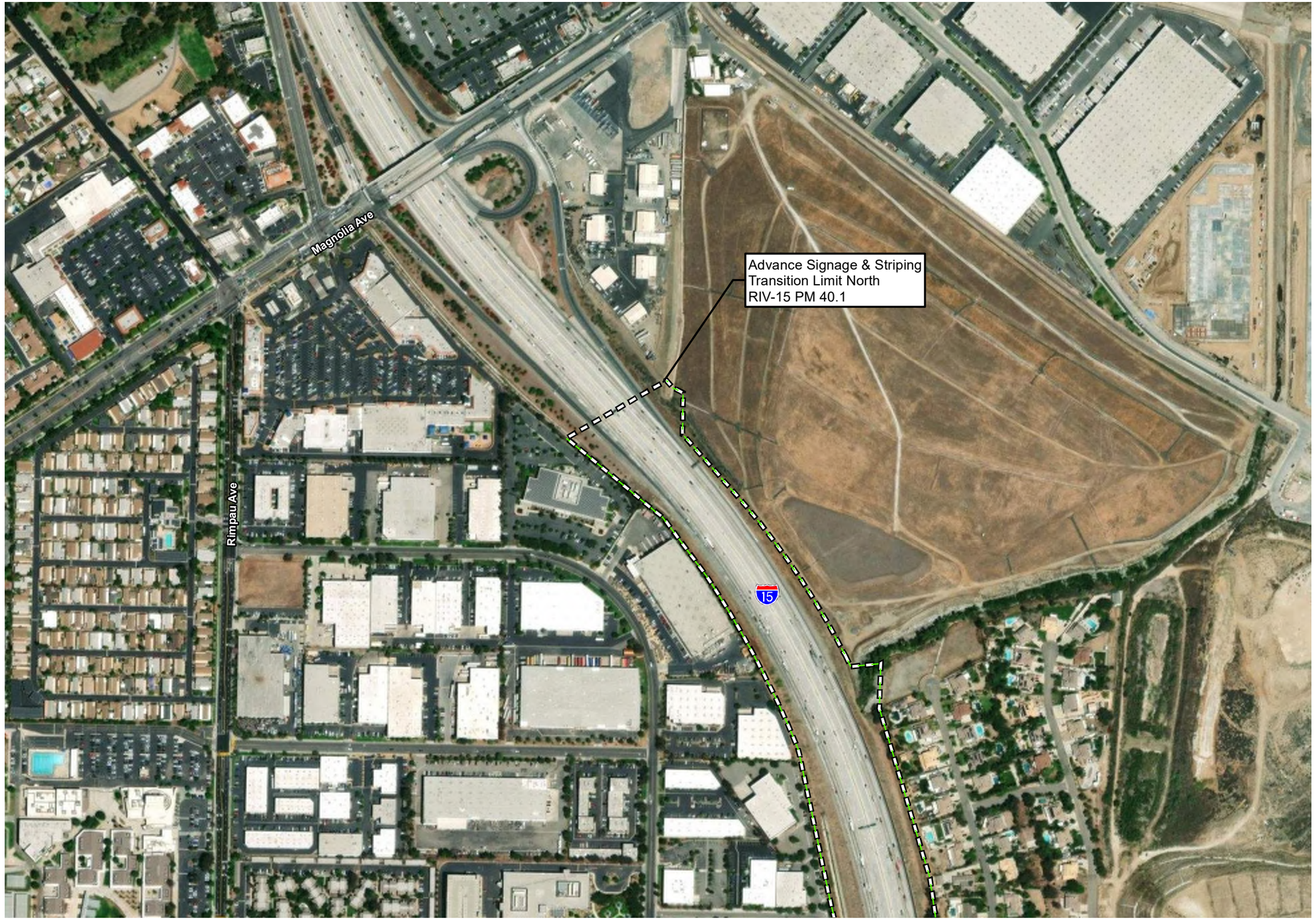
Source: ESRI USA Imagery

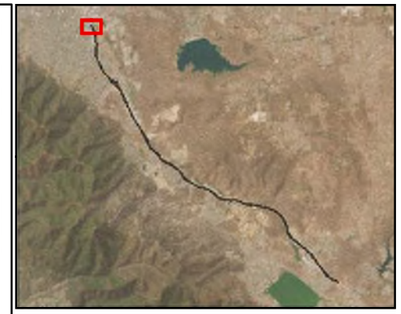
N

0 200 400 Feet

1:4,800

Figure 3 - Sheet 25
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension





Legend

- Existing Right-of-Way (2008)
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- Proposed Striping
- Proposed Pavement
- Temporary Staging and Access Areas
- Permanent Grading
- Potential BMP
- Proposed Bridge Improvements
- Potential Scour Protection
- Potential Sign Location
- Proposed Column
- Potential Maintenance Vehicle Pullout
- Photo Location and Direction (Appendix E)

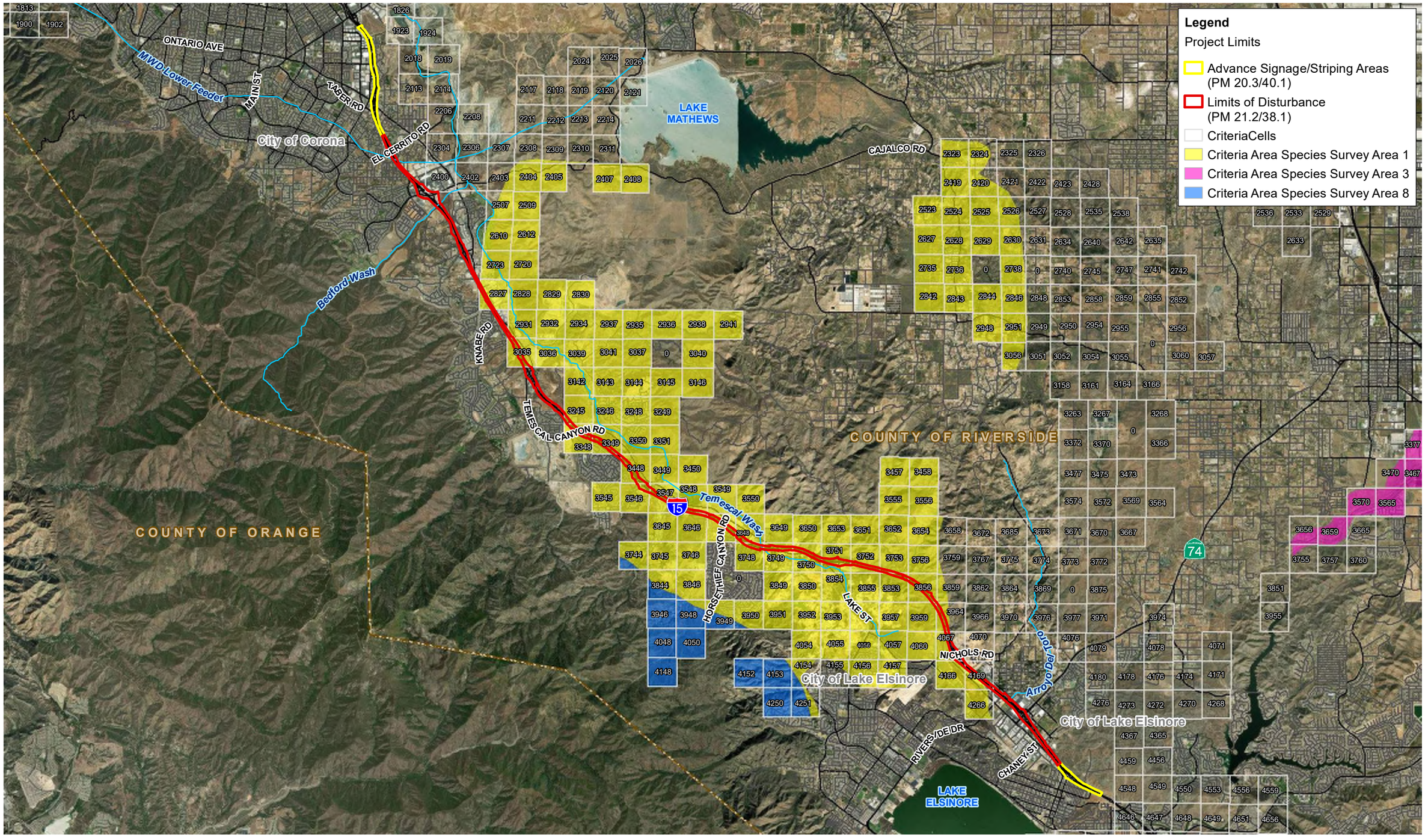
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

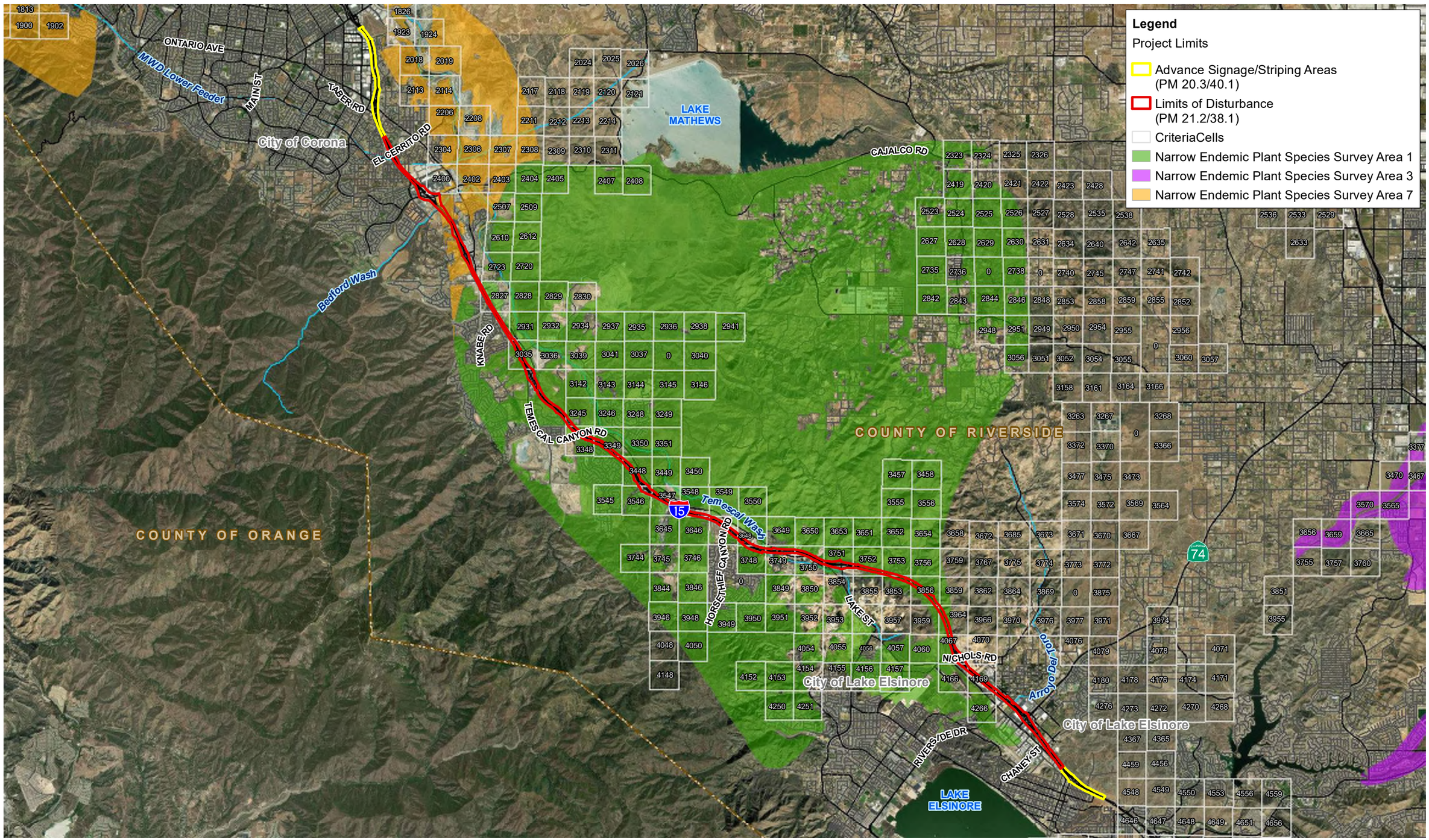
Figure 3 - Sheet 26
Build Alternative Map
Interstate 15 Express Lanes Project Southern Extension



0 1 2 Miles
1:100,000

N

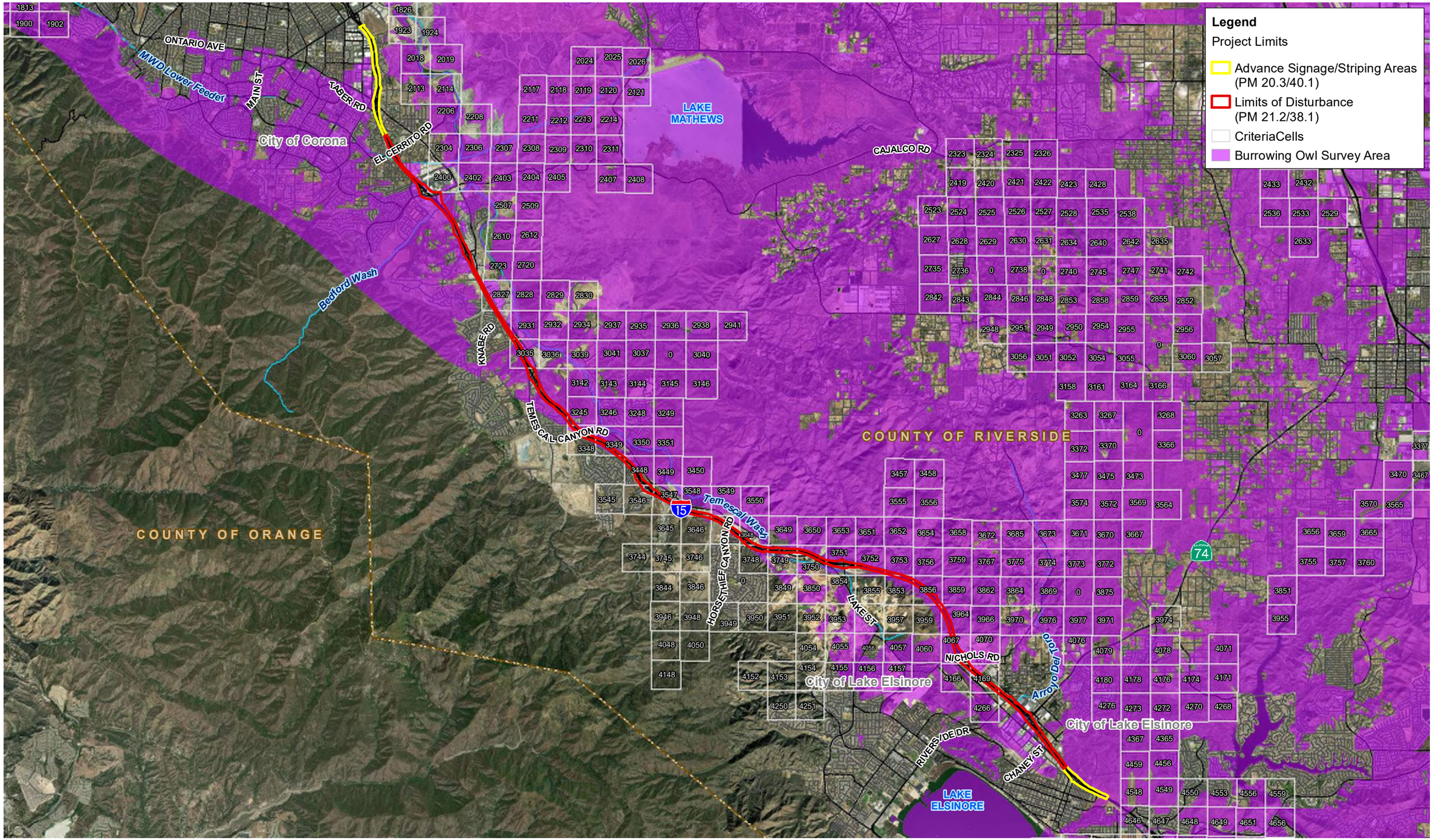
Figure 4a
MSHCP Survey Areas - Criteria Area Species Survey Area
Interstate 15 Express Lanes Project Southern Extension



0 1 2 Miles
1:100,000

N

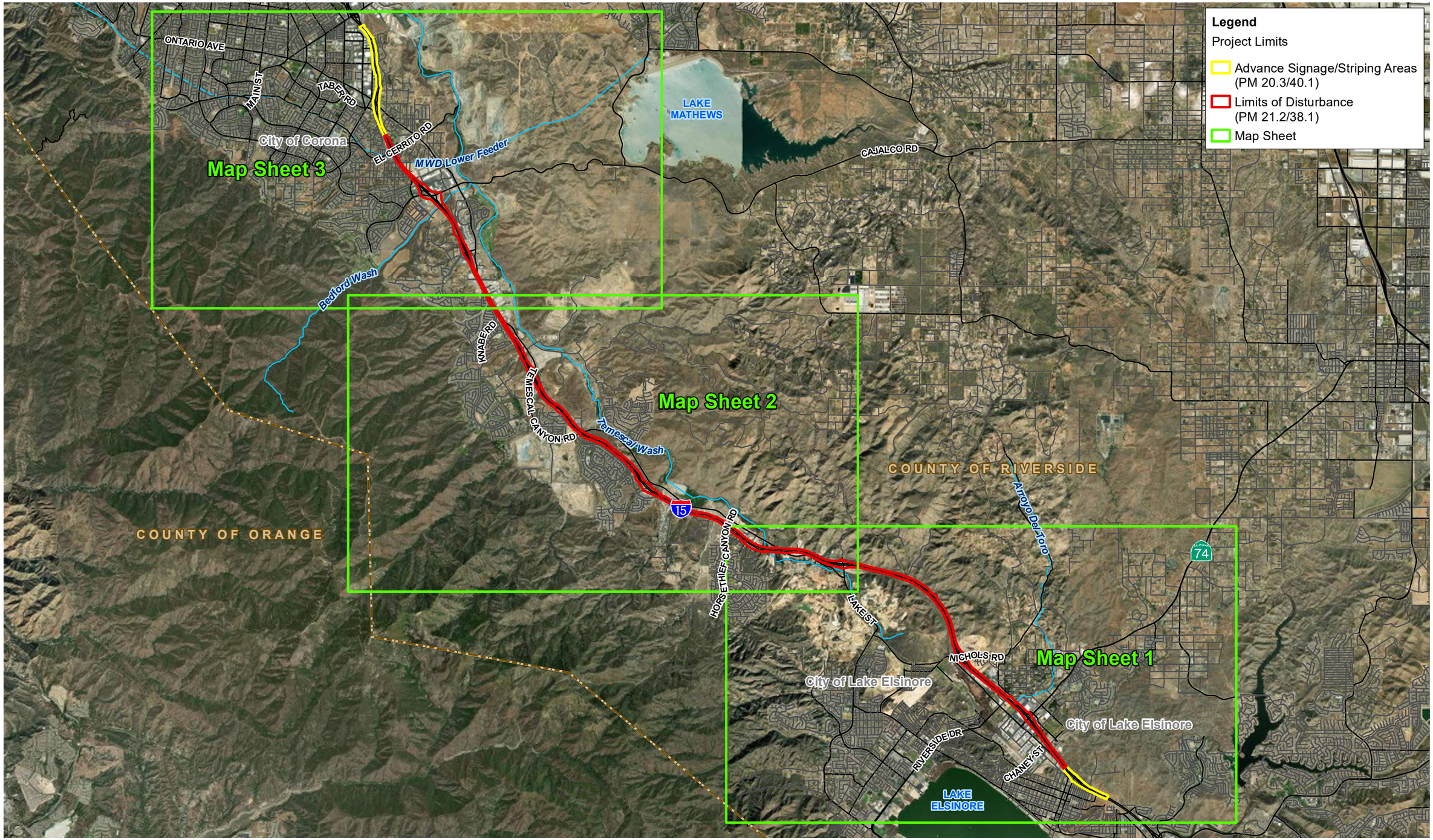
Figure 4b
MSHCP Survey Areas - Narrow Endemic Plants Survey Area
Interstate 15 Express Lanes Project Southern Extension



0 1 2 Miles
1:100,000

N

Figure 4c
MSHCP Survey Areas - Burrowing Owl Survey Area
Interstate 15 Express Lanes Project Southern Extension

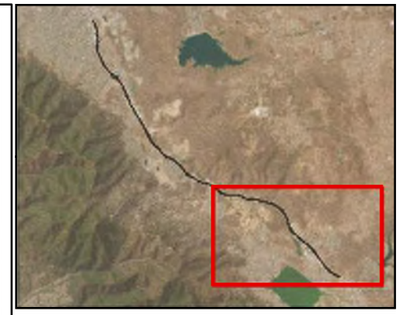


N

0 1 2 Miles

1:100,000

Figure 5 - Map Index
Biological Study Area
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- BSA - 500-foot Study Area - Burrowing Owl
- 300-foot Study Area - Riparian Birds
- 100-foot Study Area - Fairy Shrimp, Rare Plants and Bats
- 50-foot Study Area - Jurisdictional Delineation

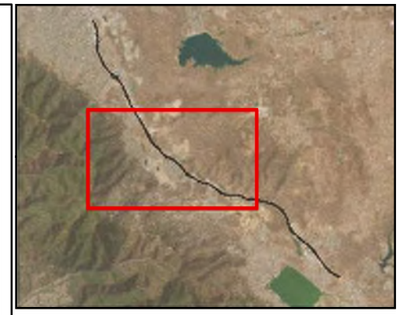
Source: ESRI USA Imagery

N

0 1,500 3,000 Feet

1:36,000

Figure 5 - Sheet 1
Biological Study Area
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- BSA - 500-foot Study Area - Burrowing Owl
- 300-foot Study Area - Riparian Birds
- 100-foot Study Area - Fairy Shrimp, Rare Plants and Bats
- 50-foot Study Area - Jurisdictional Delineation

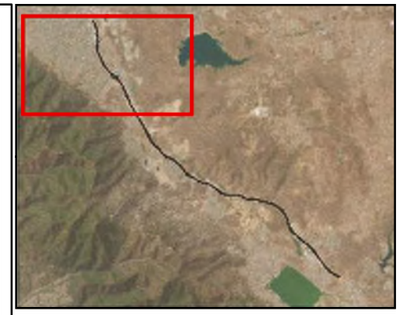
Source: ESRI USA Imagery

N

0 1,500 3,000 Feet

1:36,000

Figure 5 - Sheet 2
Biological Study Area
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- BSA - 500-foot Study Area - Burrowing Owl
- 300-foot Study Area - Riparian Birds
- 100-foot Study Area - Fairy Shrimp, Rare Plants and Bats
- 50-foot Study Area - Jurisdictional Delineation

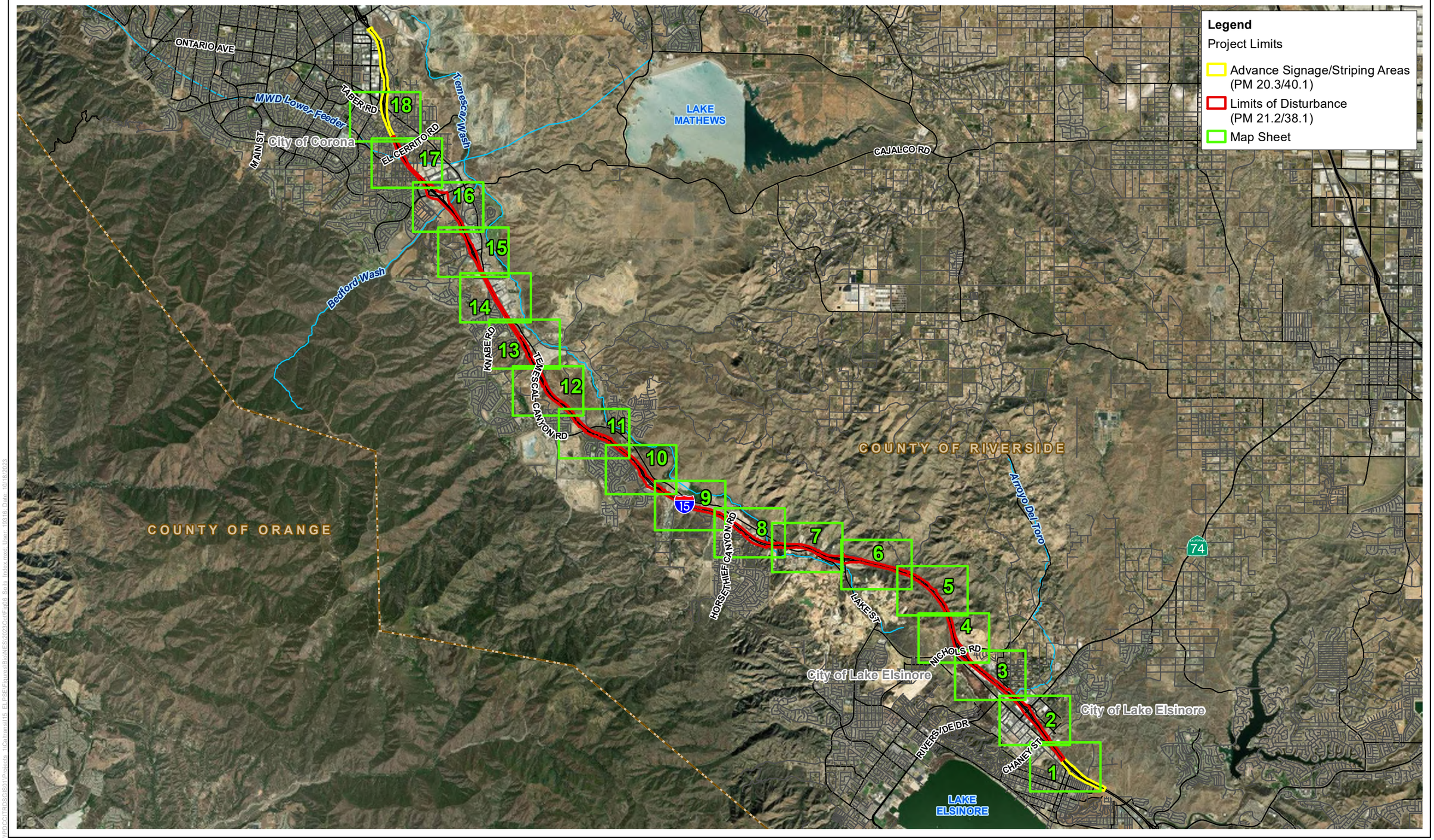
Source: ESRI USA Imagery

N

0 1,500 3,000 Feet

1:36,000

Figure 5 - Sheet 3
Biological Study Area
Interstate 15 Express Lanes Project Southern Extension



0 1 2 Miles
1:100,000

N

Figure 6 - Map Index
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study Area

Soils

AlE - Arbuckle gravelly loam, 15 to 25 percent slopes

CnC - Cortina gravelly coarse sandy loam, 2 to 8 percent slopes

GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes

LpE2 - Lodo rocky loam, 8 to 25 percent slopes, eroded

LpF2 - Lodo rocky loam, 25 to 50 percent slopes, eroded

Wa - Waukena loamy fine sand, saline-alkali

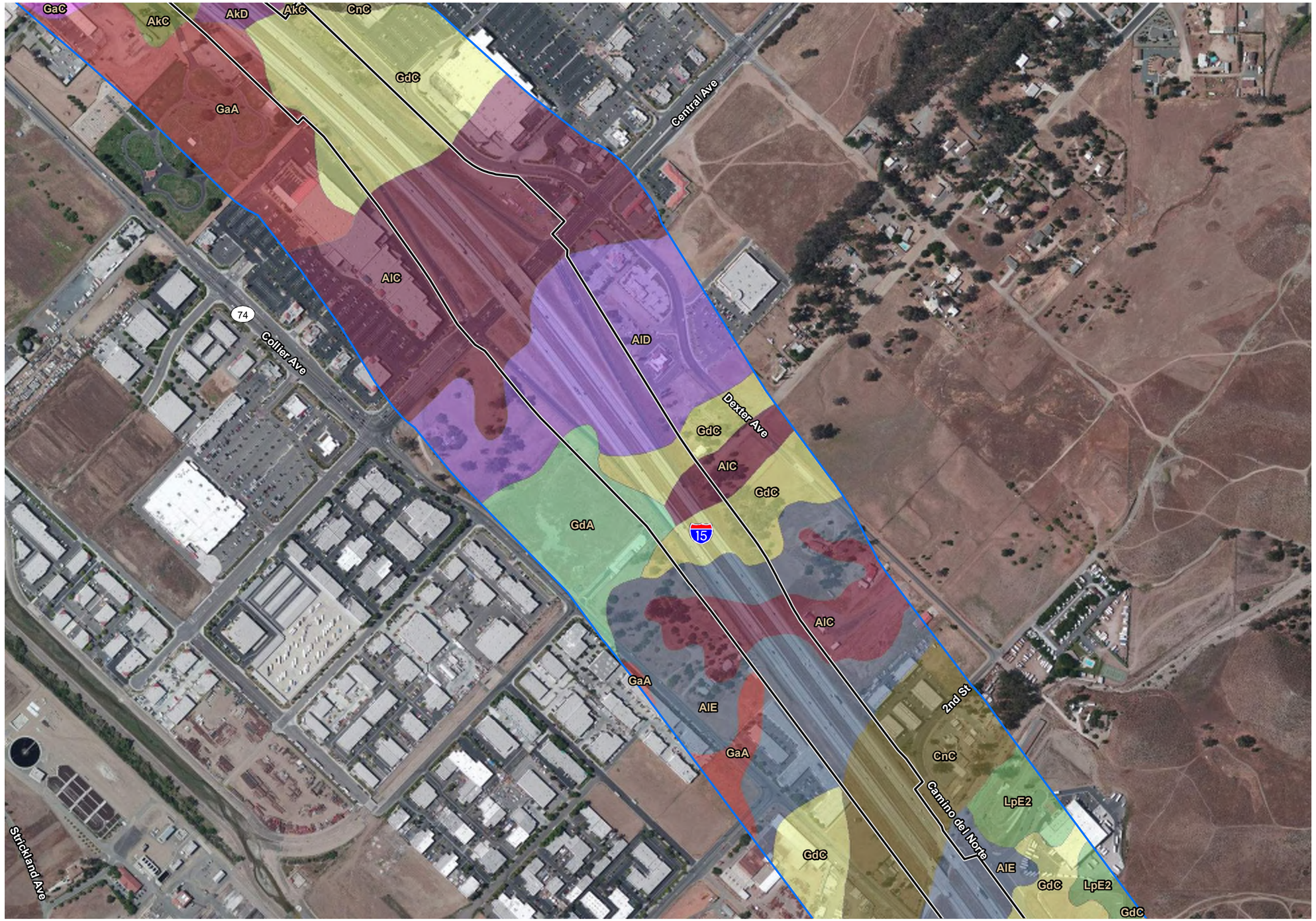
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 1
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study Area

Soils

- AkC - Arbuckle loam, 2 to 8 percent slopes
- AkD - Arbuckle loam, 8 to 15 percent slopes
- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- AlD - Arbuckle gravelly loam, 8 to 15 percent slopes
- AlE - Arbuckle gravelly loam, 15 to 25 percent slopes
- CnC - Cortina gravelly coarse sandy loam, 2 to 8 percent slopes
- GaA - Garretson very fine sandy loam, 0 to 2 percent slopes
- GaC - Garretson very fine sandy loam, 2 to 8 percent slopes
- GdA - Garretson gravelly very fine sandy loam, 0 to 2 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- LpE2 - Lodo rocky loam, 8 to 25 percent slopes, eroded

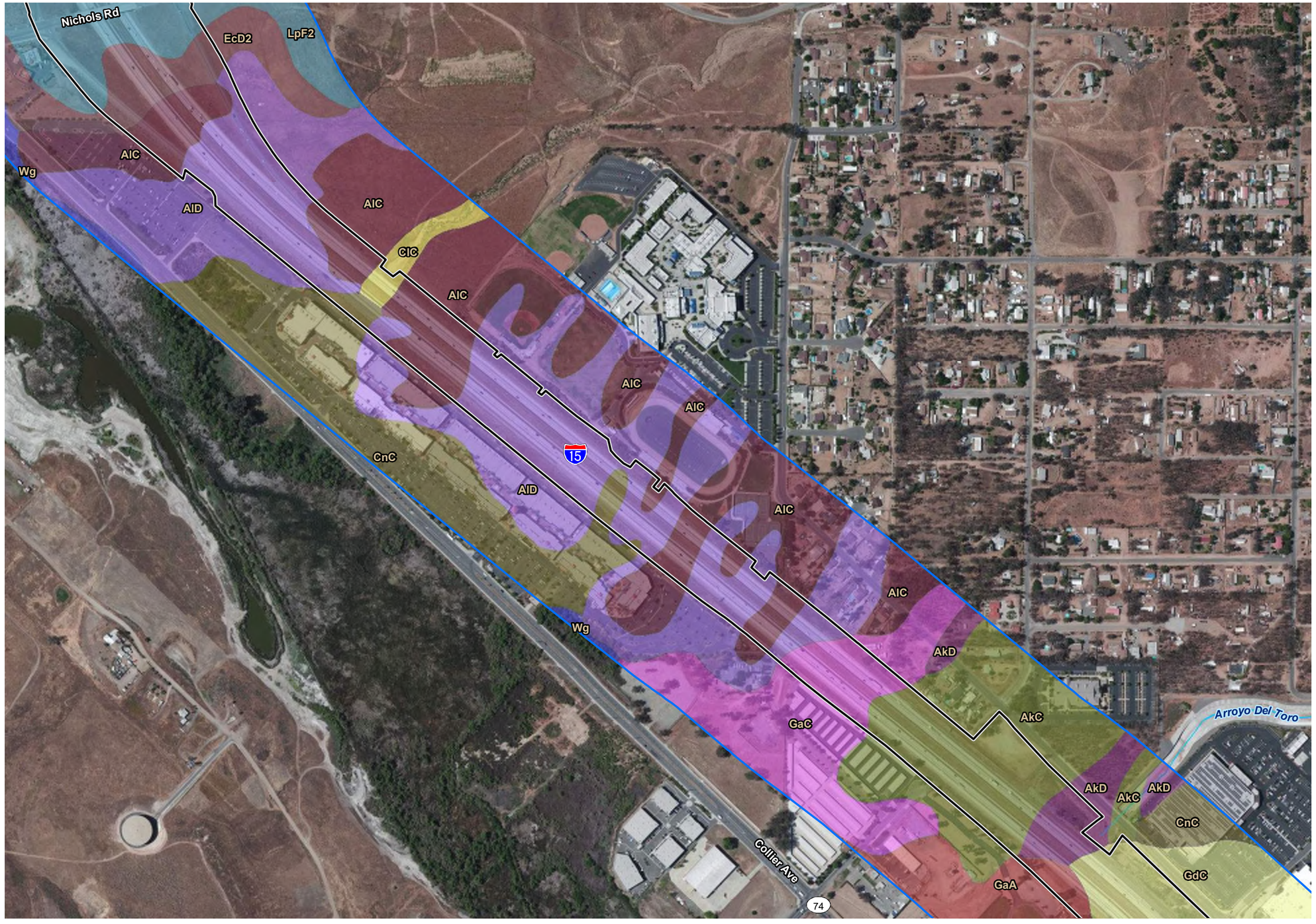
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 2
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study Area

Soils

- AkC - Arbuckle loam, 2 to 8 percent slopes
- AkD - Arbuckle loam, 8 to 15 percent slopes
- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- AlD - Arbuckle gravelly loam, 8 to 15 percent slopes
- ClC - Cortina gravelly loamy sand, 2 to 8 percent slopes
- CnC - Cortina gravelly coarse sandy loam, 2 to 8 percent slopes
- EcD2 - Escondido fine sandy loam, 8 to 15 percent slopes, eroded
- GaA - Garretson very fine sandy loam, 0 to 2 percent slopes
- GaC - Garretson very fine sandy loam, 2 to 8 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- LpF2 - Lodo rocky loam, 25 to 50 percent slopes, eroded
- Wg - Willows silty clay, saline-alkali

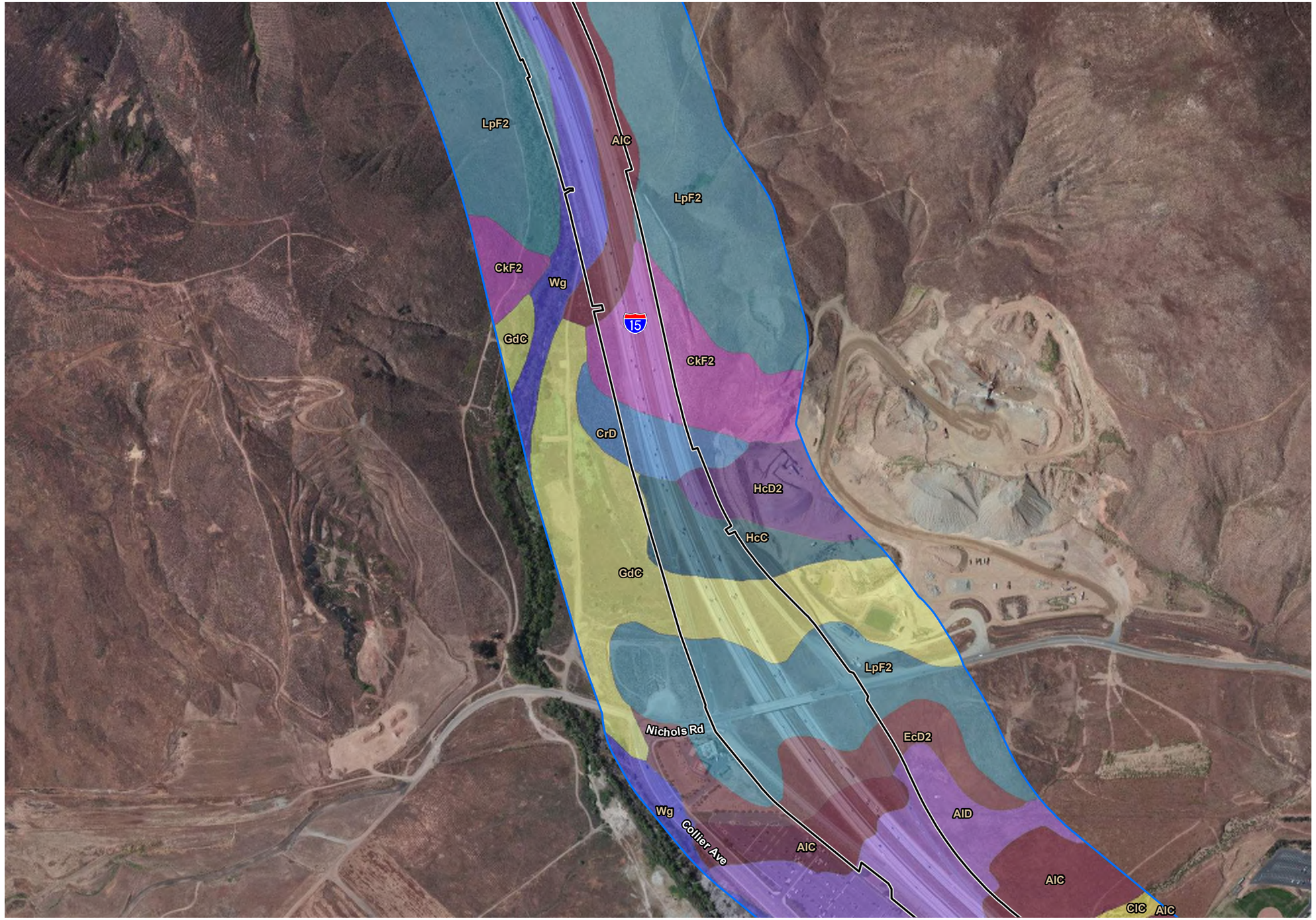
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 3
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study

Soils

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- AlD - Arbuckle gravelly loam, 8 to 15 percent slopes
- CkF2 - Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- ClC - Cortina gravelly loamy sand, 2 to 8 percent slopes
- CrD - Cortina cobbly sandy loam, 2 to 12 percent slopes
- EcD2 - Escondido fine sandy loam, 8 to 15 percent slopes, eroded
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HcD2 - Hanford coarse sandy loam, 8 to 15 percent slopes, eroded
- LpF2 - Lodo rocky loam, 25 to 50 percent slopes, eroded
- Wg - Willows silty clay, saline-alkali

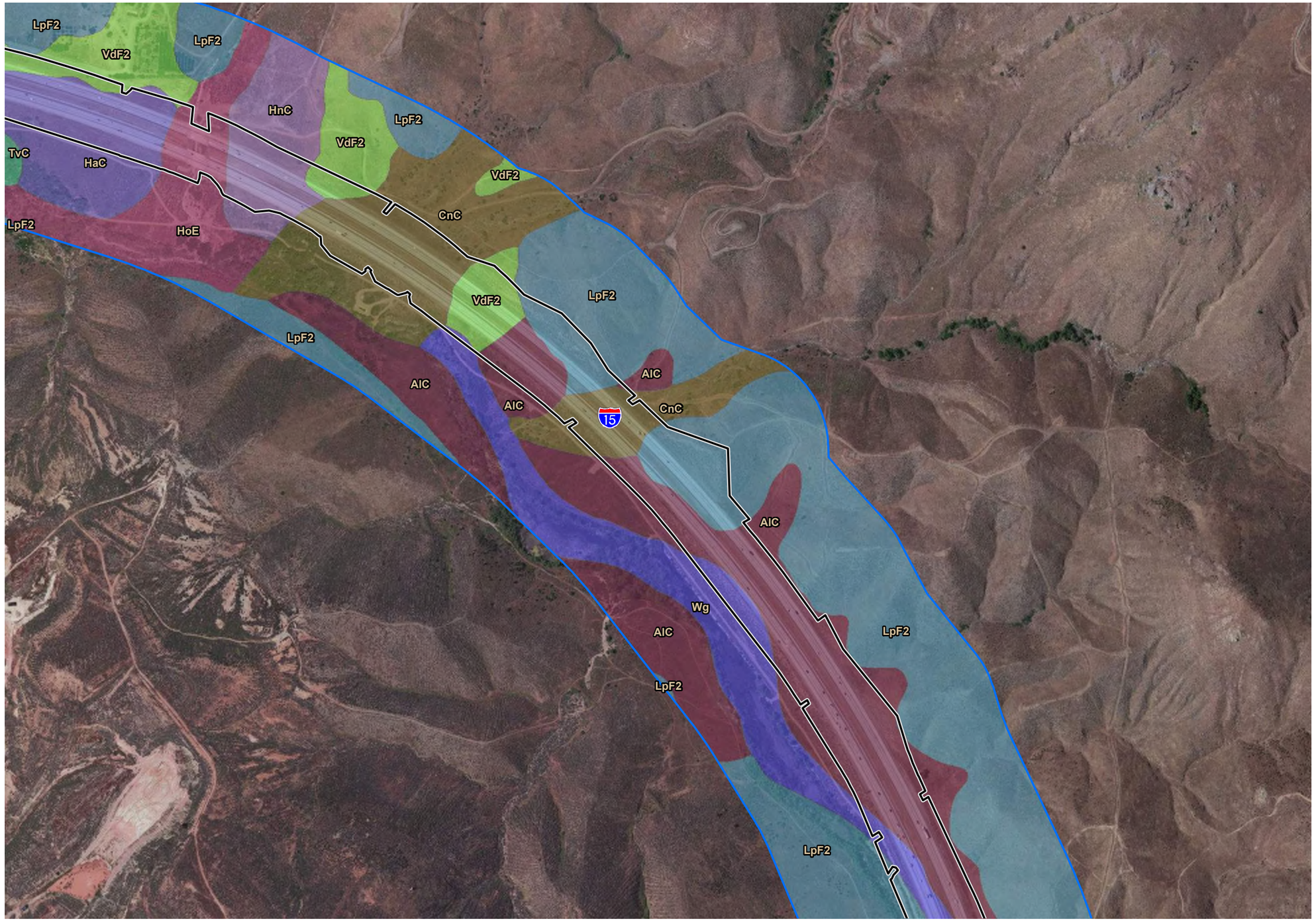
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 4
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study

Soils

AlC - Arbuckle gravelly loam, 2 to 8 percent slopes

CnC - Cortina gravelly coarse sandy loam, 2 to 8 percent slopes

HaC - Hanford loamy fine sand, 0 to 8 percent slopes

HnC - Honcut sandy loam, 2 to 8 percent slopes

HoE - Honcut cobbly sandy loam, 2 to 25 percent slopes

LpF2 - Lodo rocky loam, 25 to 50 percent slopes, eroded

TvC - Tujunga loamy sand, channeled, 0 to 8 percent slopes

VdF2 - Vallecitos rocky loam, 8 to 50 percent slopes, eroded

Wg - Willows silty clay, saline-alkali

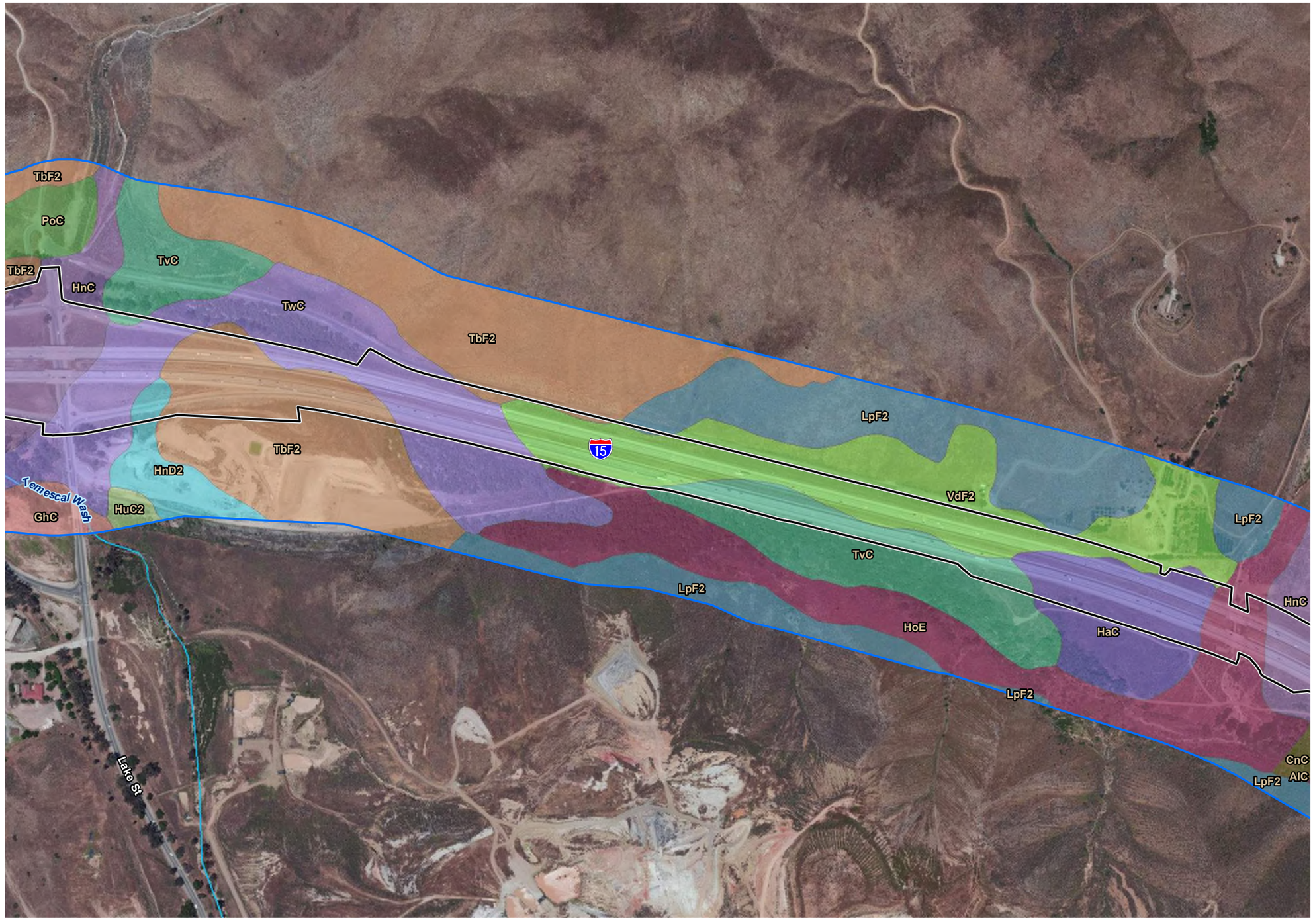
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 5
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study Area

Soils

- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- CnC - Cortina gravelly coarse sandy loam, 2 to 8 percent slopes
- GhC - Gorgonio loamy sand, 0 to 8 percent slopes
- HaC - Hanford loamy fine sand, 0 to 8 percent slopes
- HnC - Honcut sandy loam, 2 to 8 percent slopes
- HnD2 - Honcut sandy loam, 8 to 15 percent slopes, eroded
- HoE - Honcut cobbly sandy loam, 2 to 25 percent slopes
- HuC2 - Honcut loam, 2 to 8 percent slopes, eroded
- LpF2 - Lodo rocky loam, 25 to 50 percent slopes, eroded
- PoC - Porterville clay, 0 to 8 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TvC - Tujunga loamy sand, channeled, 0 to 8 percent slopes
- TwC - Tujunga gravelly loamy sand, 0 to 8 percent slopes
- VdF2 - Vallecitos rocky loam, 8 to 50 percent slopes, eroded

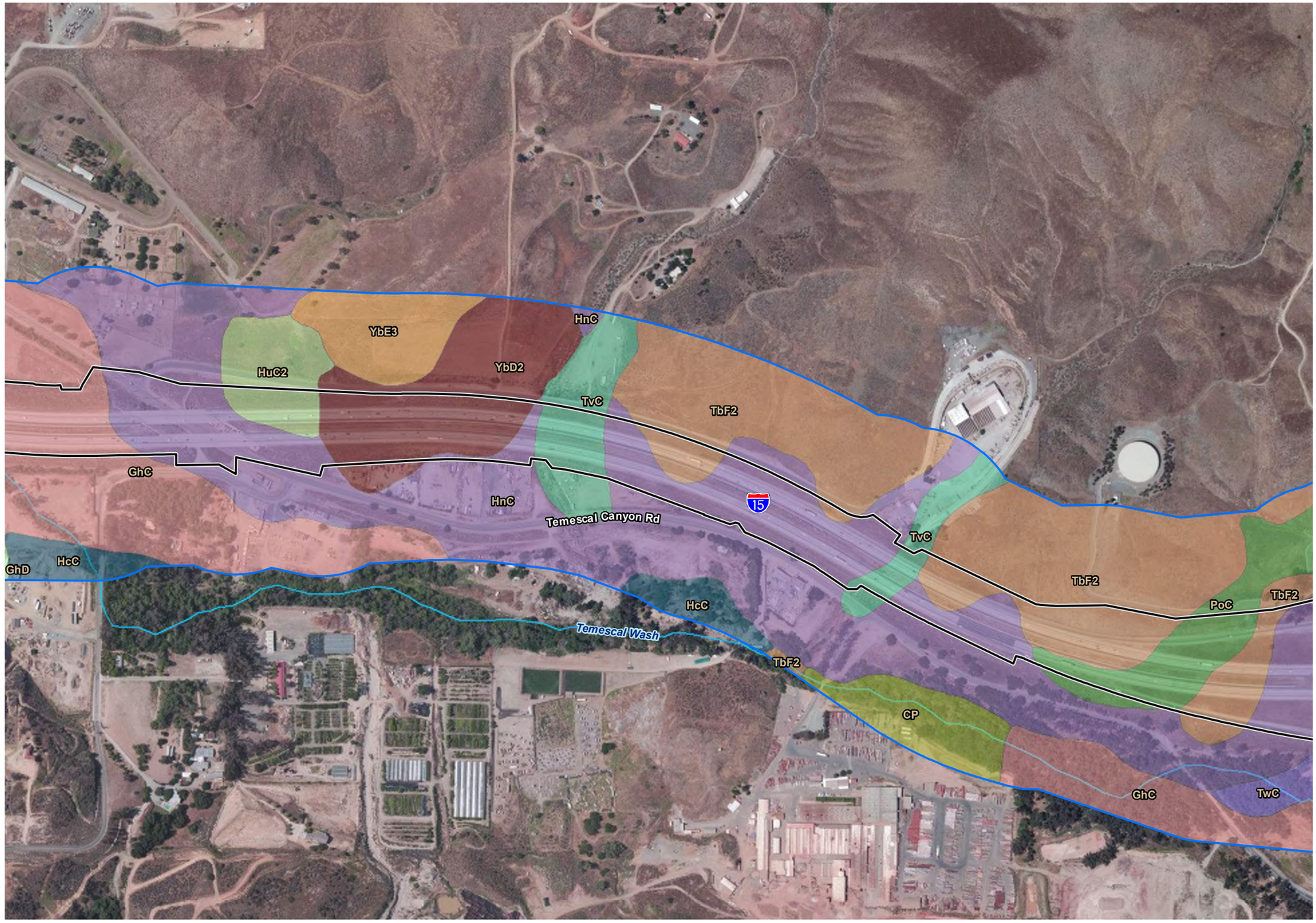
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 6
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study

Soils

- CP - Clay Pits
- GhC - Gorgonio loamy sand, 0 to 8 percent slopes
- GhD - Gorgonio loamy sand, 8 to 15 percent slopes
- HcC - Hanford coarse sandy loam, 2 to 8 percent slopes
- HnC - Honcut sandy loam, 2 to 8 percent slopes
- HuC2 - Honcut loam, 2 to 8 percent slopes, eroded
- PoC - Porterville clay, 0 to 8 percent slopes
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TvC - Tujunga loamy sand, channeled, 0 to 8 percent slopes
- TwC - Tujunga gravelly loamy sand, 0 to 8 percent slopes
- YbD2 - Yokohl loam, 8 to 15 percent slopes, eroded
- YbE3 - Yokohl loam, 8 to 25 percent slopes, severely eroded

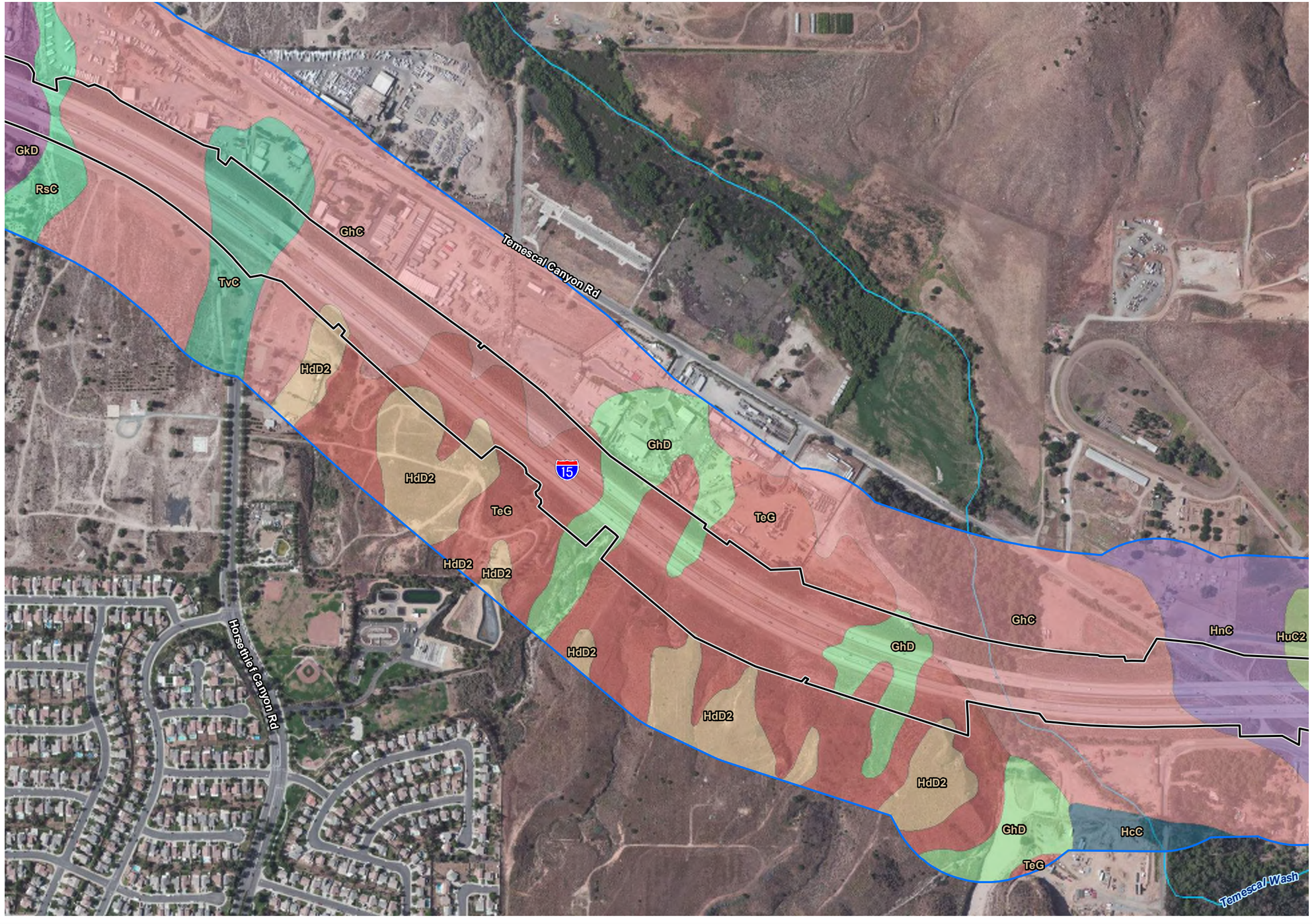
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 7
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study Area

Soils

GhC - Gorgonio loamy sand, 0 to 8 percent slopes

GhD - Gorgonio loamy sand, 8 to 15 percent slopes

GkD - Gorgonio loamy sand, channeled, 2 to 15 percent slopes

HcC - Hanford coarse sandy loam, 2 to 8 percent slopes

HdD2 - Hanford cobbly coarse sandy loam, 2 to 15 percent slopes, eroded

HnC - Honcut sandy loam, 2 to 8 percent slopes

HuC2 - Honcut loam, 2 to 8 percent slopes, eroded

RsC - Riverwash

TeG - Terrace escarpments

TvC - Tujunga loamy sand, channeled, 0 to 8 percent slopes

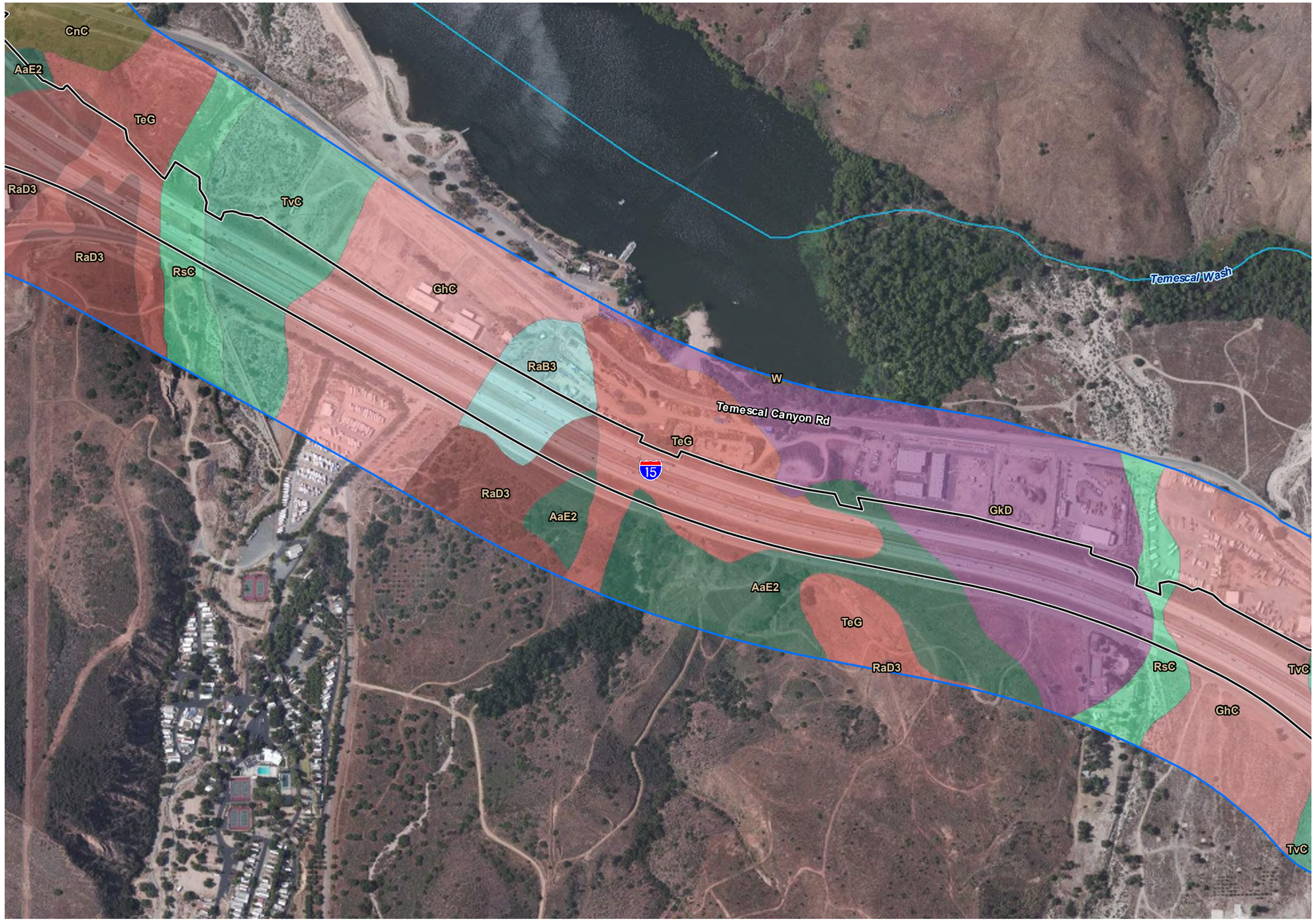
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 8
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)
- BSA - 500-foot Study Area

Soils

- AaE2 - Altamont clay, 15 to 25 percent slopes, eroded
- CnC - Cortina gravelly coarse sandy loam, 2 to 8 percent slopes
- GhC - Gorgonio loamy sand, 0 to 8 percent slopes
- GkD - Gorgonio loamy sand, channeled, 2 to 15 percent slopes
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RsC - Riverwash
- TeG - Terrace escarpments
- TvC - Tujunga loamy sand, channeled, 0 to 8 percent slopes
- W - Water

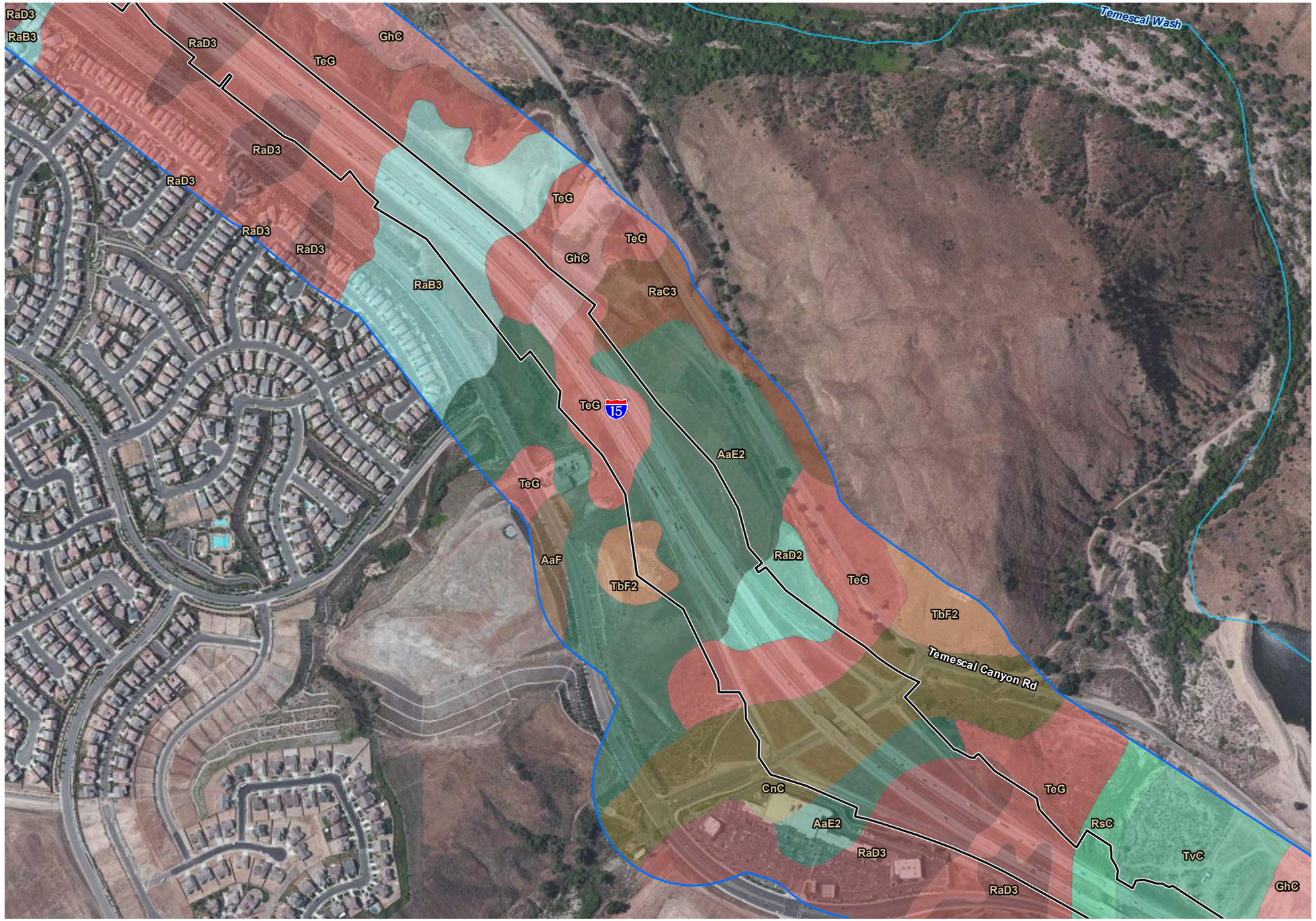
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 9
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study Area

Soils

- AaE2 - Altamont clay, 15 to 25 percent slopes, eroded
- AaF - Altamont clay, 25 to 50 percent slopes
- CnC - Cortina gravelly coarse sandy loam, 2 to 8 percent slopes
- GhC - Gorgonio loamy sand, 0 to 8 percent slopes
- RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded
- RaC3 - Ramona sandy loam, 5 to 8 percent slopes, severely eroded
- RaD2 - Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- RsC - Riverwash
- TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded
- TeG - Terrace escarpments
- TvC - Tujunga loamy sand, channeled, 0 to 8 percent slopes

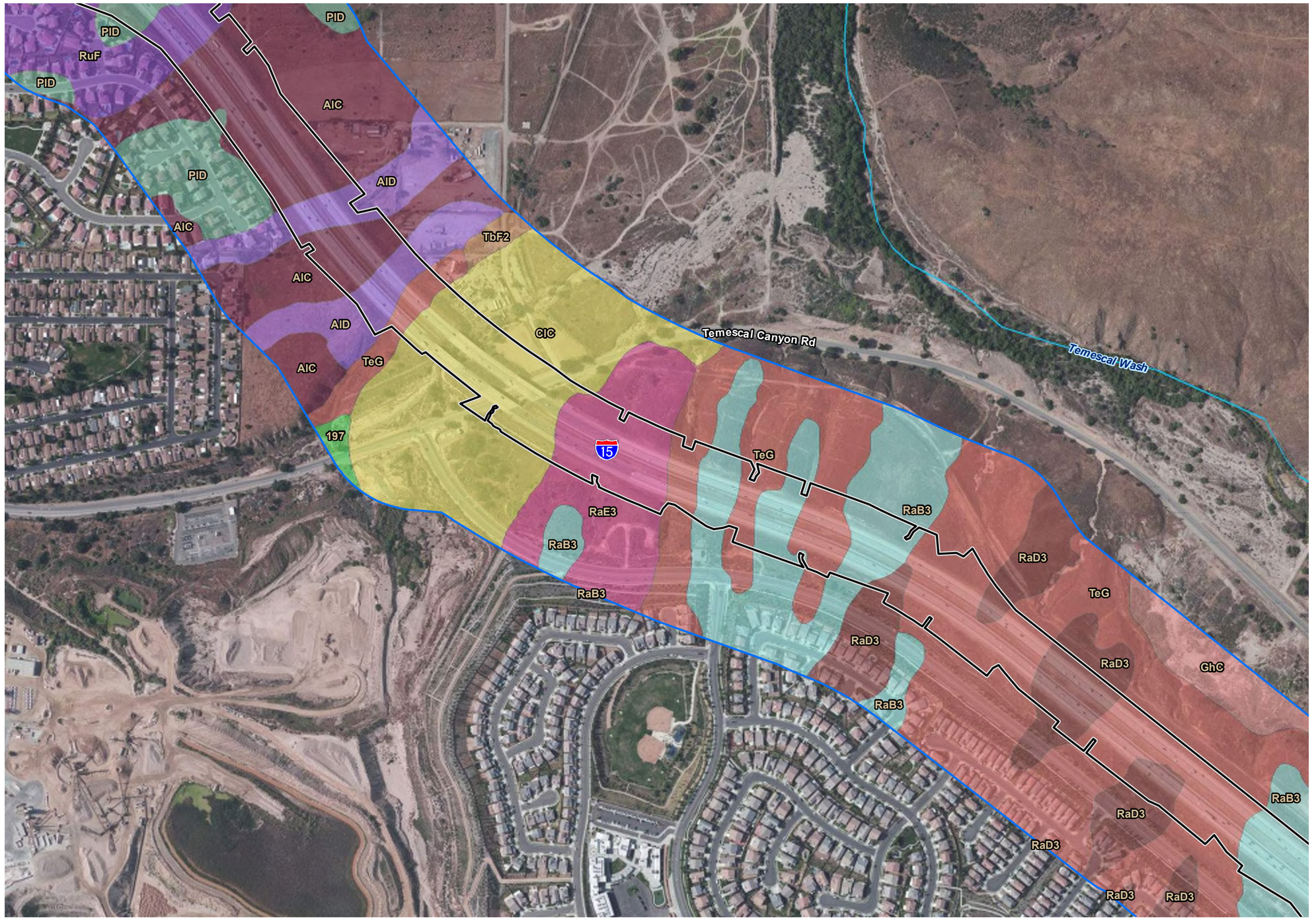
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 10
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study

Soils

197 - Soboba gravelly loamy sand, 0 to 5 percent slopes

AIC - Arbuckle gravelly loam, 2 to 8 percent slopes

AID - Arbuckle gravelly loam, 8 to 15 percent slopes

CIC - Cortina gravelly loamy sand, 2 to 8 percent slopes

GhC - Gorgonio loamy sand, 0 to 8 percent slopes

PID - Placentia fine sandy loam, 5 to 15 percent slopes

RaB3 - Ramona sandy loam, 0 to 5 percent slopes, severely eroded

RaD3 - Ramona sandy loam, 8 to 15 percent slopes, severely eroded

RaE3 - Ramona sandy loam, 15 to 25 percent slopes, severely eroded

RuF - Rough broken land

TbF2 - Temescal rocky loam, 15 to 50 percent slopes, eroded

TeG - Terrace escarpments

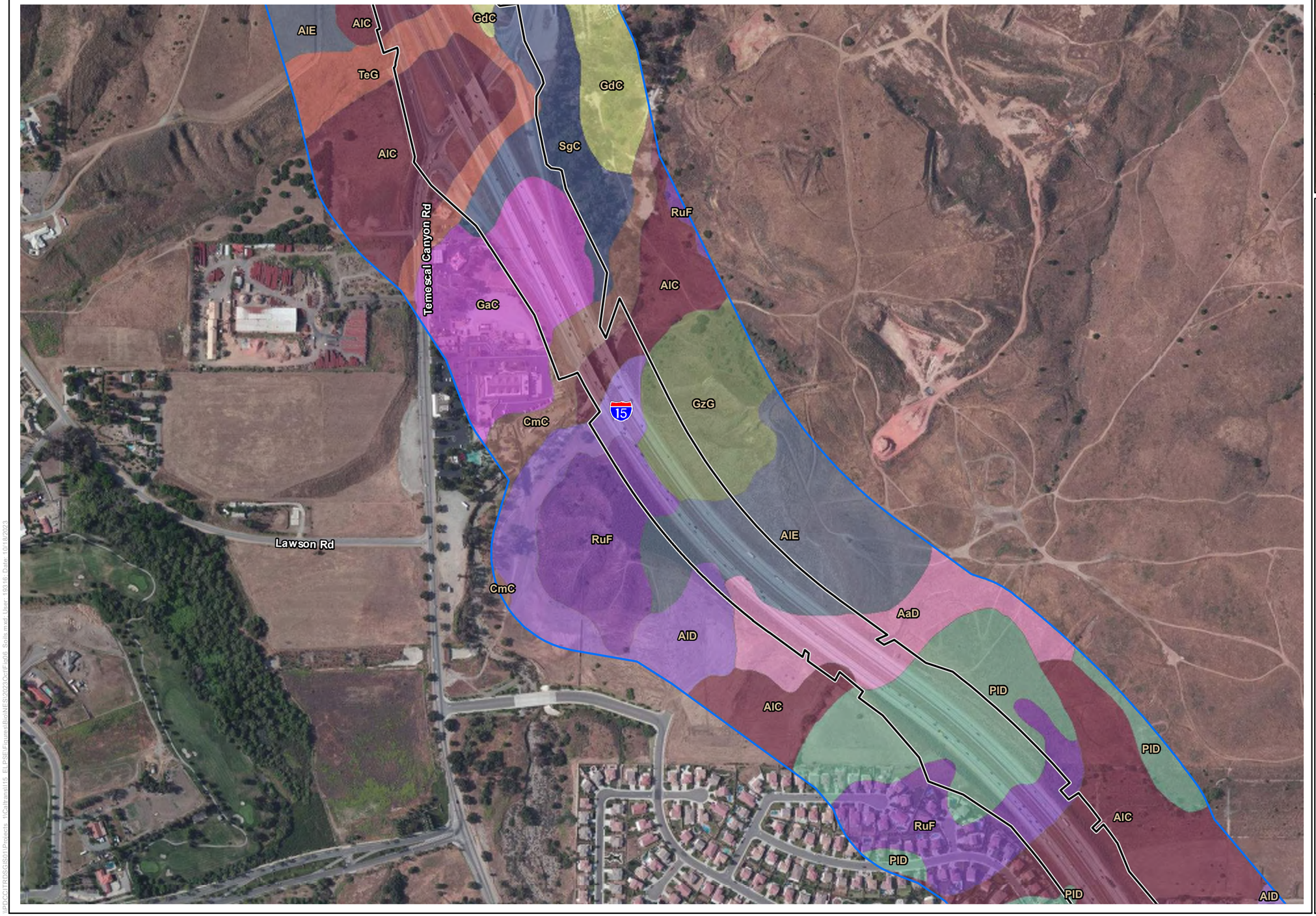
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 11
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study

Soils

AaD - Altamont clay, 5 to 15 percent slopes

AIC - Arbuckle gravelly loam, 2 to 8 percent slopes

AID - Arbuckle gravelly loam, 8 to 15 percent slopes

AIE - Arbuckle gravelly loam, 15 to 25 percent slopes

CmC - Cortina cobbly loamy sand, 2 to 8 percent slopes

GaC - Garretson very fine sandy loam, 2 to 8 percent slopes

GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes

GzG - Gullied land

PID - Placentia fine sandy loam, 5 to 15 percent slopes

RuF - Rough broken land

SgC - San Emigdio loam, 2 to 8 percent slopes

TeG - Terrace escarpments

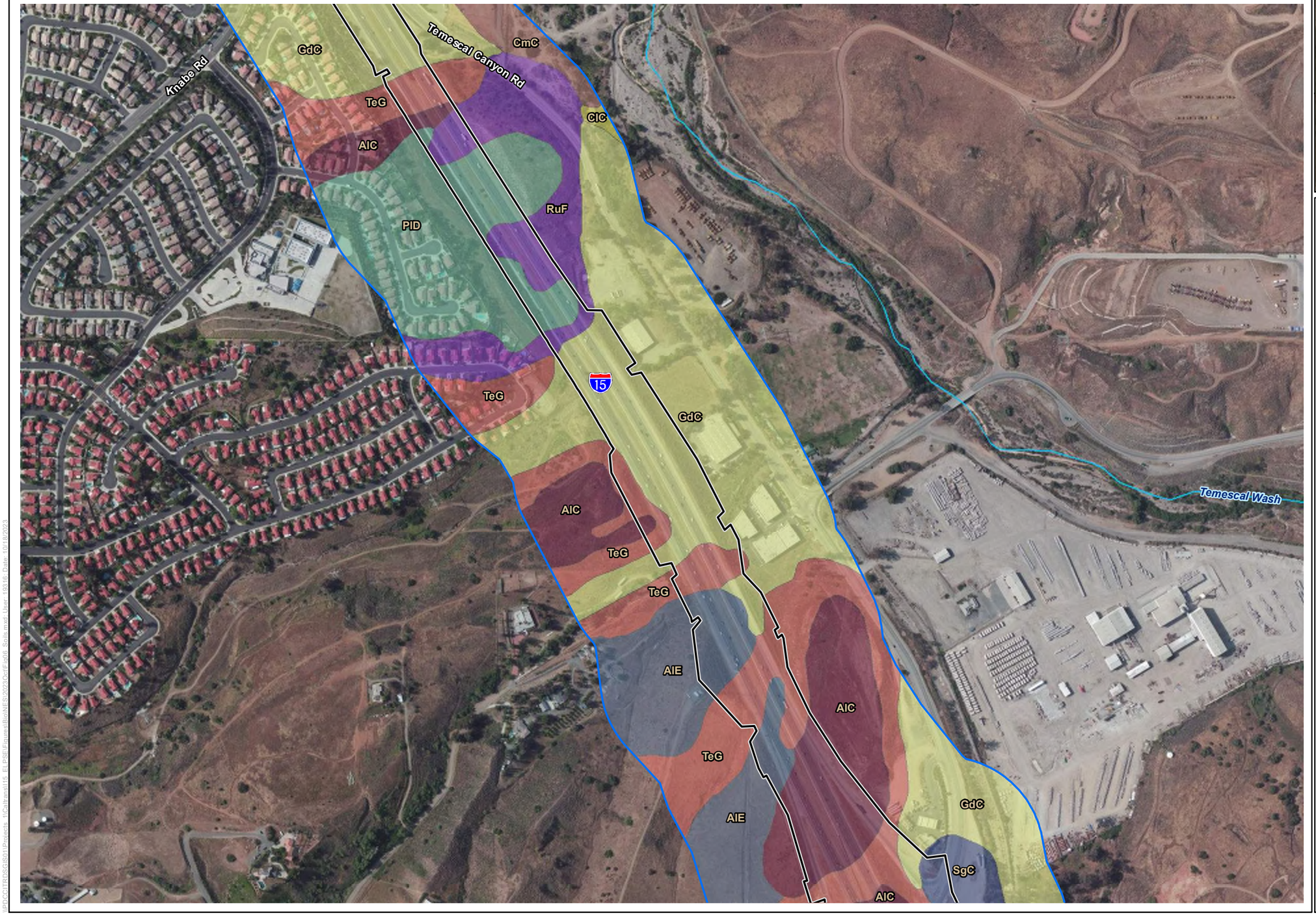
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 12
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study

Soils

AlC - Arbuckle gravelly loam, 2 to 8 percent slopes

AlE - Arbuckle gravelly loam, 15 to 25 percent slopes

ClC - Cortina gravelly loamy sand, 2 to 8 percent slopes

CmC - Cortina cobbly loamy sand, 2 to 8 percent slopes

GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes

PID - Placentia fine sandy loam, 5 to 15 percent slopes

RuF - Rough broken land

SgC - San Emigdio loam, 2 to 8 percent slopes

TeG - Terrace escarpments

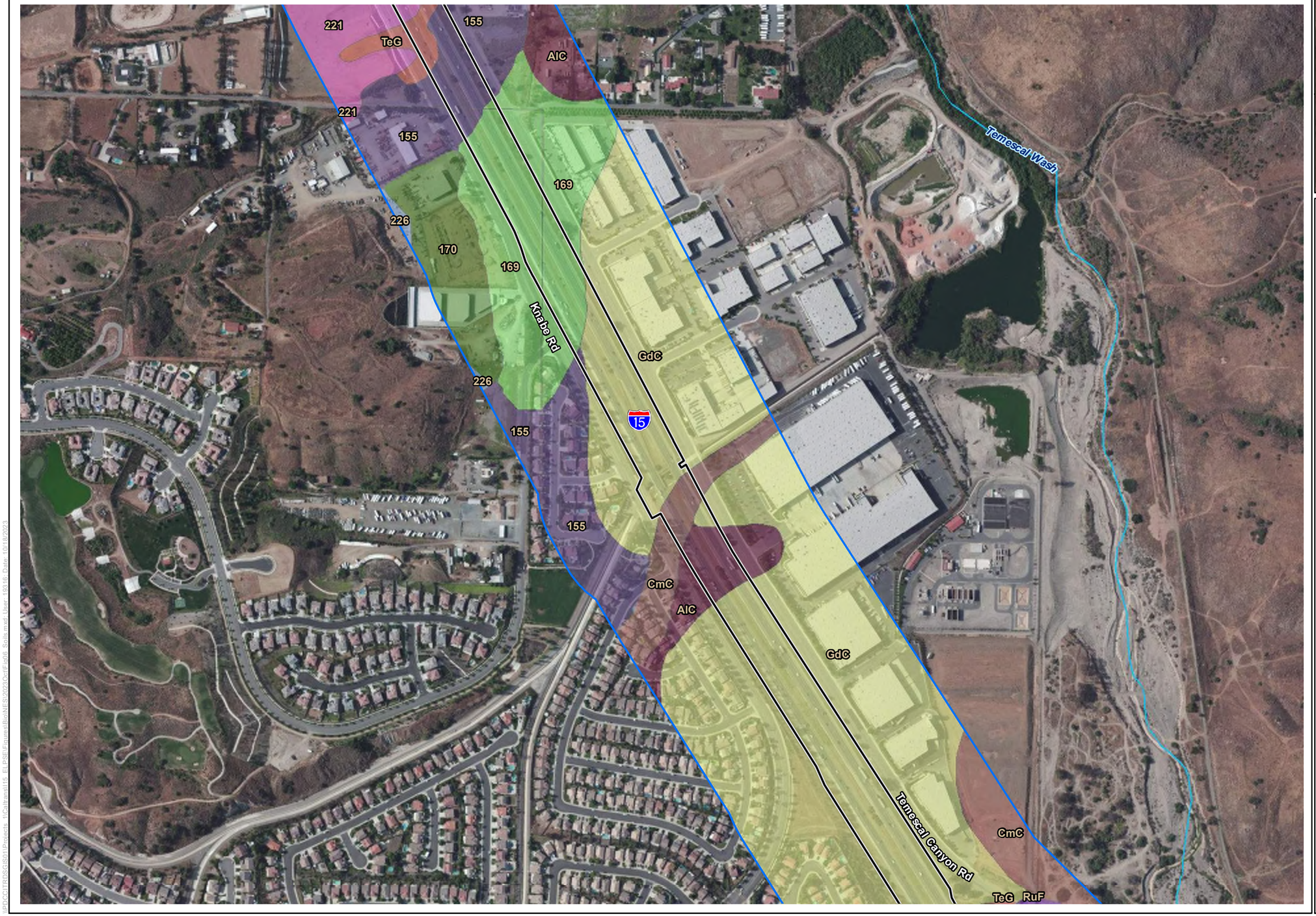
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 13
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study

Soils

155 - Garretson gravelly very fine sandy loam, 2 to 9 percent slopes

169 - Modjeska gravelly loam, 2 to 9 percent slopes

170 - Modjeska Gravelly Loam, 9 To 15 Percent Slopes

221 - Yorba gravelly sandy loam, 2 to 9 percent slopes

226 - Yorba Cobbly Sandy Loam, 30 To 50 Percent Slopes

AIC - Arbuckle gravelly loam, 2 to 8 percent slopes

CmC - Cortina cobbly loamy sand, 2 to 8 percent slopes

GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes

RuF - Rough broken land

TeG - Terrace

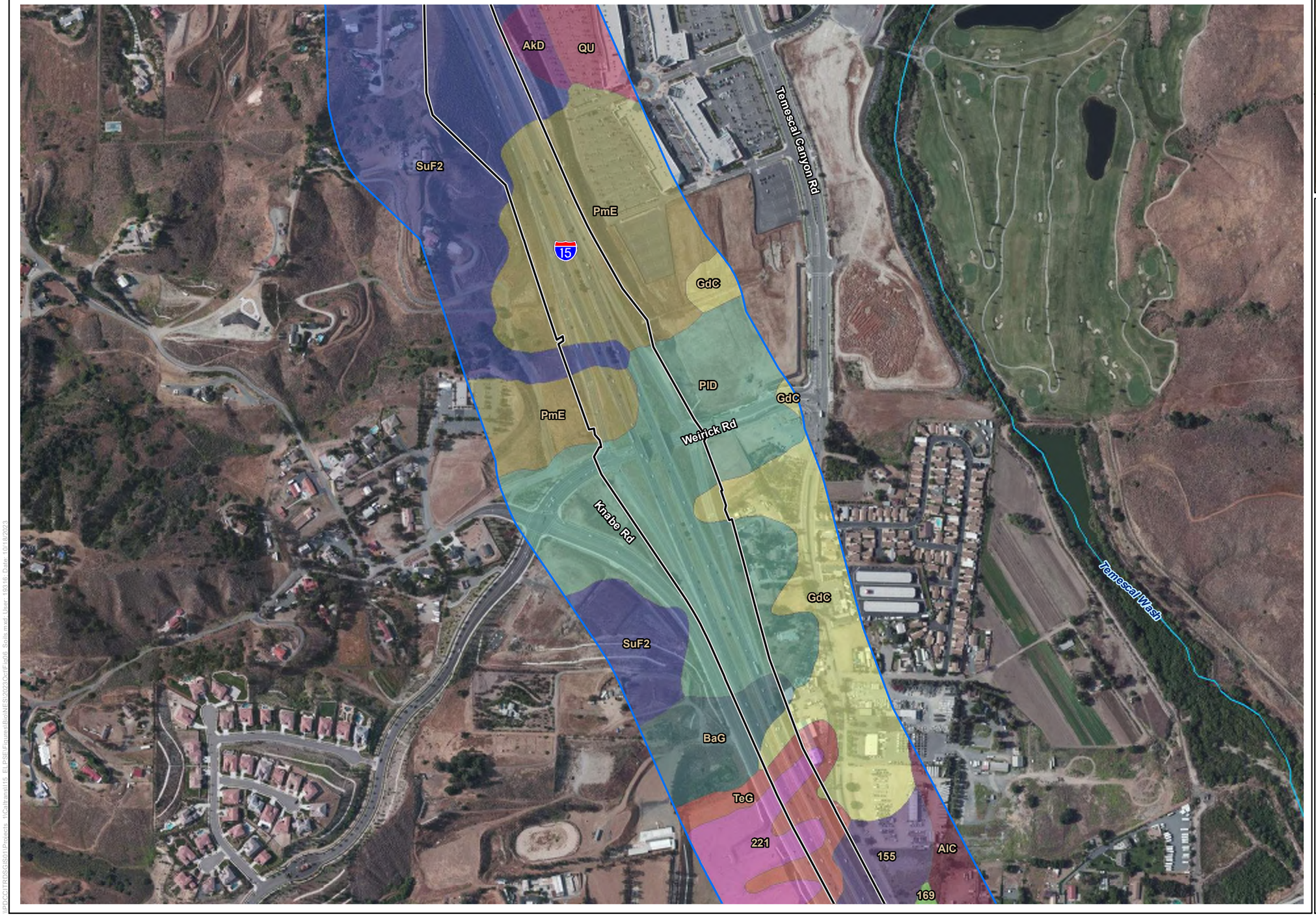
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 14
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study

Soils

155 - Garretson gravelly very fine sandy loam, 2 to 9 percent slopes

169 - Modjeska gravelly loam, 2 to 9 percent slopes

221 - Yorba gravelly sandy loam, 2 to 9 percent slopes

AkD - Arbuckle loam, 8 to 15 percent slopes

AlC - Arbuckle gravelly loam, 2 to 8 percent slopes

BaG - Badland

GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes

PID - Placentia fine sandy loam, 5 to 15 percent slopes

PmE - Placentia cobbly fine sandy loam, 8 to 25 percent slopes

QU - Quarries

SuF2 - Soper cobbly loam, 25 to 50 percent slopes, eroded

TeG - Terrace

Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 15
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study

Soils

- AkC - Arbuckle loam, 2 to 8 percent slopes
- AkD - Arbuckle loam, 8 to 15 percent slopes
- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- AlD - Arbuckle gravelly loam, 8 to 15 percent slopes
- CmC - Cortina cobbly loamy sand, 2 to 8 percent slopes
- CnC - Cortina gravelly coarse sandy loam, 2 to 8 percent slopes
- CrD - Cortina cobbly sandy loam, 2 to 12 percent slopes
- GaC - Garretson very fine sandy loam, 2 to 8 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- PmE - Placentia cobbly fine sandy loam, 8 to 25 percent slopes
- QU - Quarries
- RuF - Rough broken land
- SuF2 - Soper cobbly loam, 25 to 50 percent slopes, eroded
- TeG - Terrace

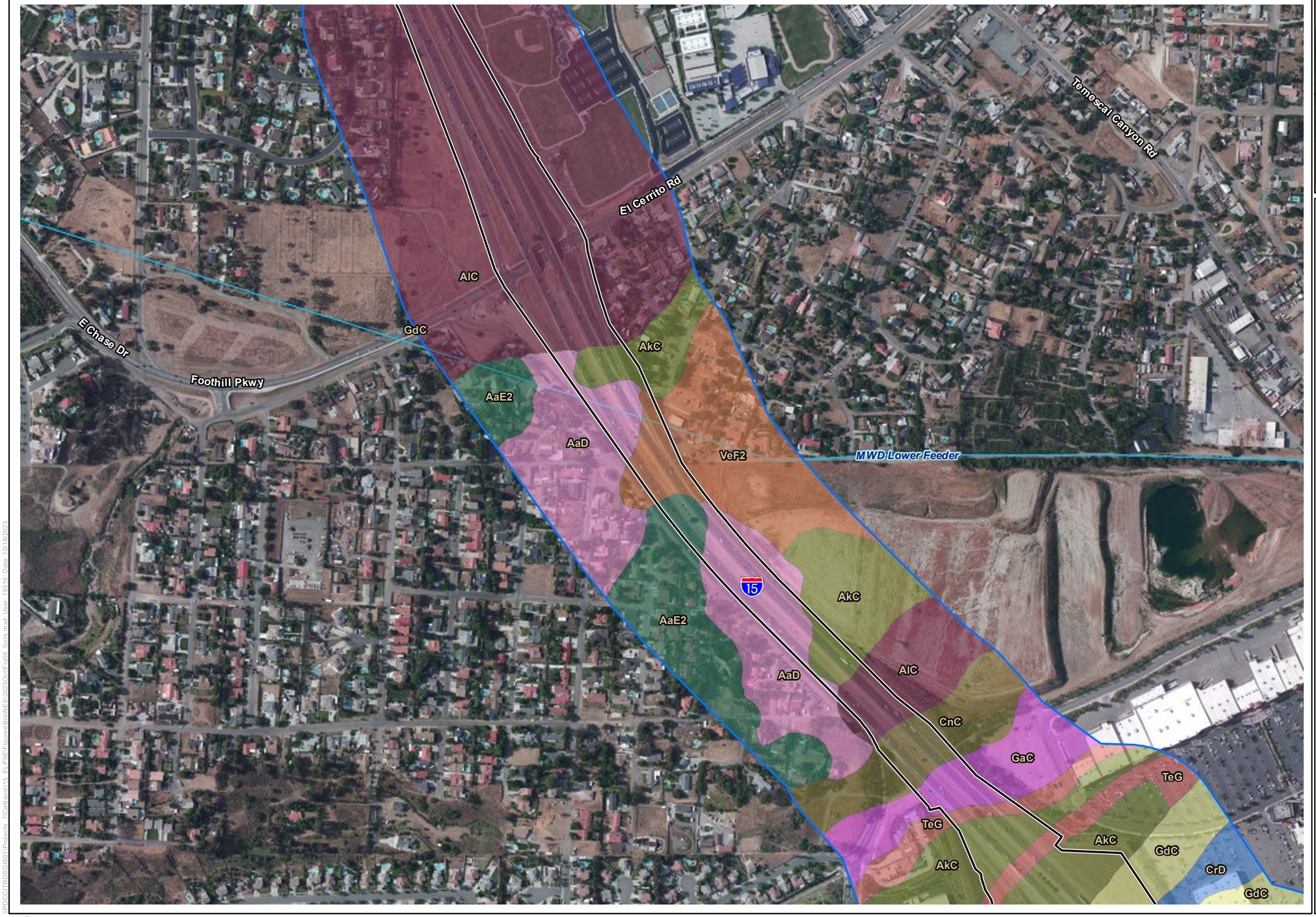
Source: ESRI USA Imagery

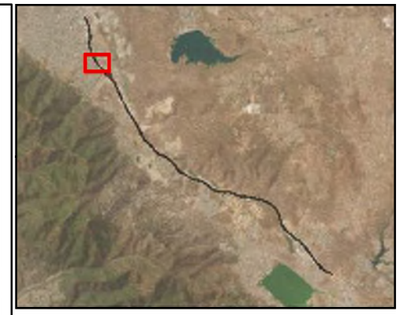
N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 16
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension





Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study Area

Soils

- AaD - Altamont clay, 5 to 15 percent slopes
- AaE2 - Altamont clay, 15 to 25 percent slopes, eroded
- AkC - Arbuckle loam, 2 to 8 percent slopes
- AlC - Arbuckle gravelly loam, 2 to 8 percent slopes
- CnC - Cortina gravelly coarse sandy loam, 2 to 8 percent slopes
- CrD - Cortina cobbly sandy loam, 2 to 12 percent slopes
- GaC - Garretson very fine sandy loam, 2 to 8 percent slopes
- GdC - Garretson gravelly very fine sandy loam, 2 to 8 percent slopes
- TeG - Terrace escarpments
- VeF2 - Vallecitos loam, thick solum variant, 15 to 50 percent slopes, eroded

Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 17
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

BSA - 500-foot Study

Soils

AlC - Arbuckle gravelly loam, 2 to 8 percent slopes

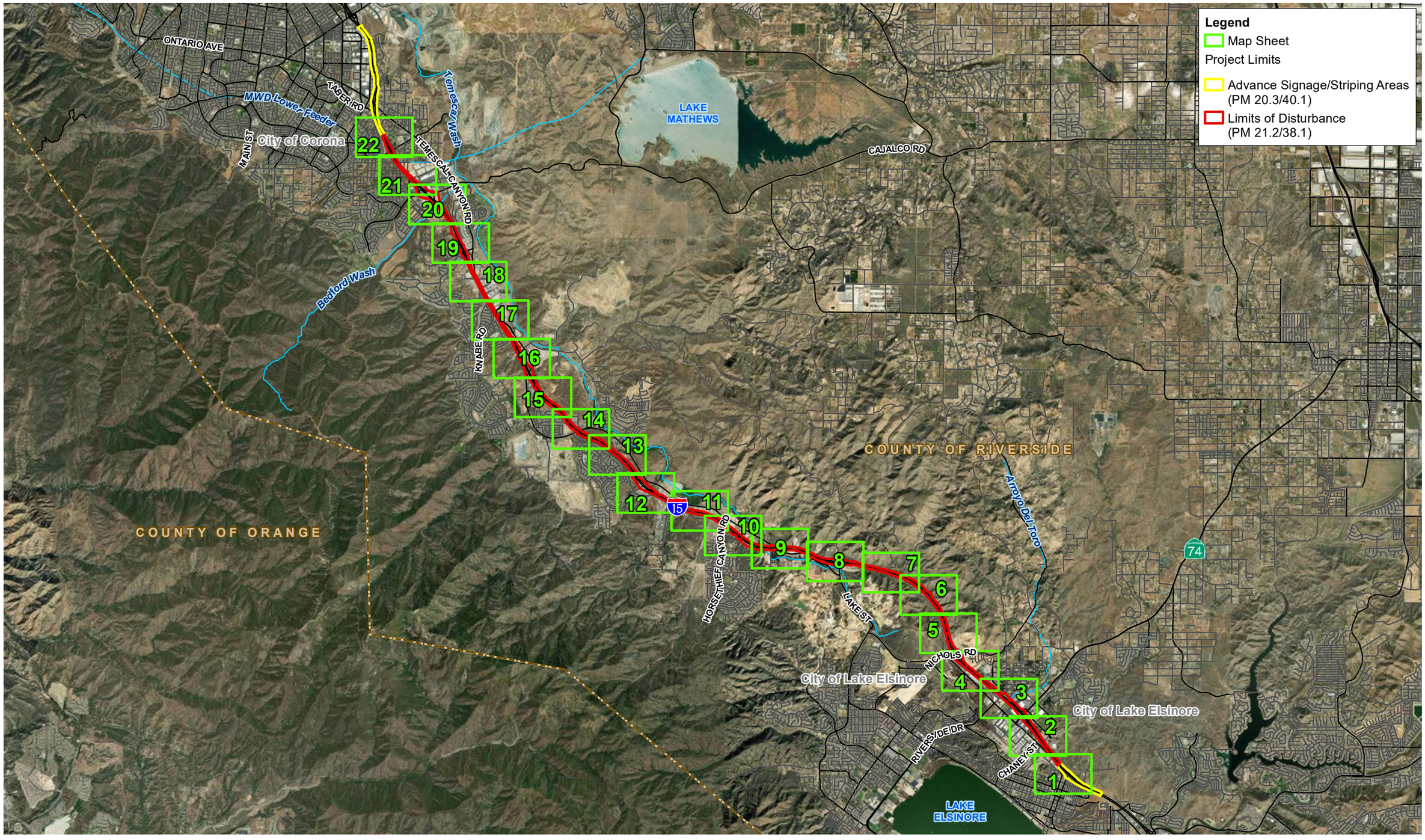
Source: ESRI USA Imagery

N

0 250 500 Feet

1:6,000

Figure 6 - Sheet 18
Study Area Soils
Interstate 15 Express Lanes Project Southern Extension



N

0 1 2 Miles

1:100,000

Figure 7 - Map Index
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

BSA - 500-ft Study Area

Vegetation Communities

Brittle Bush Scrub (BBS)

California Buckwheat Scrub (CBS)

Developed (DEV)

Disturbed (DIS)

Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)

Hardstem and California Bullrush Marshes (HCBM)

Pepper Tree or Myoporum Forest and Woodland (NNW)

Upland Mustards or Star-Thistle Fields (UMSTF)

Wild Oats and Annual Brome Grasslands (WO ABG)

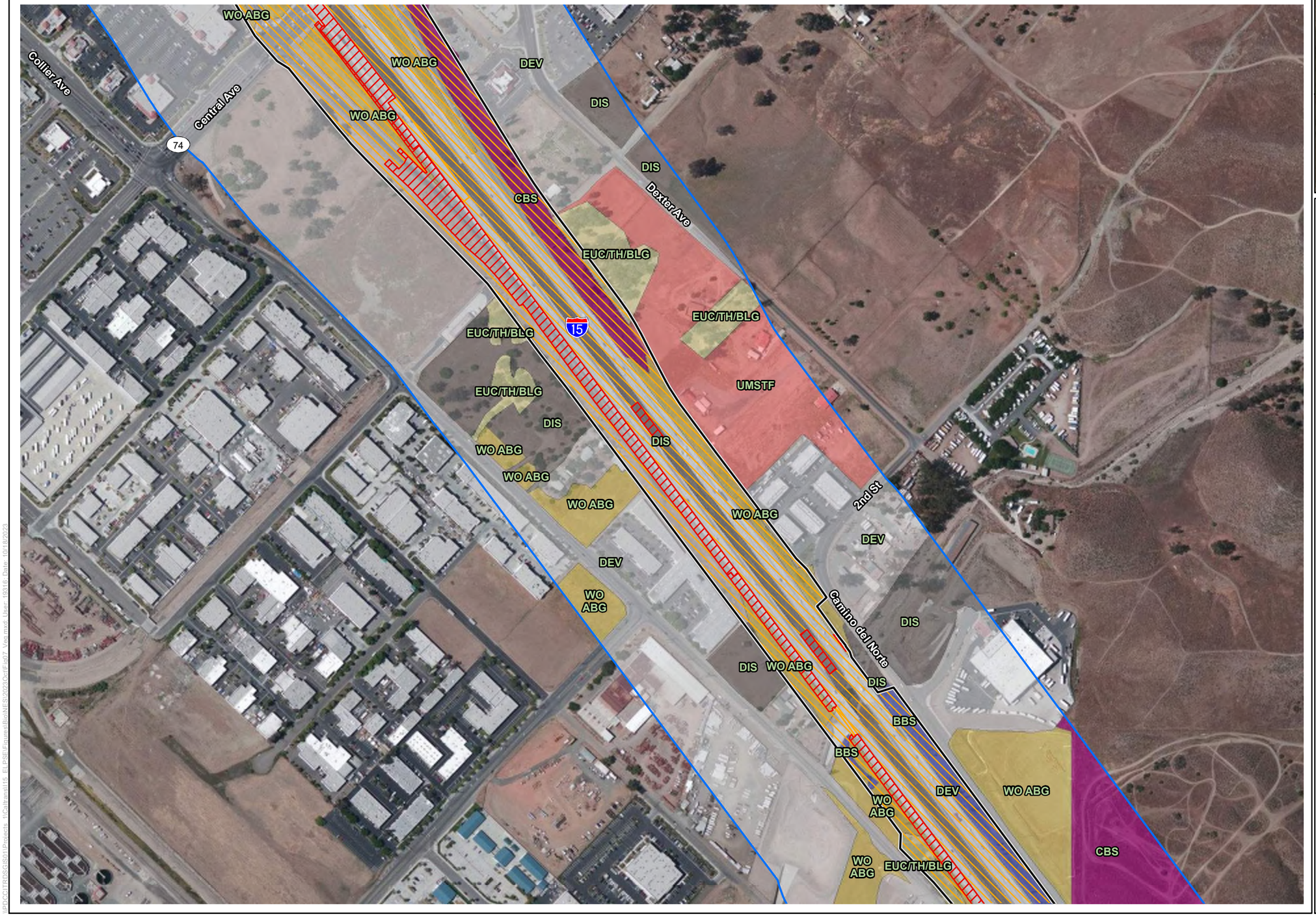
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 7 - Sheet 1
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- Brittle Bush Scrub (BBS)
- California Buckwheat Scrub (CBS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

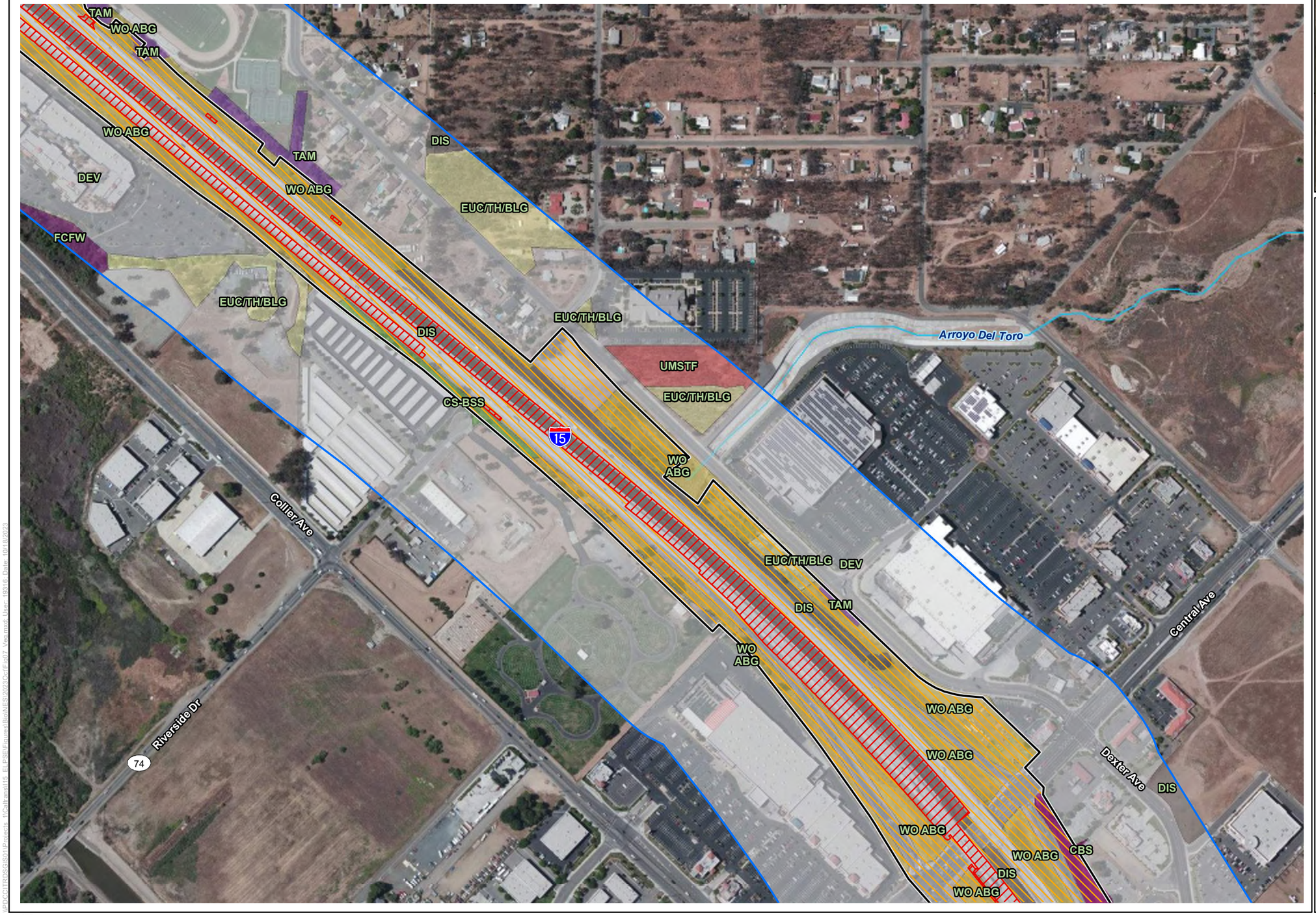
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 7 - Sheet 2
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Tamarisk Thickets (TAM)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 7 - Sheet 3
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- Brittle Bush Scrub (BBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Deer Weed Scrub (DWS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Needle grass - Melic grass grassland (NG-MGG)
- Quailbush Scrub (QBS)
- Scale Broom Scrub (BSS)
- Tamarisk Thickets (TAM)
- Tarweed Fields (TAR-F)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

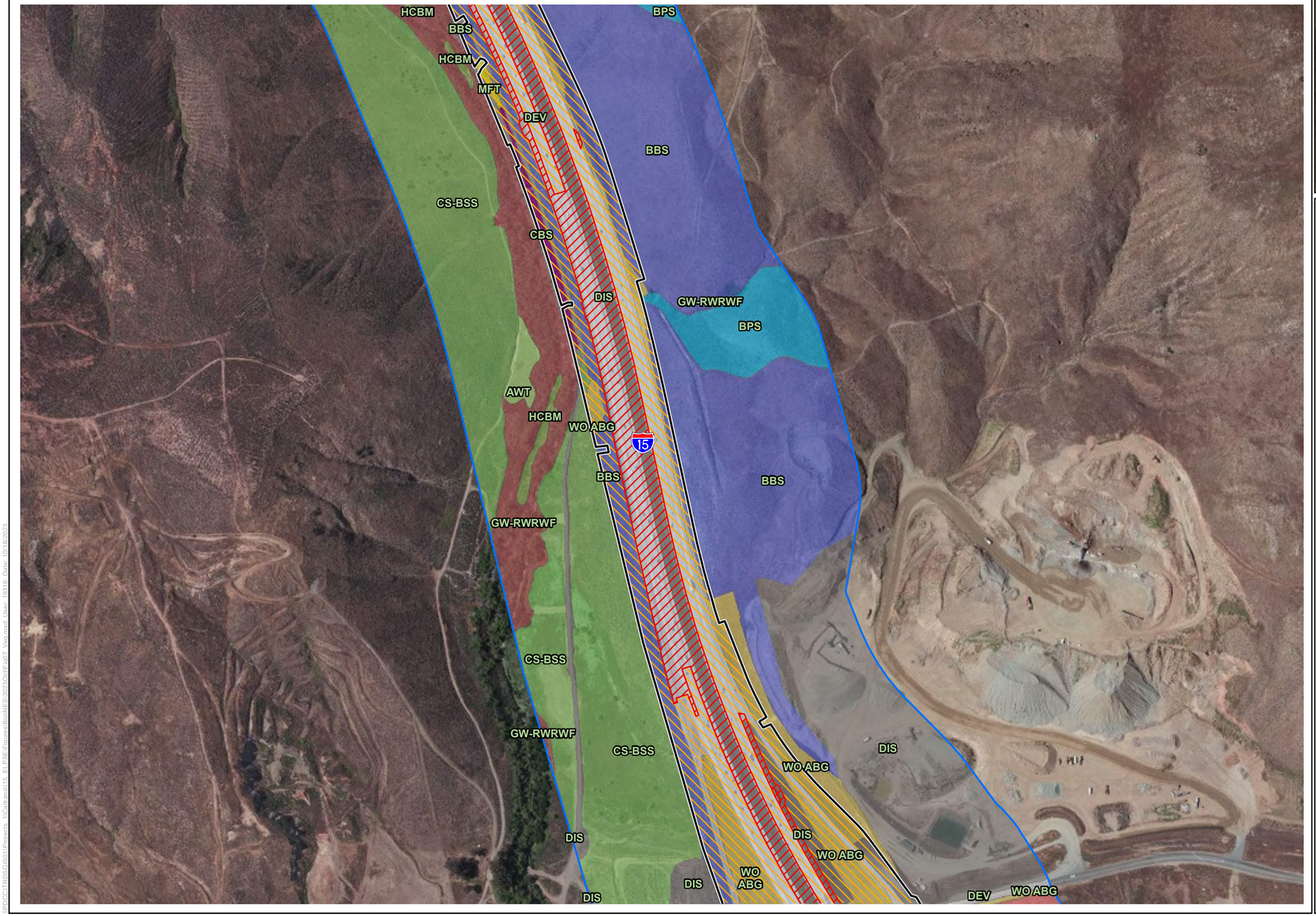
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 7 - Sheet 4
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- Arrow Weed Thickets (AWT)
- Brittle Bush Scrub (BBS)
- Bush Penstemon Scrub (BPS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Developed (DEV)
- Disturbed (DIS)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Hardstem and California Bullrush Marshes (HCBM)
- Mulefat Thickets (MFT)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

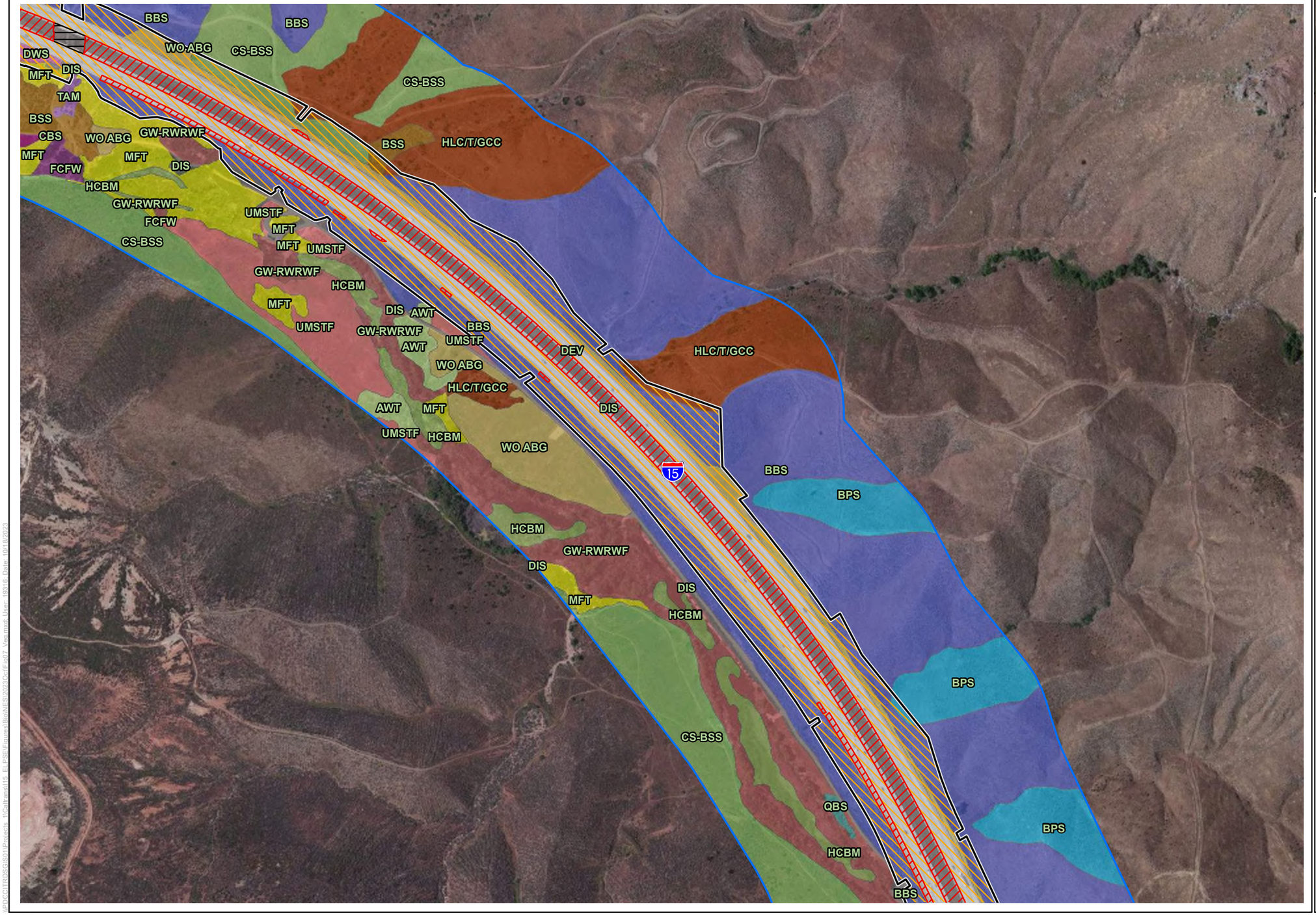
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 7 - Sheet 5
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- Arrow Weed Thickets (AWT)
- Brittle Bush Scrub (BBS)
- Bush Penstemon Scrub (BPS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Deer Weed Scrub (DWS)
- Developed (DEV)
- Disturbed (DIS)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Hardstem and California Bullrush Marshes (HCBM)
- Holly Leaf Cherry - Toyon - Greenbark Ceanothus Chaparral (HLC/T/GCC)
- Mulefat Thickets (MFT)
- Quailbush Scrub (QBS)
- Scale Broom Scrub (BSS)
- Tamarisk Thickets (TAM)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

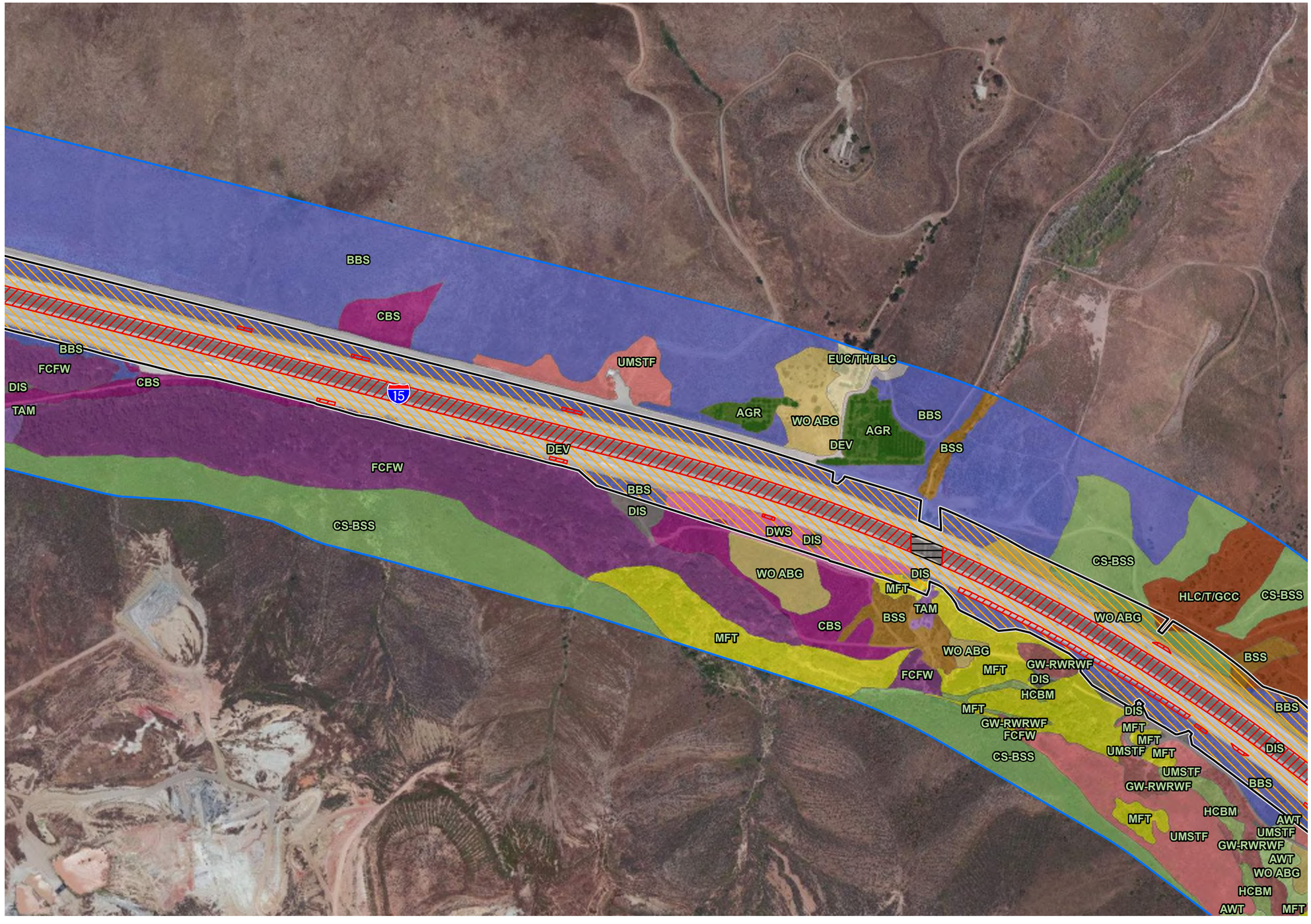
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 7 - Sheet 6
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- Agricultural (AGR)
- Arrow Weed Thickets (AWT)
- Brittle Bush Scrub (BBS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Deer Weed Scrub (DWS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Hardstem and California Bullrush Marshes (HCBM)
- Holly Leaf Cherry - Toyon - Greenbark Ceanothus Chaparral (HLC/T/GCC)
- Mulefat Thickets (MFT)
- Scale Broom Scrub (BSS)
- Tamarisk Thickets (TAM)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

Source: ESRI USA Imagery

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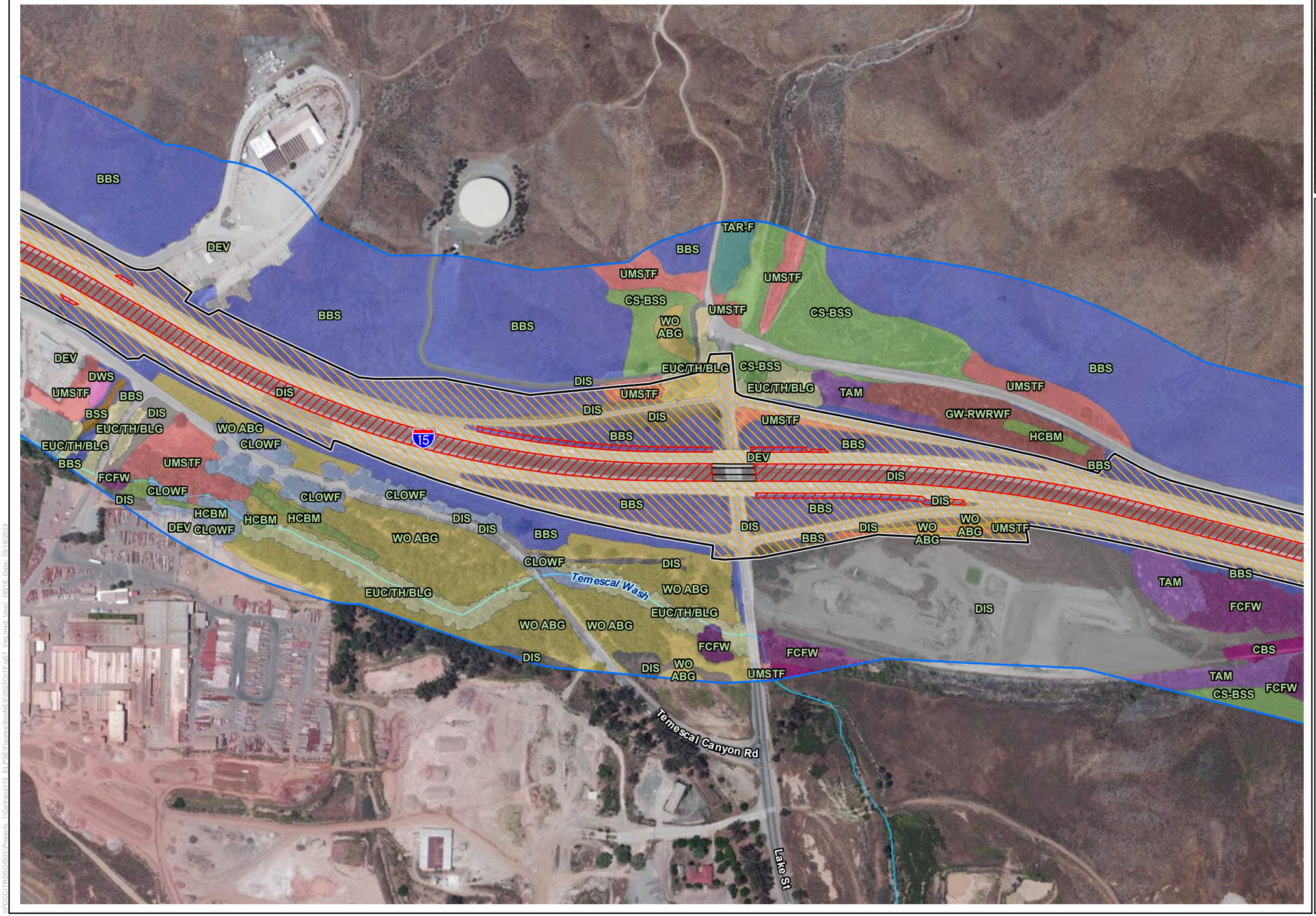
Figure 7 - Sheet 7
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- Brittle Bush Scrub (BBS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Coast Live Oak Woodland and Forest (CLOWF)
- Deer Weed Scrub (DWS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Hardstem and California Bullrush Marshes (HCBM)
- Scale Broom Scrub (BSS)
- Tamarisk Thickets (TAM)
- Tarweed Fields (TAR-F)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

Source: ESRI USA Imagery

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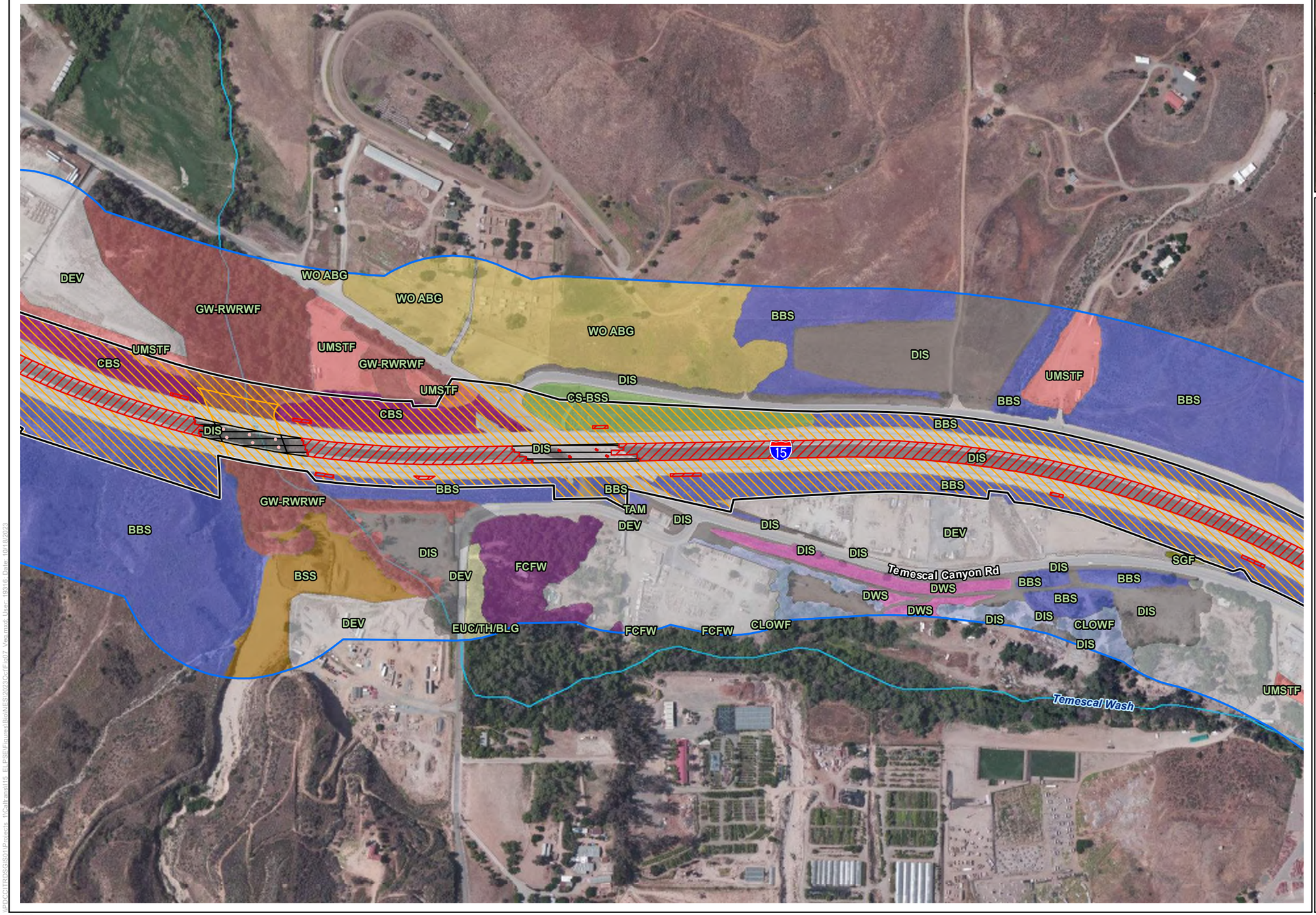
Figure 7 - Sheet 8
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- Brittle Bush Scrub (BBS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Coast Live Oak Woodland and Forest (CLOWF)
- Deer Weed Scrub (DWS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Salt Grass Flats (SGF)
- Scale Broom Scrub (BSS)
- Tamarisk Thickets (TAM)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

Source: ESRI USA Imagery

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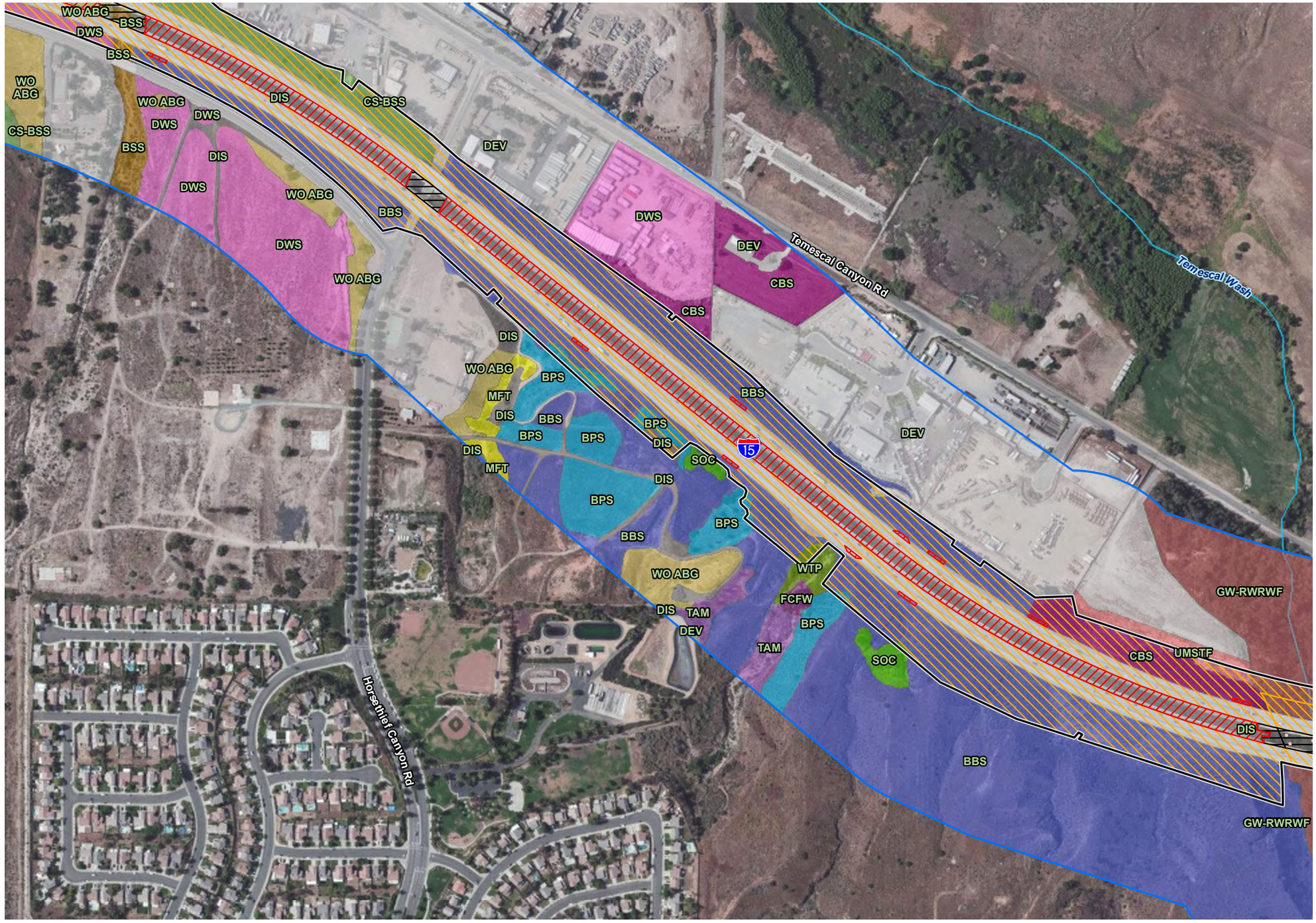
Figure 7 - Sheet 9
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- Brittle Bush Scrub (BBS)
- Bush Penstemon Scrub (BPS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Deer Weed Scrub (DWS)
- Developed (DEV)
- Disturbed (DIS)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Mulefat Thickets (MFT)
- Scale Broom Scrub (BSS)
- Scrub Oak Chaparral (SOC)
- Tamarisk Thickets (TAM)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)
- Wild Tarragon Patches (WTP)

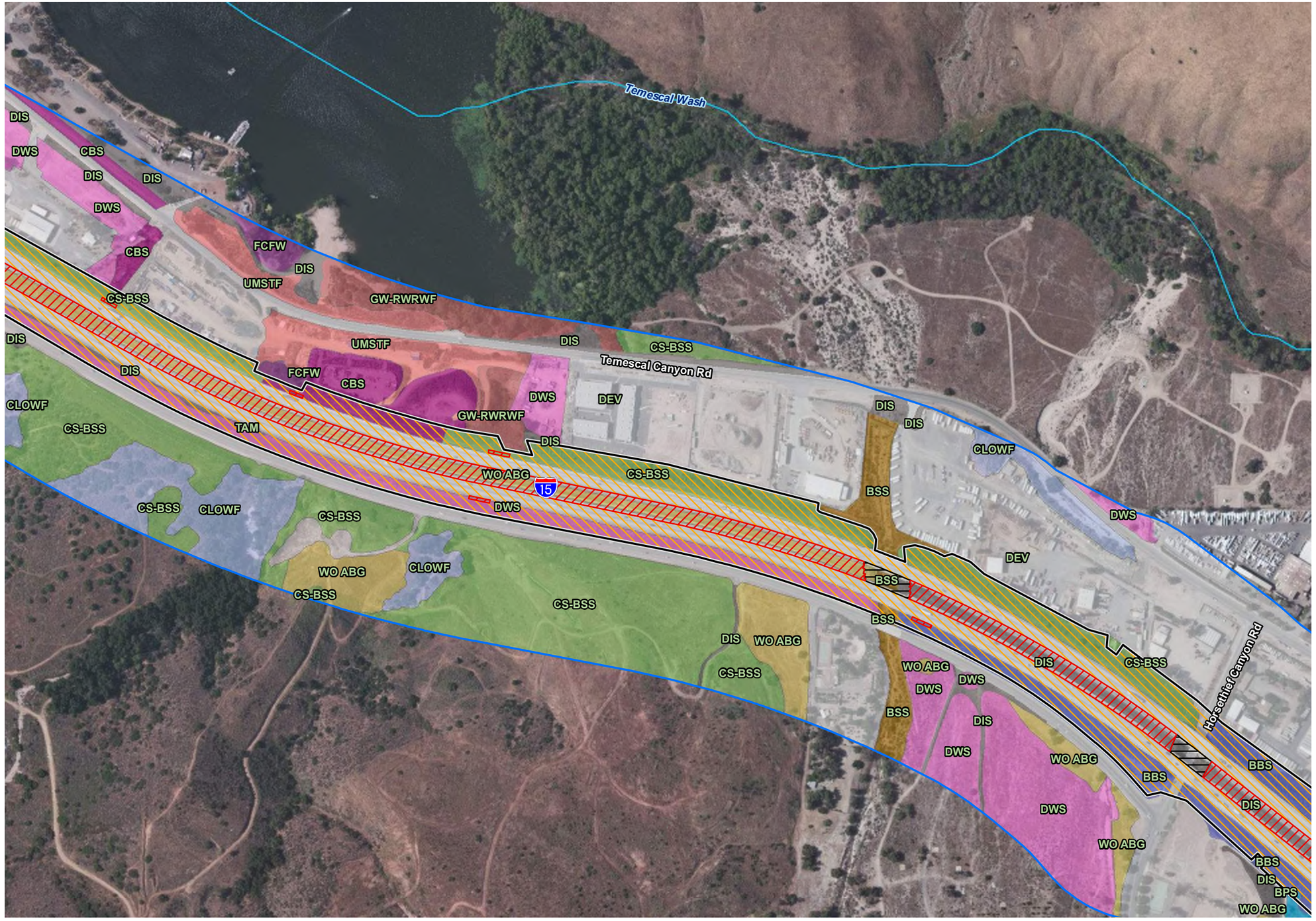
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 7 - Sheet 10
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- Brittle Bush Scrub (BBS)
- Bush Penstemon Scrub (BPS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Coast Live Oak Woodland and Forest (CLOWF)
- Deer Weed Scrub (DWS)
- Developed (DEV)
- Disturbed (DIS)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Scale Broom Scrub (BSS)
- Tamarisk Thickets (TAM)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

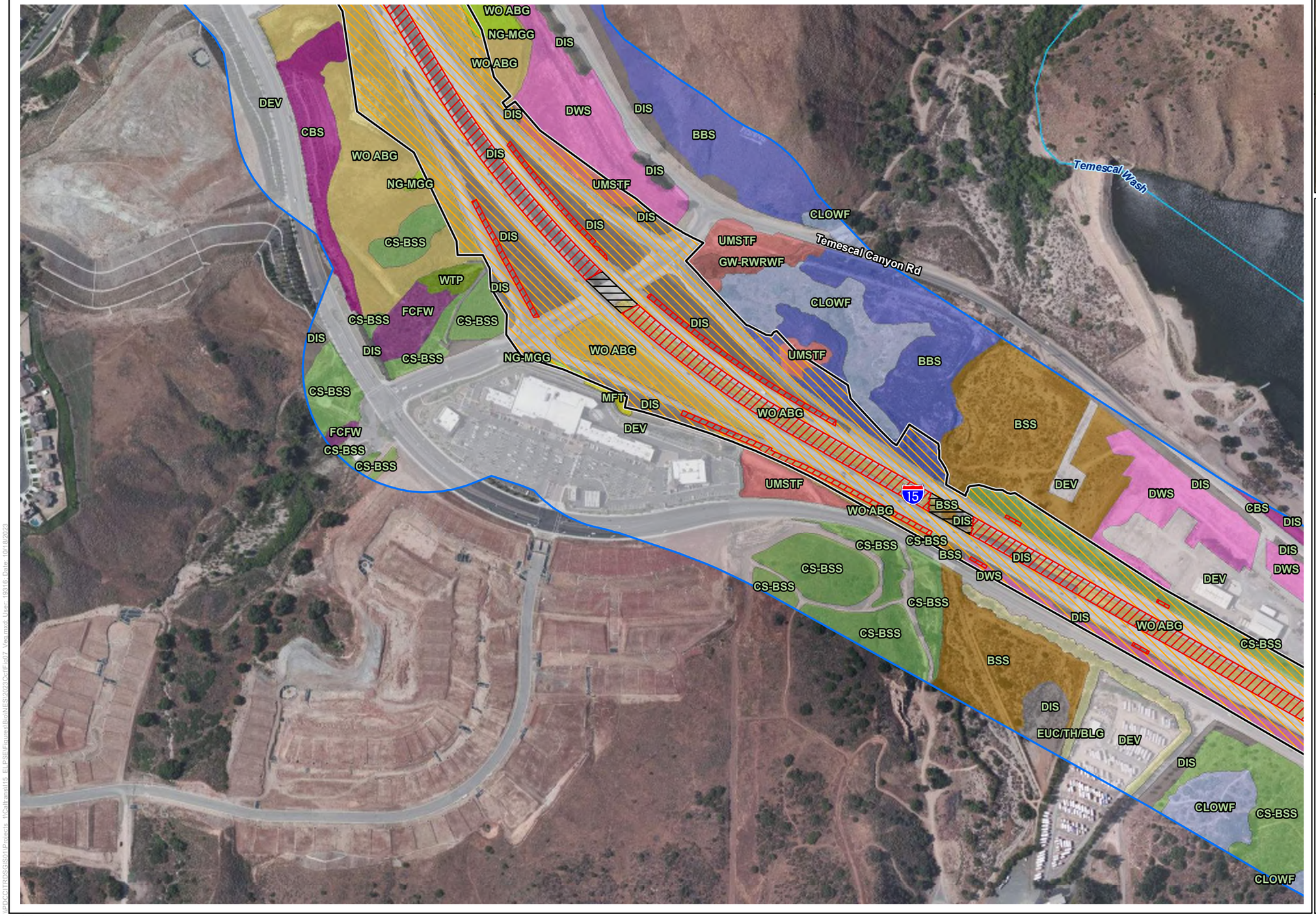
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 7 - Sheet 11
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- Brittle Bush Scrub (BBS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Coast Live Oak Woodland and Forest (CLOWF)
- Deer Weed Scrub (DWS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Mulefat Thickets (MFT)
- Needle grass - Melic grass grassland (NG-MGG)
- Scale Broom Scrub (BSS)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)
- Wild Tarragon Patches (WTP)

Source: ESRI USA Imagery

N

0 200 400 Feet

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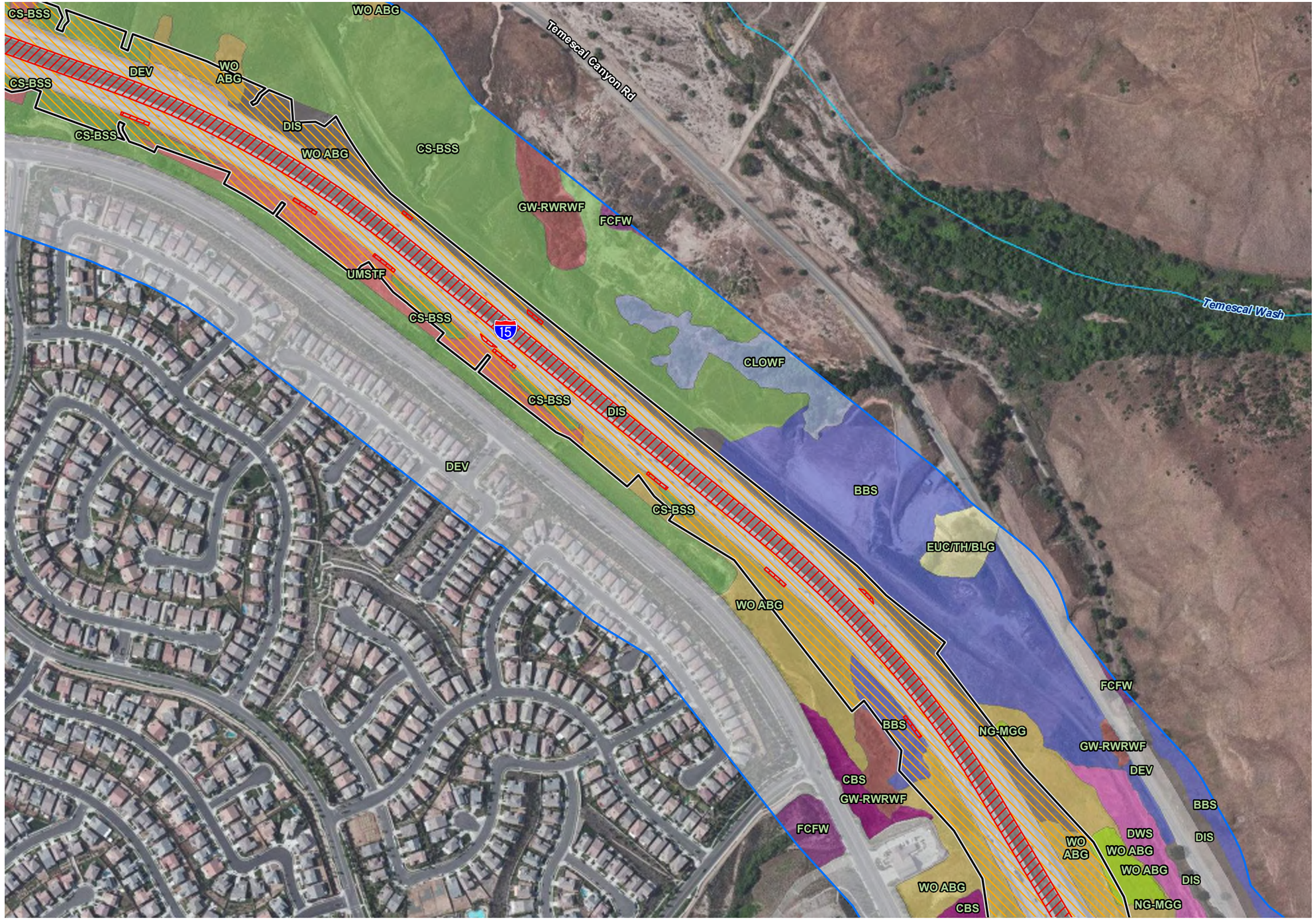
Figure 7 - Sheet 12
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study

Vegetation Communities

- Brittle Bush Scrub (BBS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Coast Live Oak Woodland and Forest (CLOWF)
- Deer Weed Scrub (DWS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Needle grass - Melic grass grassland (NG-MGG)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

Source: ESRI USA Imagery

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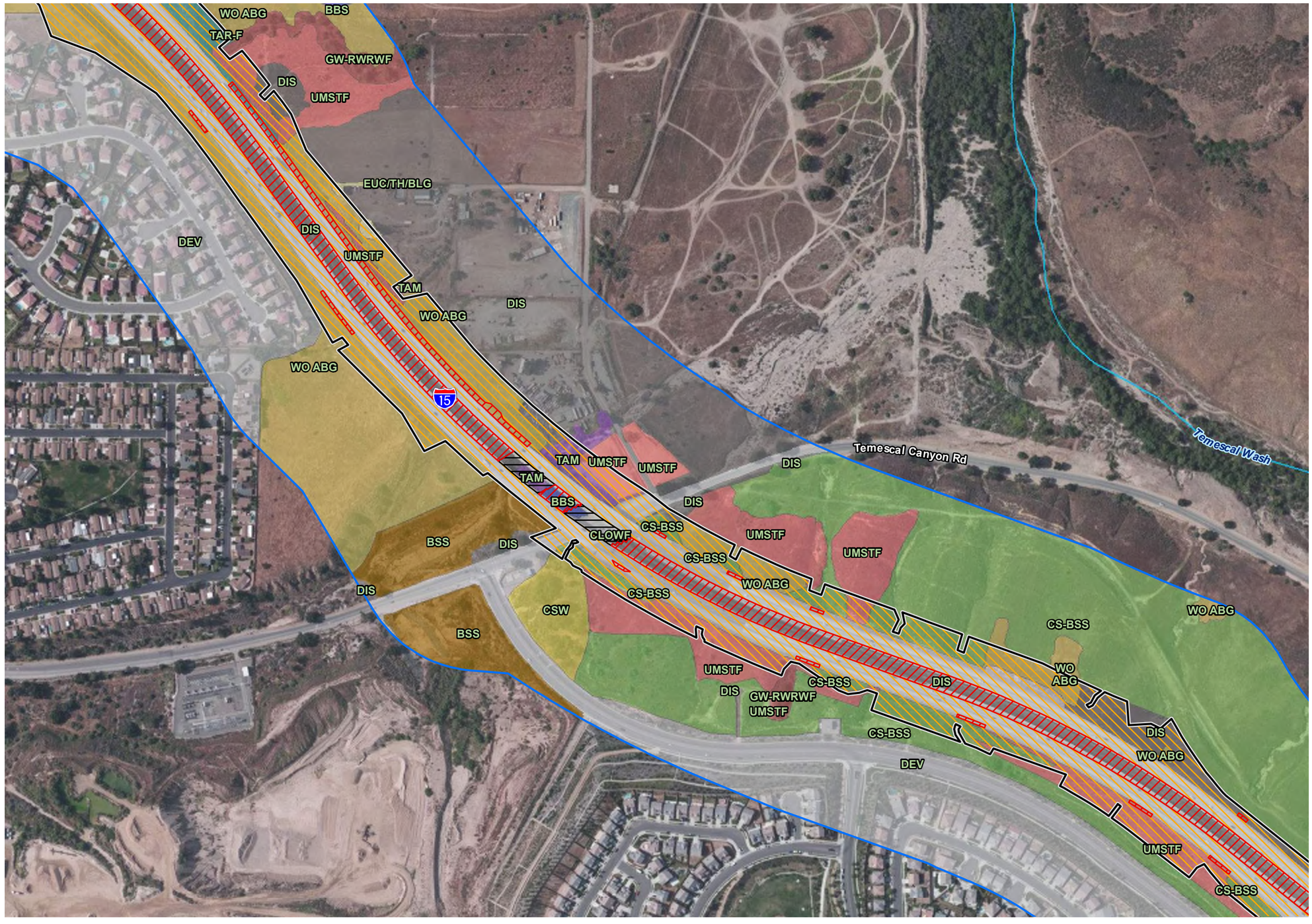
Figure 7 - Sheet 13
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study

Vegetation Communities

- Brittle Bush Scrub (BBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- California Sycamore Woodlands (CSW)
- Coast Live Oak Woodland and Forest (CLOWF)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Scale Broom Scrub (BSS)
- Tamarisk Thickets (TAM)
- Tarweed Fields (TAR-F)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

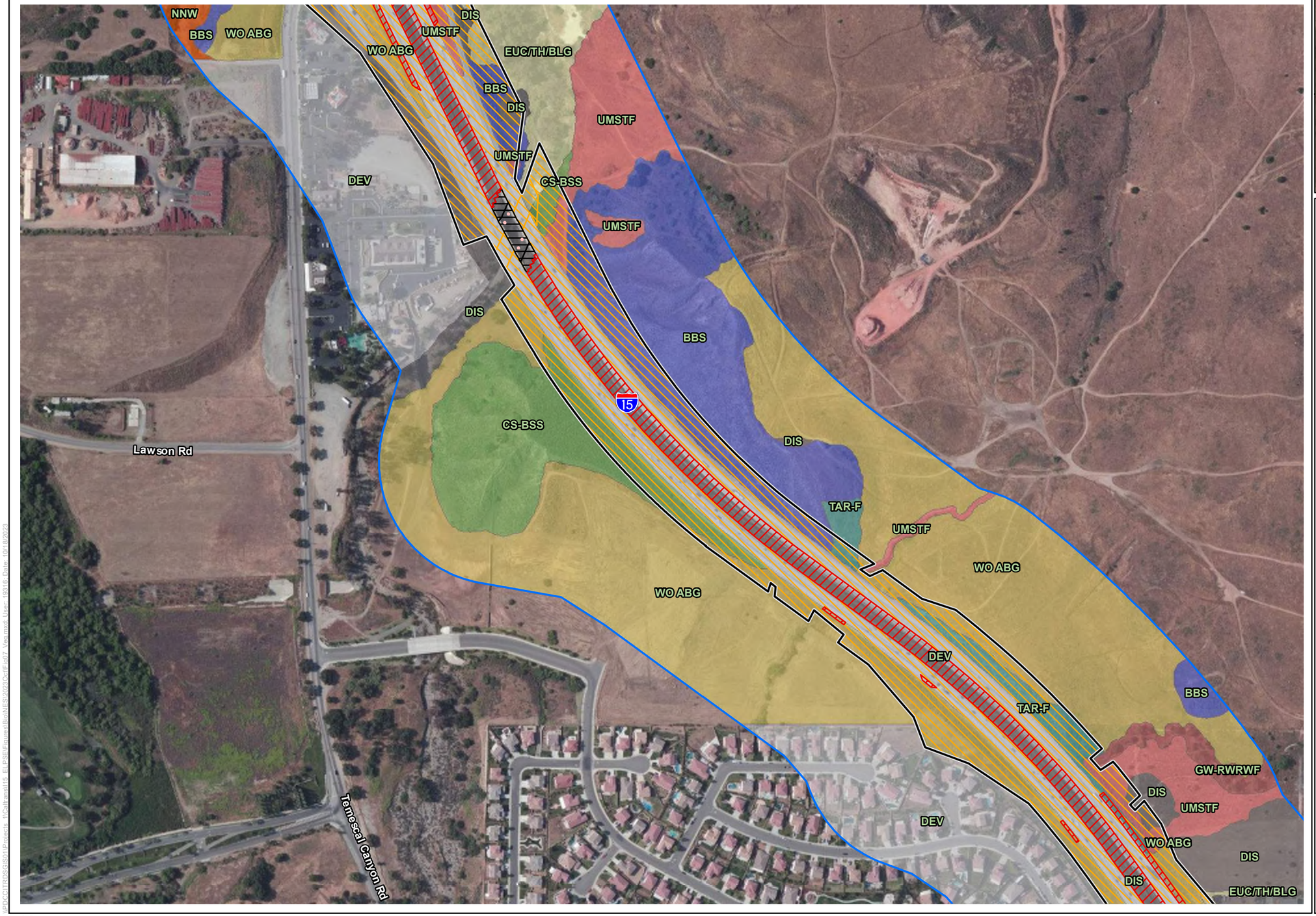
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 7 - Sheet 14
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- Brittle Bush Scrub (BBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Pepper Tree or Myoporum Forest and Woodland (NNW)
- Tarweed Fields (TAR-F)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

Source: ESRI USA Imagery

N

0 200 400 Feet

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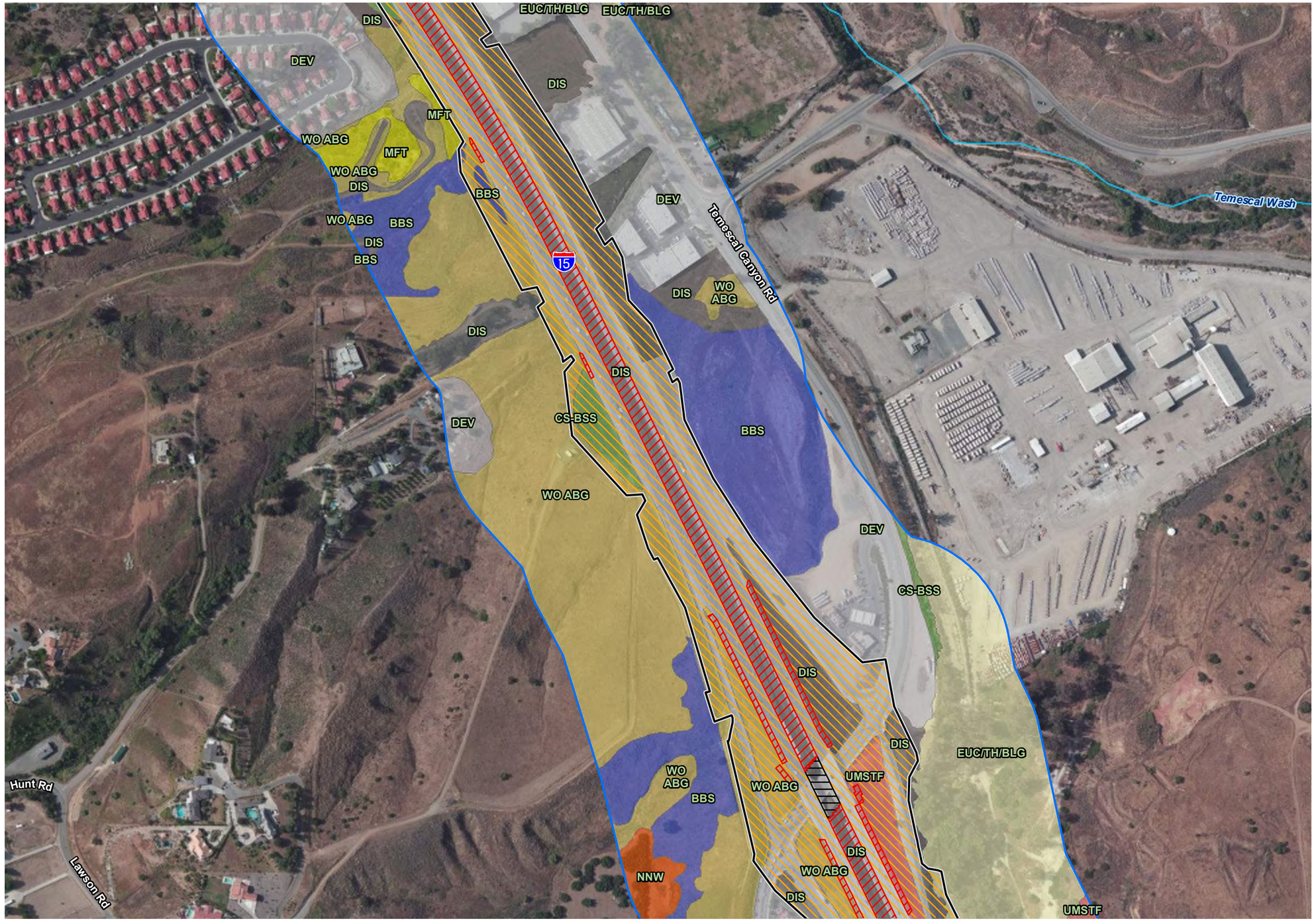
Figure 7 - Sheet 15
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- Brittle Bush Scrub (BBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Mulefat Thickets (MFT)
- Pepper Tree or Myoporum Forest and Woodland (NNW)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

Source: ESRI USA Imagery

N

0 200 400 Feet

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Figure 7 - Sheet 16
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- Brittle Bush Scrub (BBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

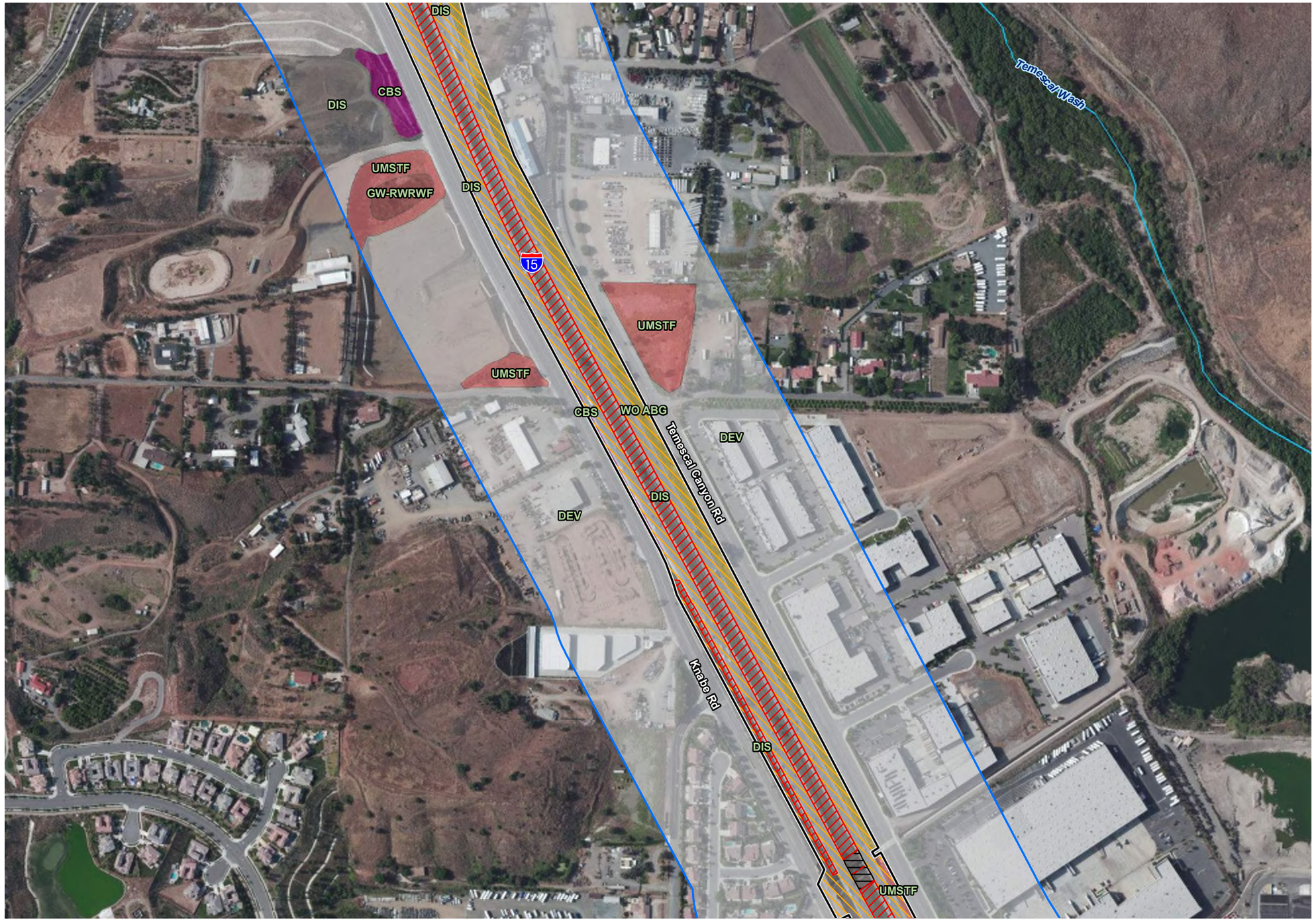
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 7 - Sheet 17
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study

Vegetation Communities

- California Buckwheat Scrub (CBS)
- Developed (DEV)
- Disturbed (DIS)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

Source: ESRI USA Imagery

N

0 200 400 Feet

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Figure 7 - Sheet 18
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study

Vegetation Communities

- Brittle Bush Scrub (BBS)
- Coast Live Oak Woodland and Forest (CLOWF)
- Developed (DEV)
- Disturbed (DIS)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

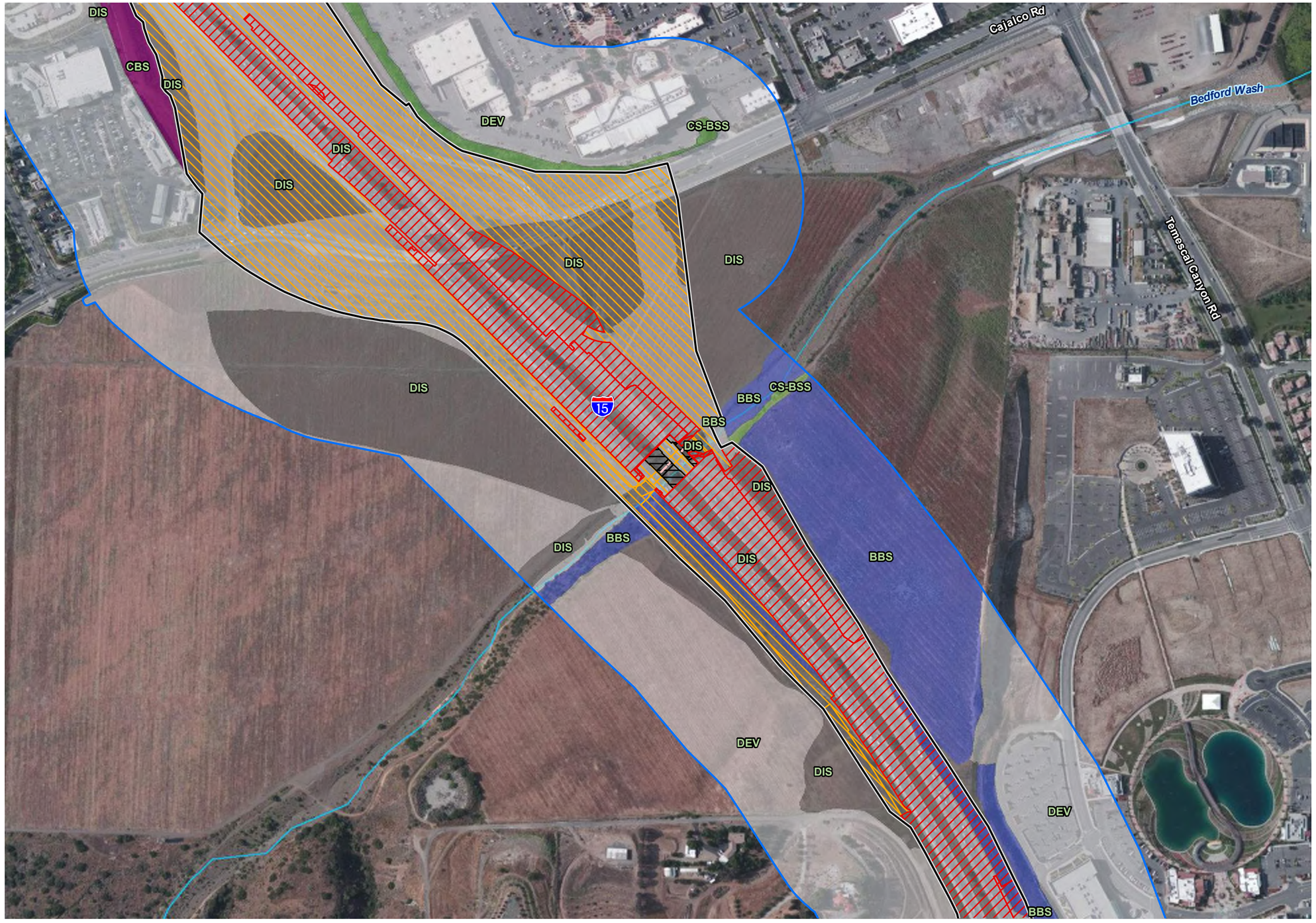
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 7 - Sheet 19
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study

Vegetation Communities

- Brittle Bush Scrub (BBS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Developed (DEV)
- Disturbed (DIS)

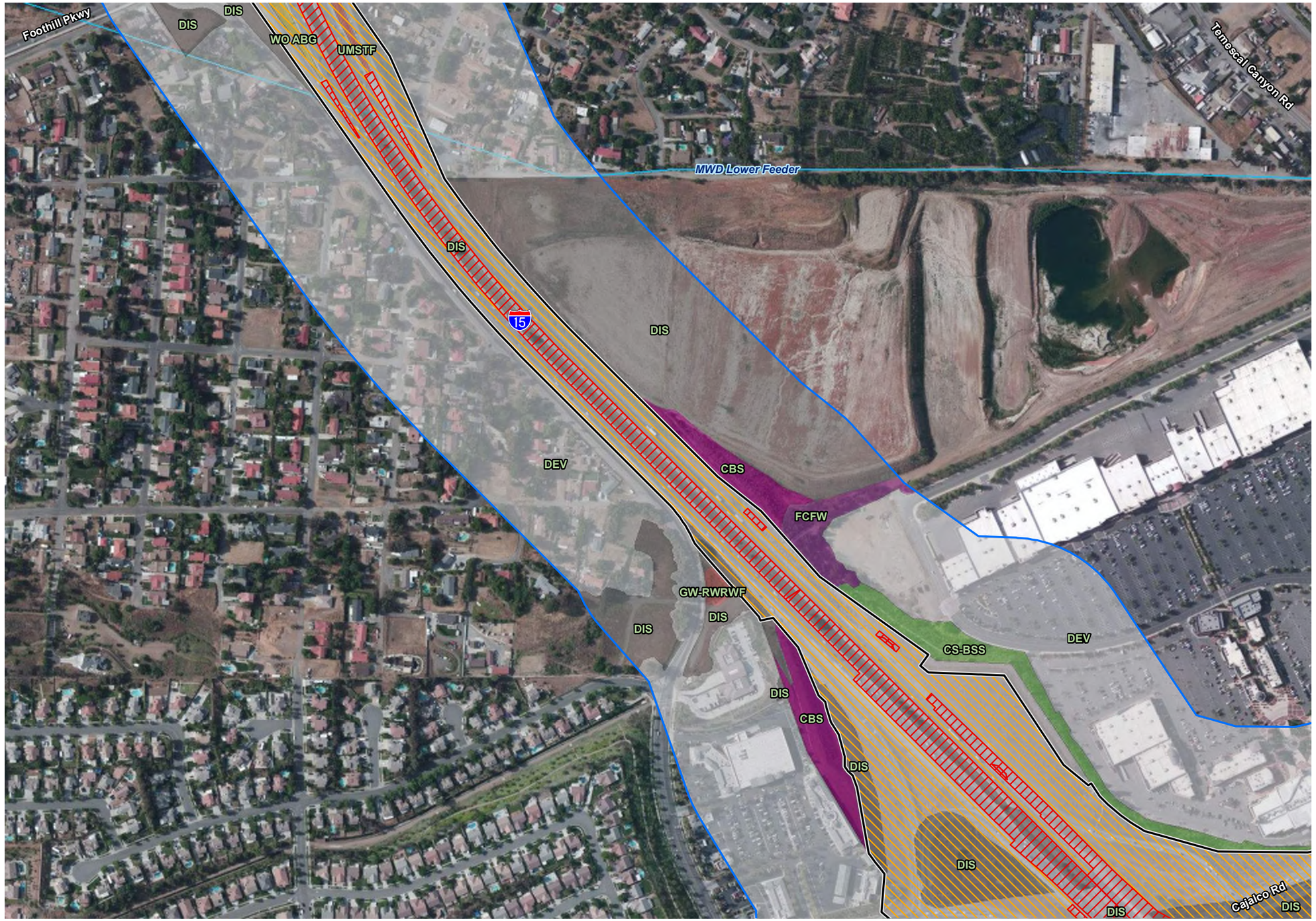
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 7 - Sheet 20
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Developed (DEV)
- Disturbed (DIS)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

Source: ESRI USA Imagery

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0 200 400 Feet

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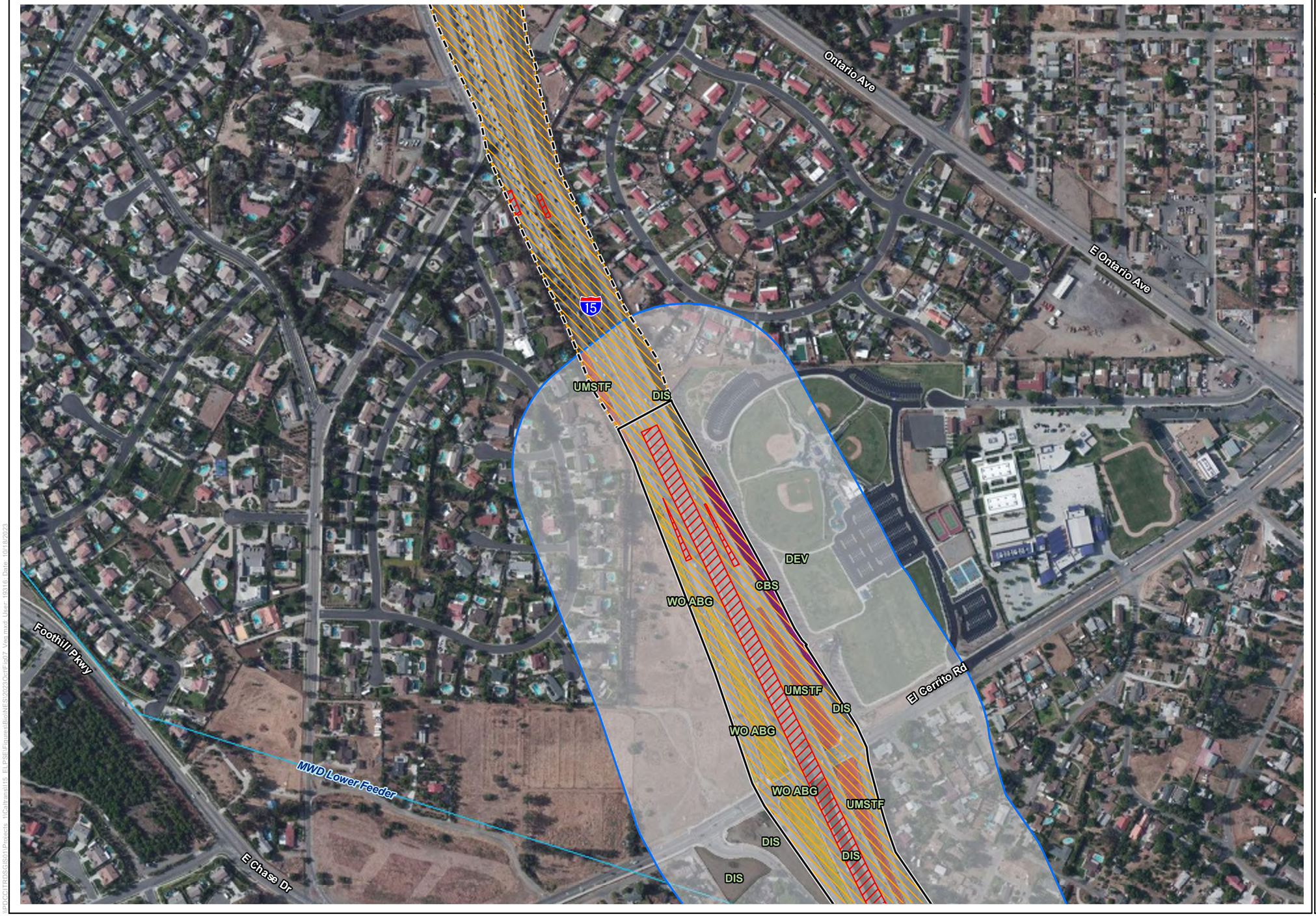
Figure 7 - Sheet 21
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- BSA - 500-ft Study Area

Vegetation Communities

- California Buckwheat Scrub (CBS)
- Developed (DEV)
- Disturbed (DIS)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

Source: ESRI USA Imagery

N

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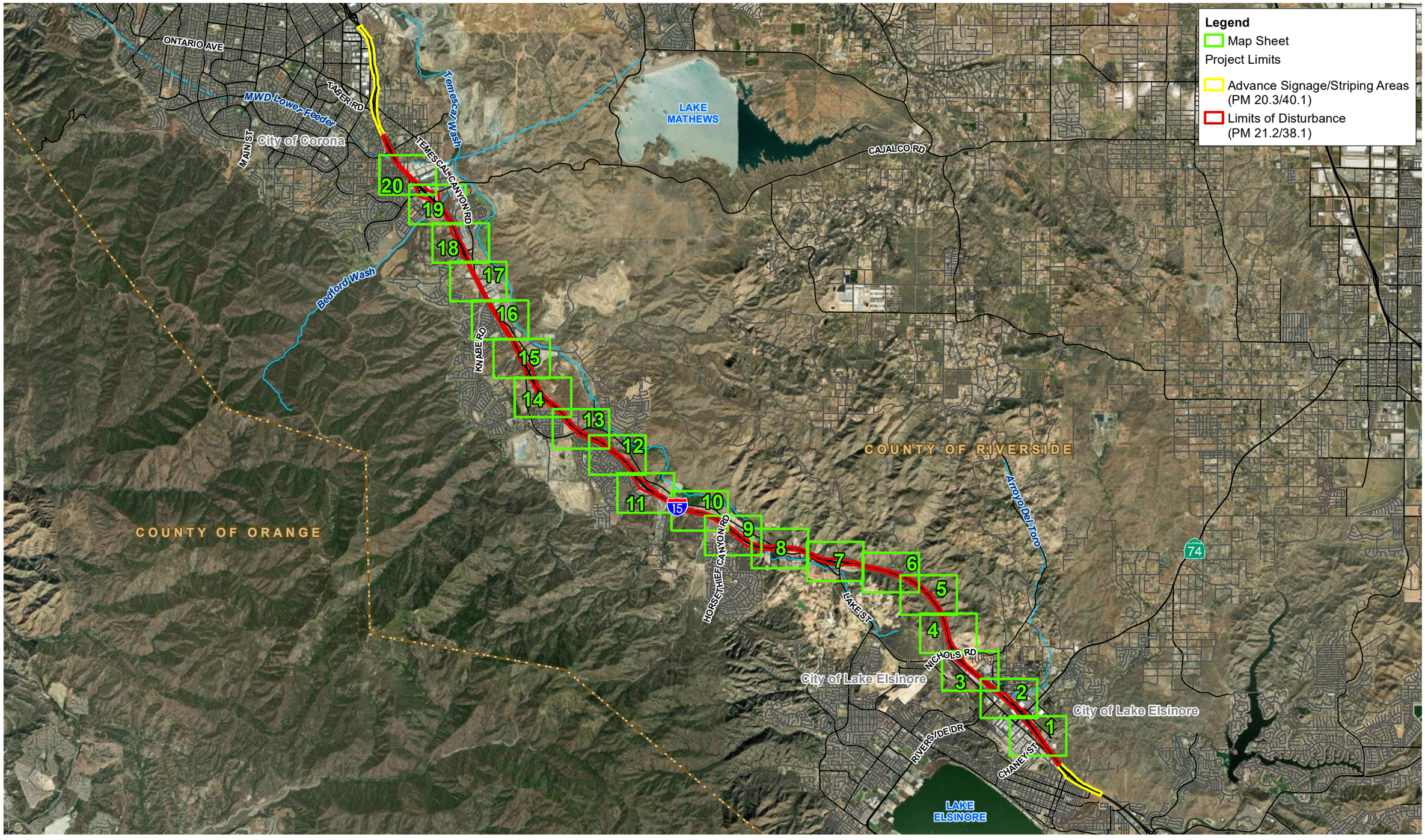
1:4,800

Figure 7 - Sheet 22
Vegetation Communities and Project Impacts
Interstate 15 Express Lanes Project Southern Extension



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1:100,000

Figure 8 - Map Index
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 1
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

50-foot Study Area - Jurisdictional Delineation

Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

Least Bell's Vireo

Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

Least Bell's Vireo

Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

Riparian

Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 2
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

50-foot Study Area - Jurisdictional Delineation

Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

Least Bell's Vireo

Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

Least Bell's Vireo

Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

Riparian

Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 3
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

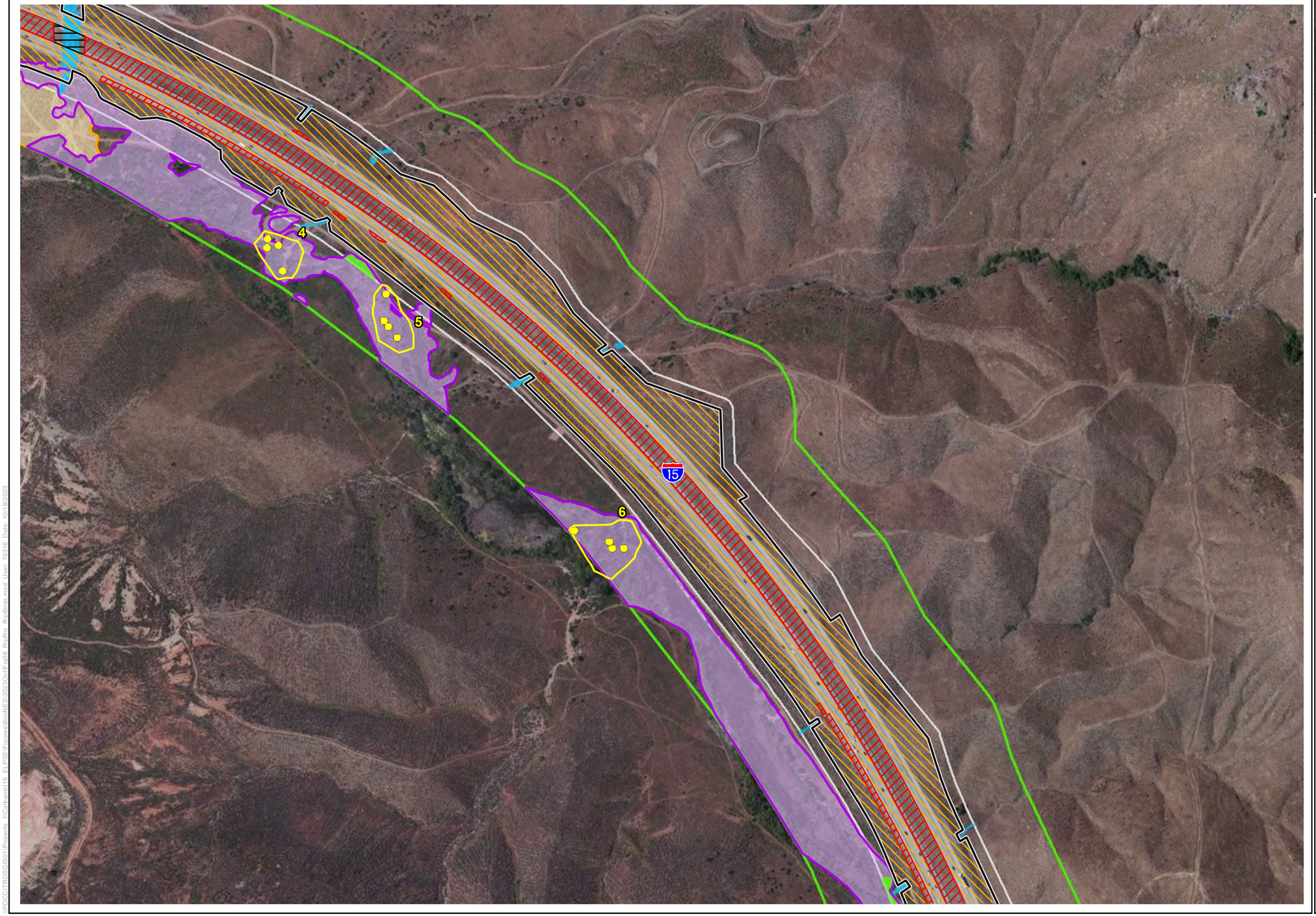
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 4
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

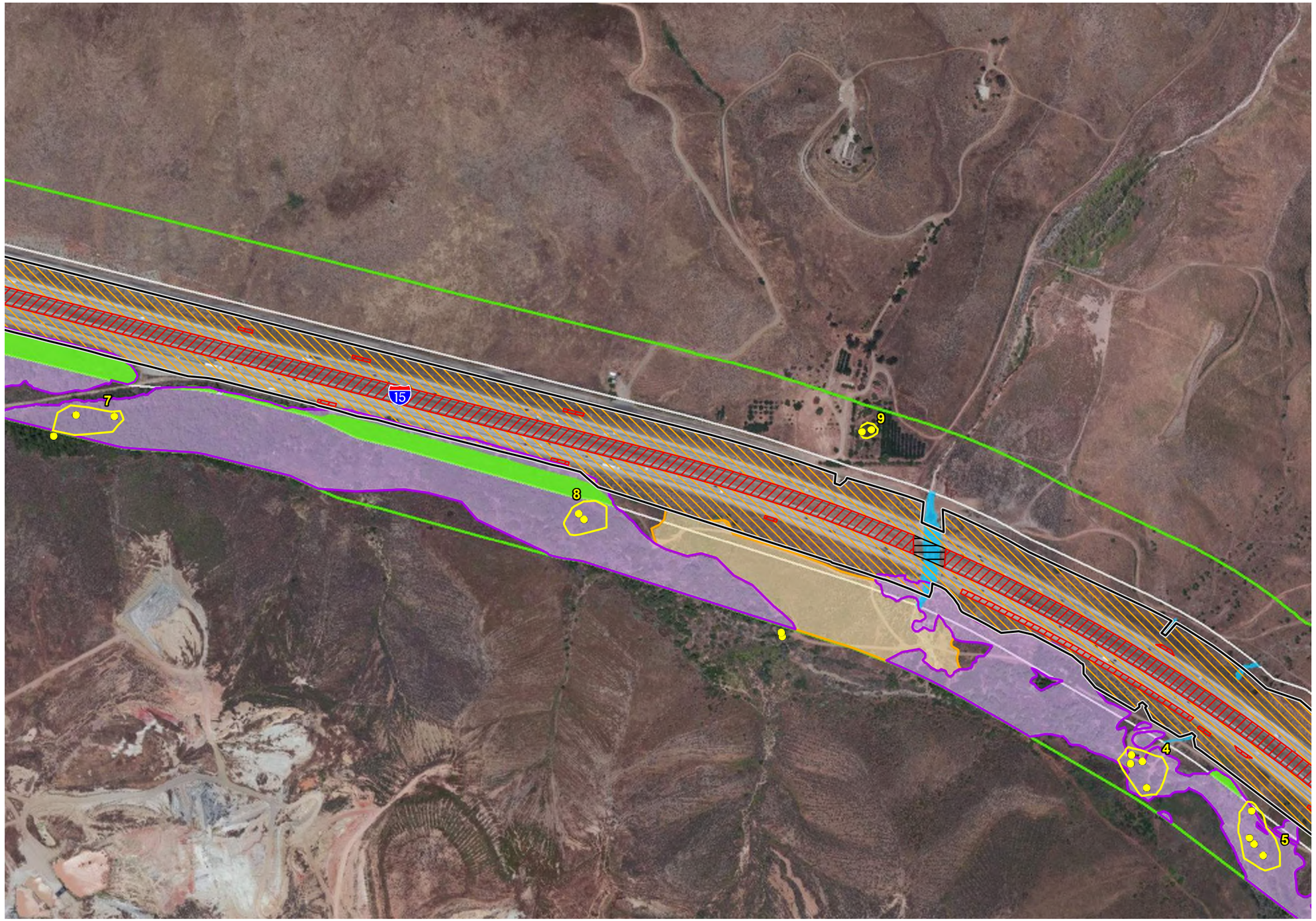
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 5
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

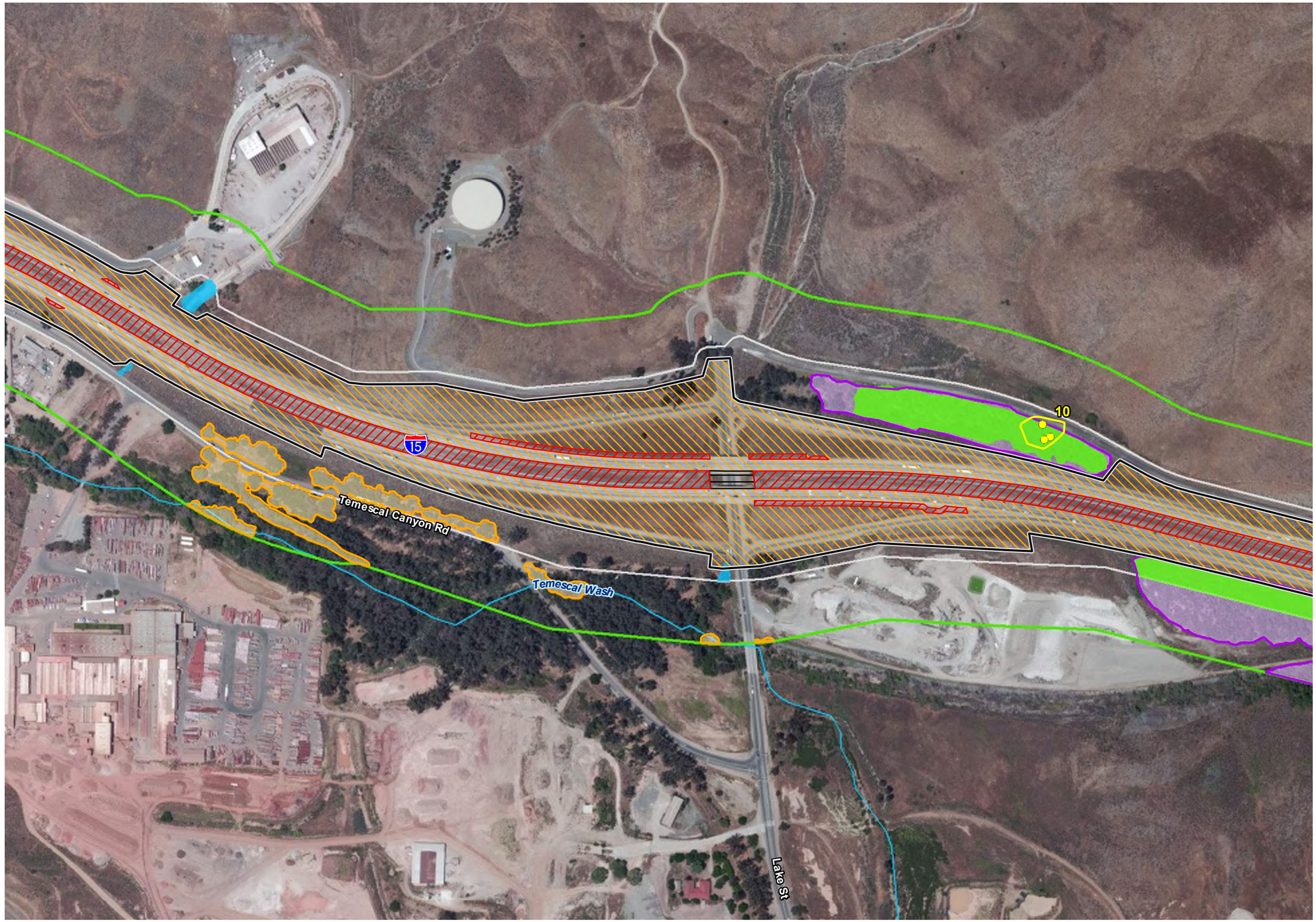
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 6
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

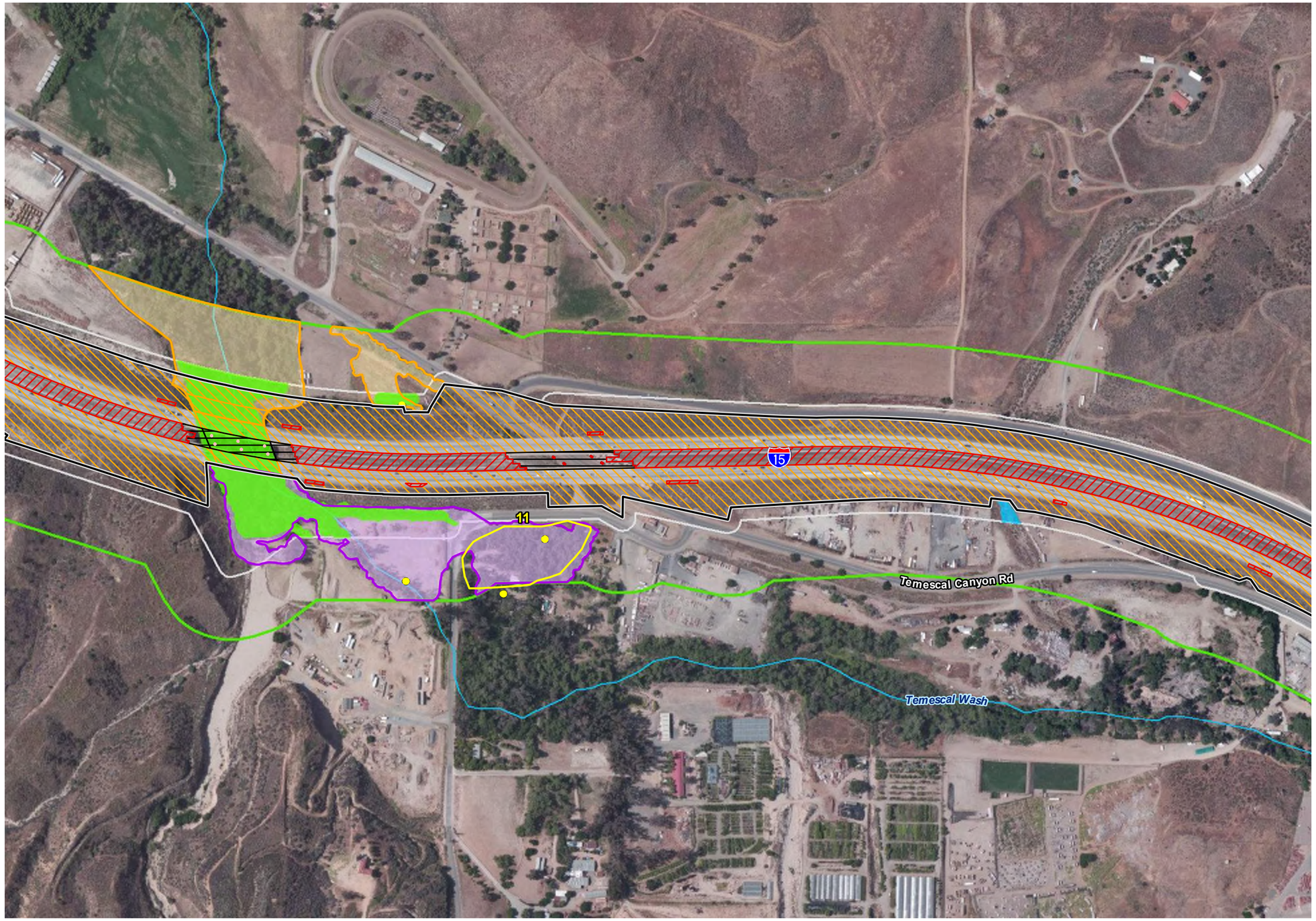
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 7
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 8
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 9
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 10
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 11
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

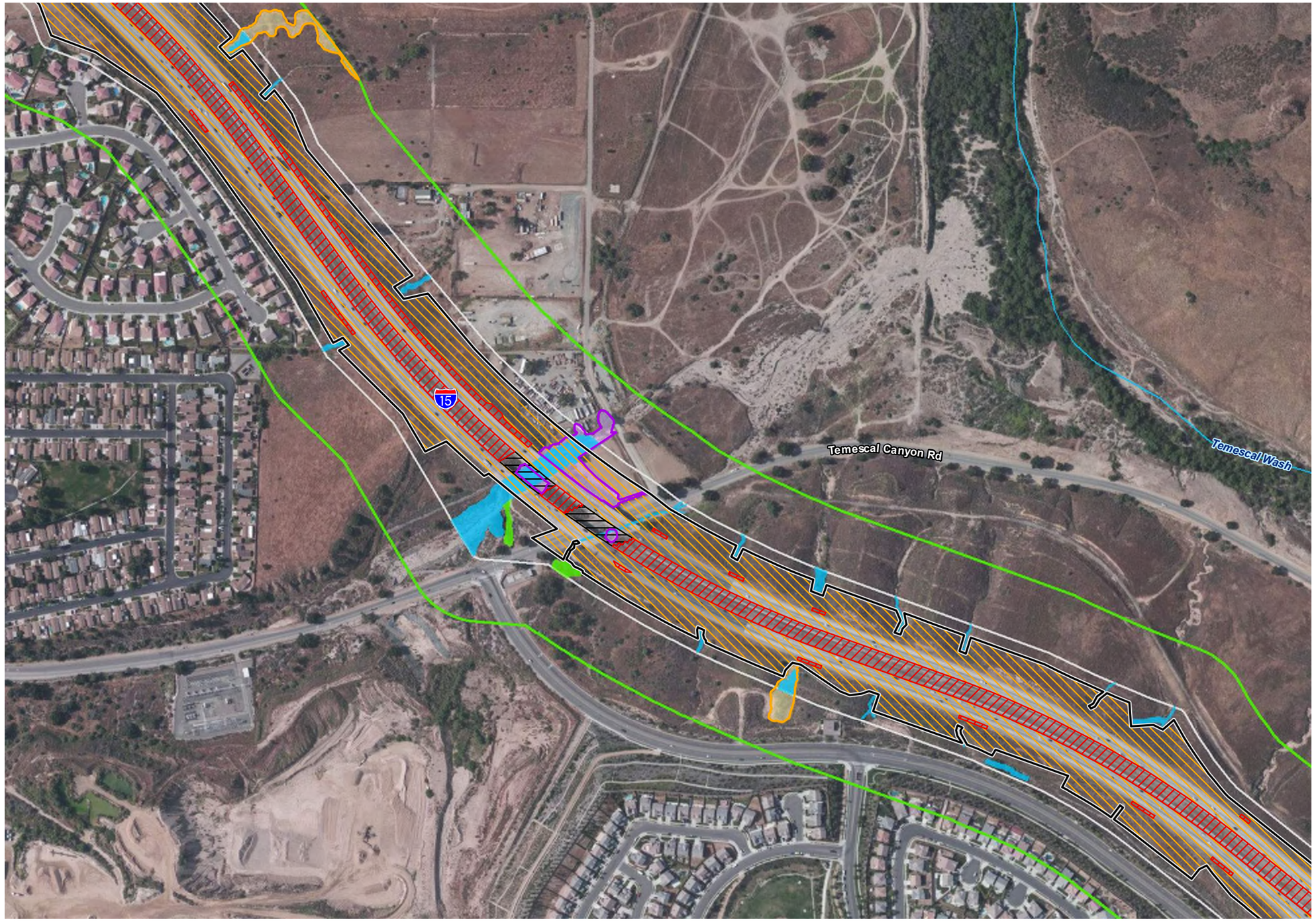
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 12
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 13
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 14
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

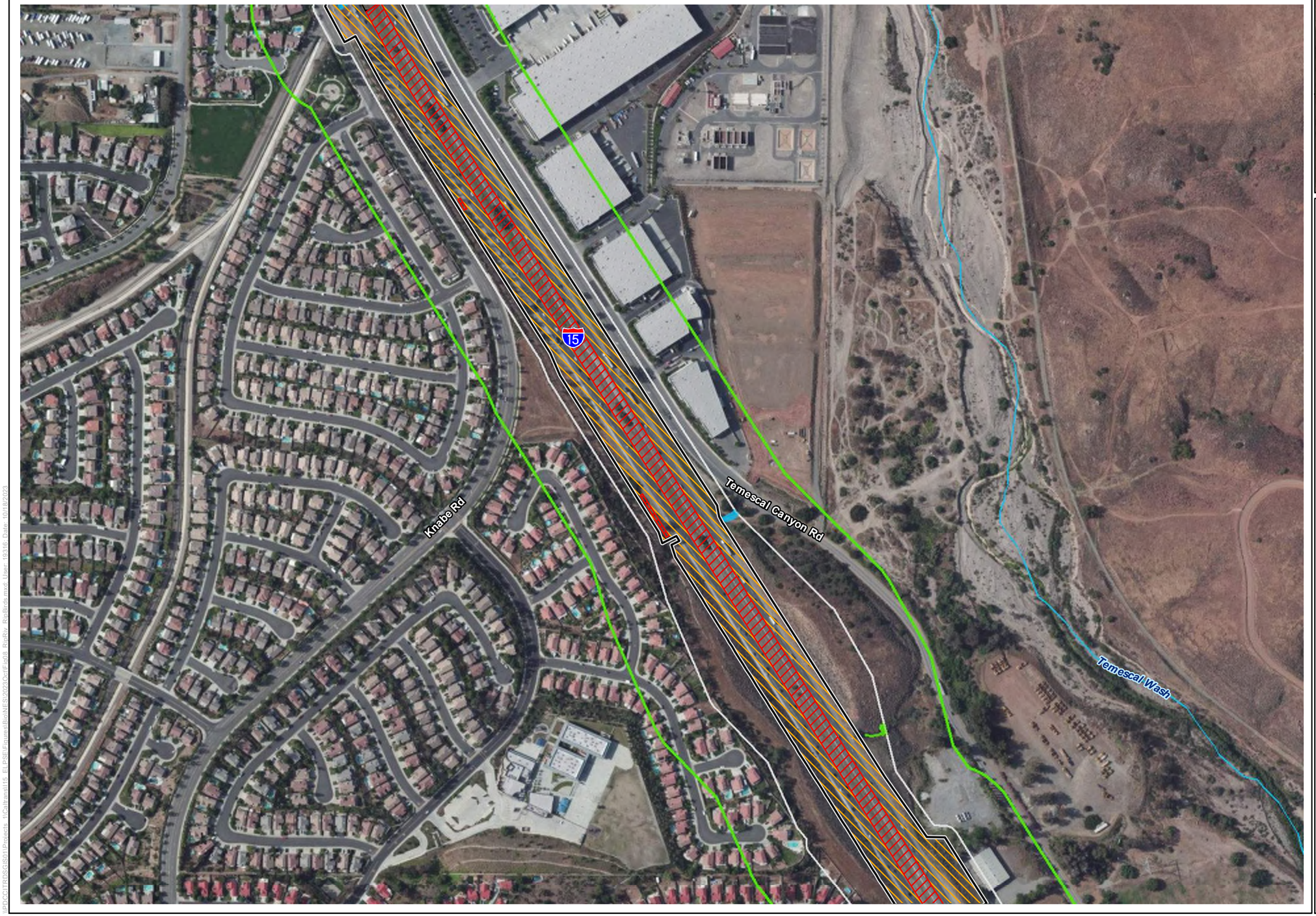
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 15
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 16
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

50-foot Study Area - Jurisdictional Delineation

Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

Least Bell's Vireo

Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

Least Bell's Vireo

Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

Riparian

Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 17
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

50-foot Study Area - Jurisdictional Delineation

Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

Least Bell's Vireo

Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

Least Bell's Vireo

Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

Riparian

Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

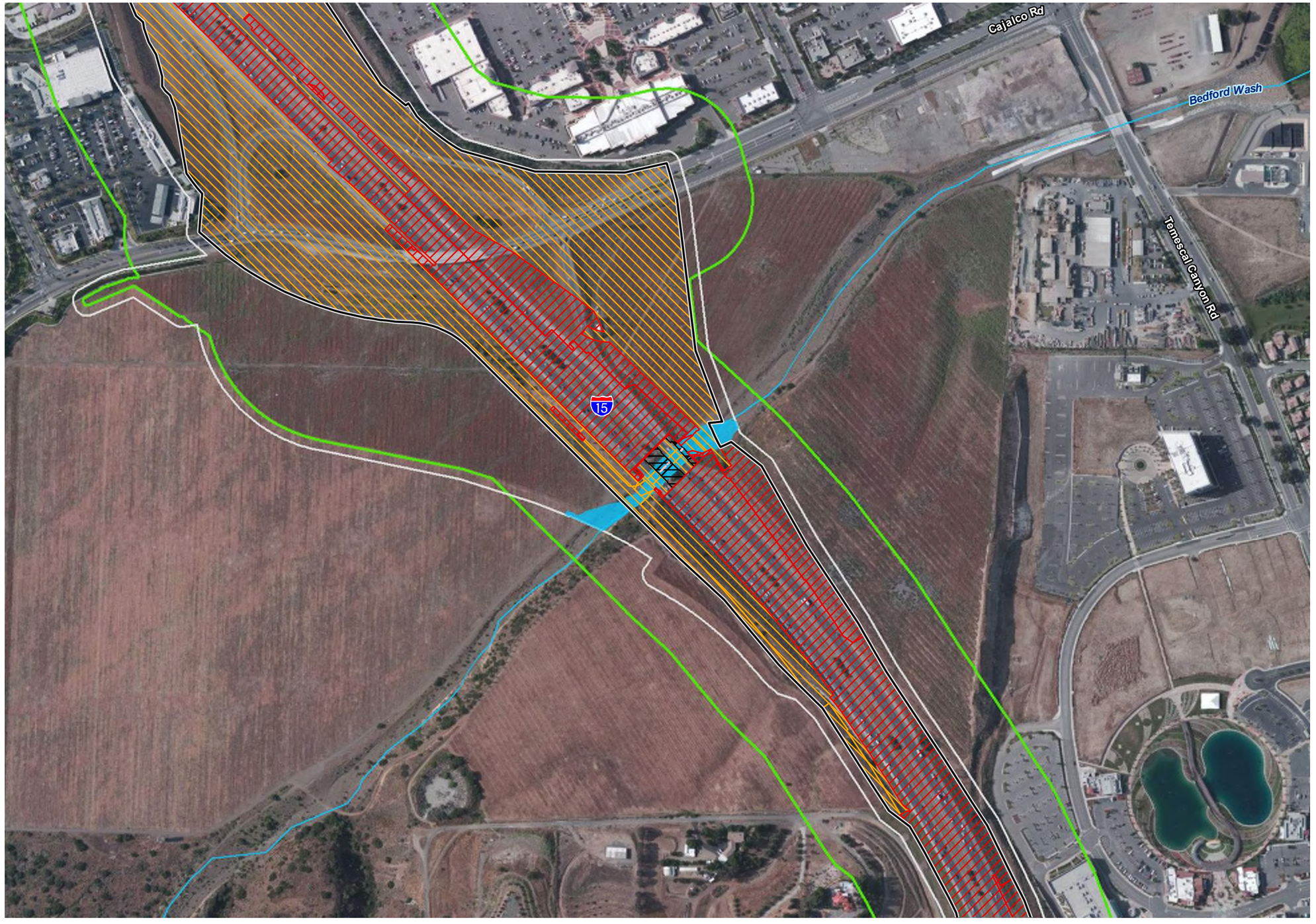
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 18
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

- Least Bell's Vireo
- Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

- Least Bell's Vireo
- Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

- Riparian
- Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 19
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

50-foot Study Area - Jurisdictional Delineation

Riparian Bird Study Area (300-foot)

Riparian Birds Suitable Habitat

Least Bell's Vireo

Least Bell's Vireo and Southwestern Willow Flycatcher

Riparian Bird Occurences

Least Bell's Vireo

Least Bell's Vireo Use Area

MSHCP Riparian/Riverine Resources

Riparian

Riverine

*No Southwestern Willow Flycatcher were found during the 2020 and 2021 focused survey.

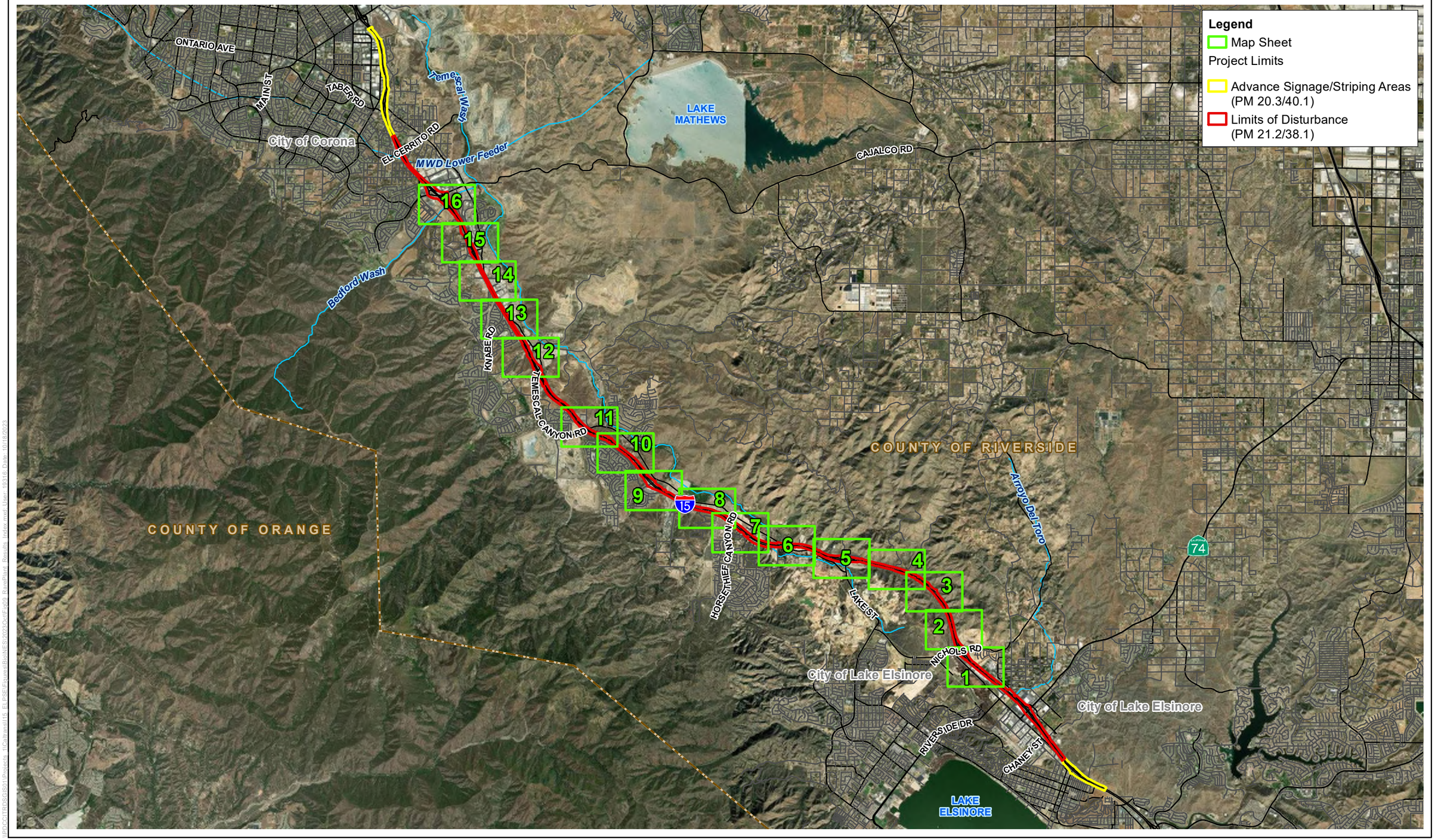
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 8 - Sheet 20
Riparian/Riverine Resources and Riparian Bird Survey Results
Interstate 15 Express Lanes Project Southern Extension

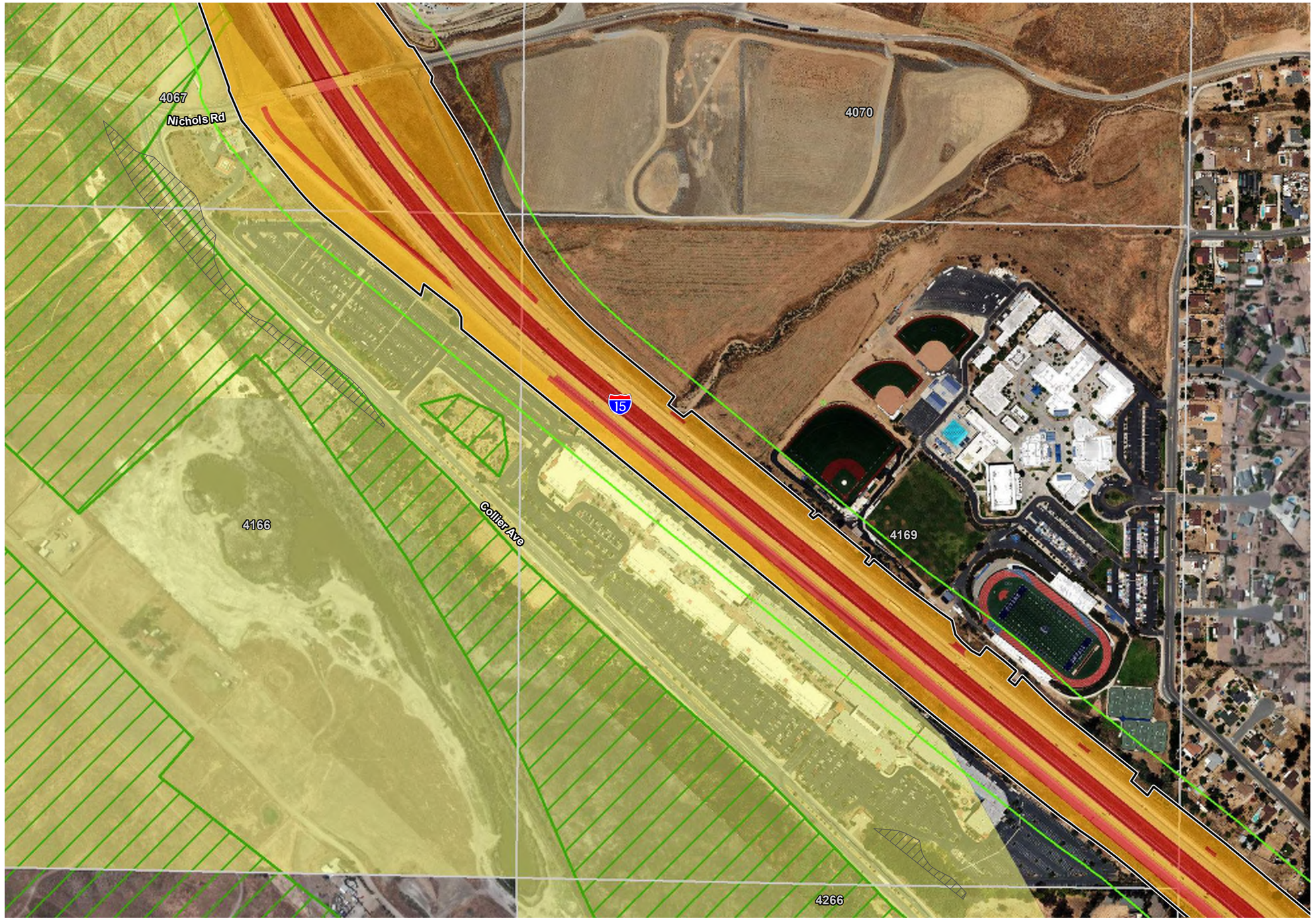


N

0 1 2 Miles

1:100,000

Figure 9 - Map Index
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- Rare Plant Survey Area (100-foot buffer)
- Criteria Cells

MSHCP Survey

- Criteria Area Species Survey Area
- Narrow Endemic Plant Species Survey Area 1
- Narrow Endemic Plant Species Survey Area 7
- Clay Soils
- Long-spined Spineflower (MSHCP Covered)
- Coast Live Oak

*No special-status plants were detected during the 2020 survey season. Final results of the 2021 survey season will be incorporated prior to Caltrans approval.

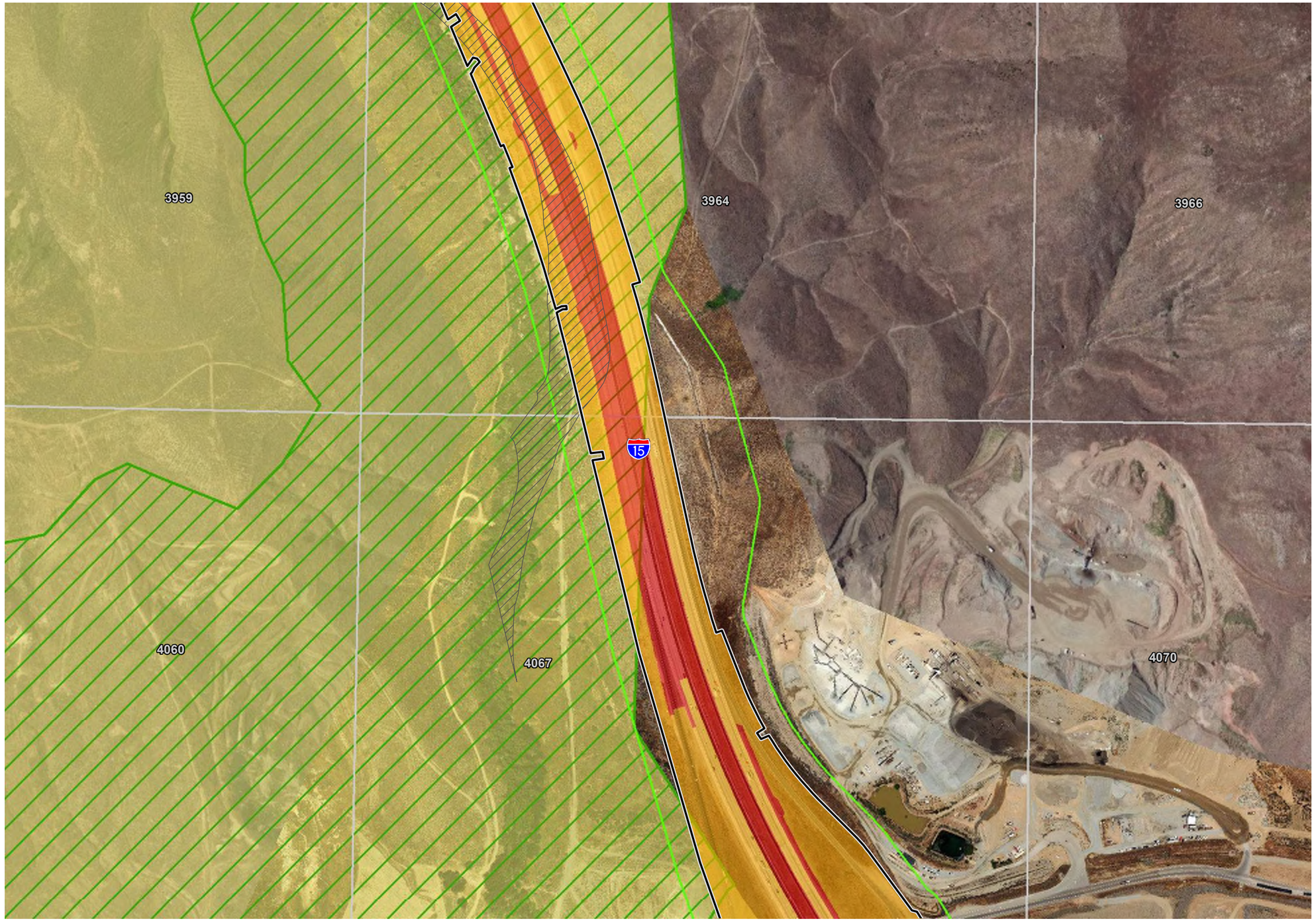
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 9 - Sheet 1
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- Rare Plant Survey Area (100-foot buffer)
- Criteria Cells

MSHCP Survey

- Criteria Area Species Survey Area
- Narrow Endemic Plant Species Survey Area 1
- Narrow Endemic Plant Species Survey Area 7
- Clay Soils
- Long-spined Spineflower (MSHCP Covered)
- Coast Live Oak

*No special-status plants were detected during the 2020 survey season. Final results of the 2021 survey season will be incorporated prior to Caltrans approval.

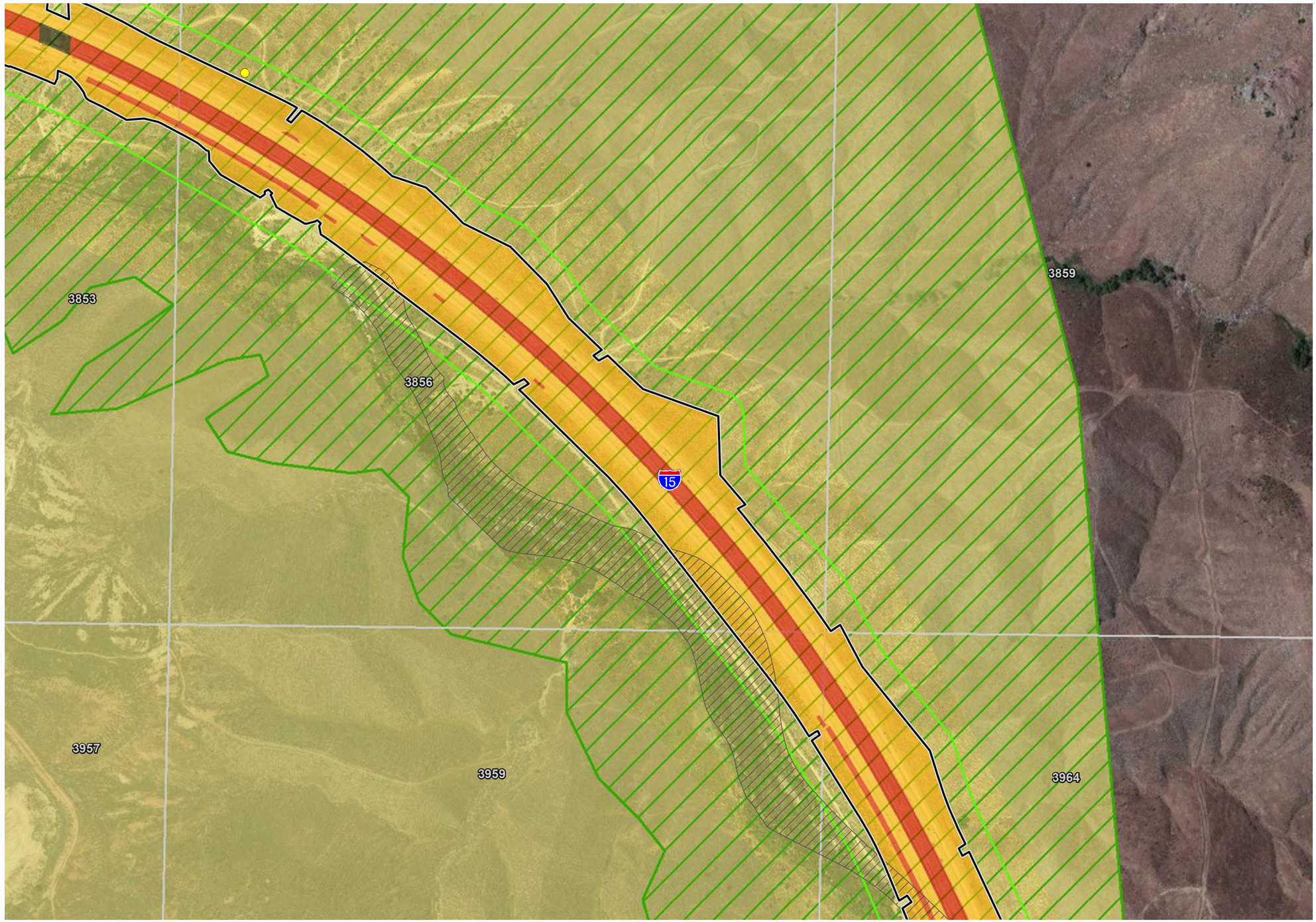
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 9 - Sheet 2
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- Rare Plant Survey Area (100-foot buffer)
- Criteria Cells

MSHCP Survey

- Criteria Area Species Survey Area
- Narrow Endemic Plant Species Survey Area 1
- Narrow Endemic Plant Species Survey Area 7
- Clay Soils
- Long-spined Spineflower (MSHCP Covered)
- Coast Live Oak

*No special-status plants were detected during the 2020 survey season. Final results of the 2021 survey season will be incorporated prior to Caltrans approval.

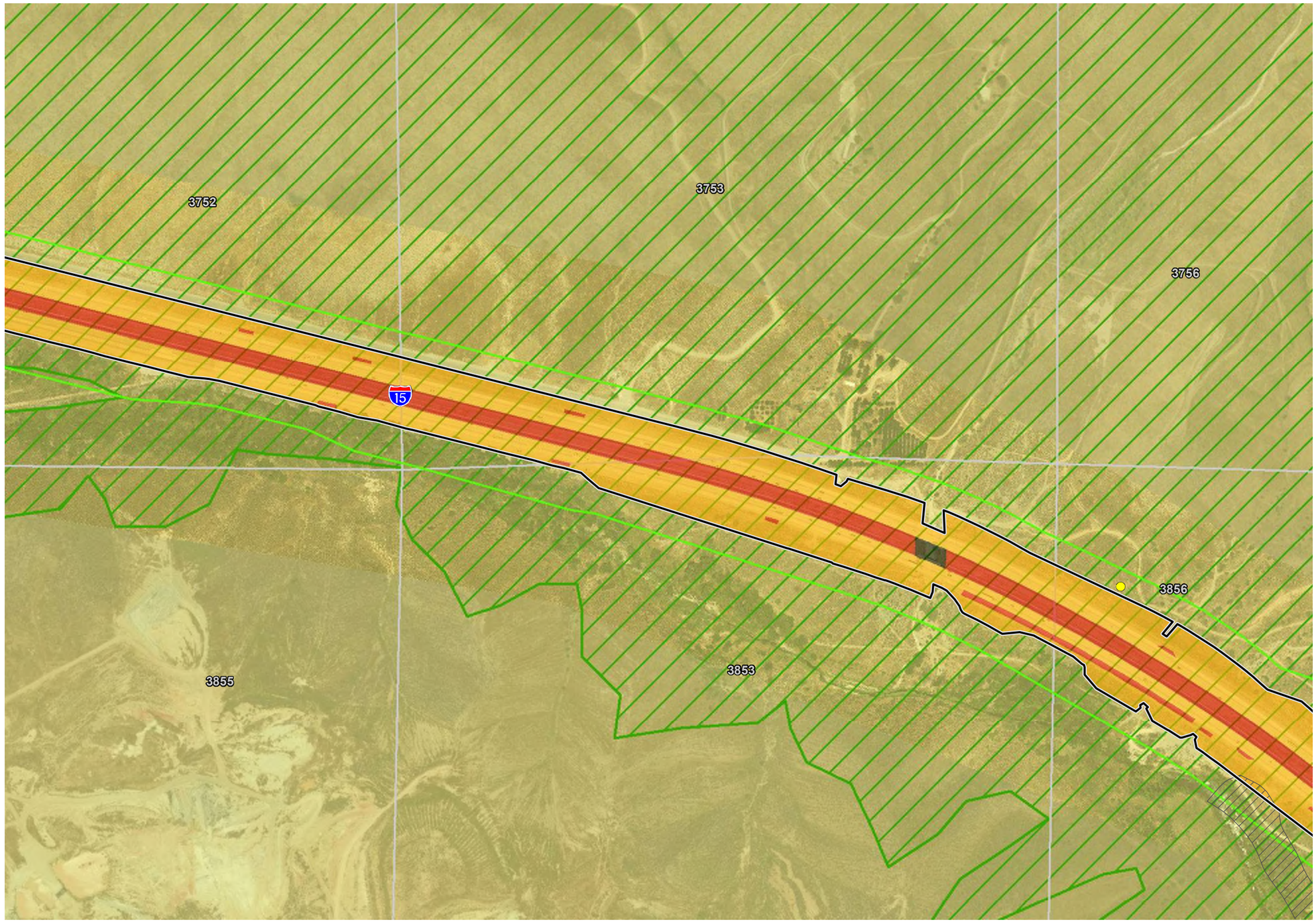
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 9 - Sheet 3
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- Rare Plant Survey Area (100-foot buffer)
- Criteria Cells

MSHCP Survey

- Criteria Area Species Survey Area
- Narrow Endemic Plant Species Survey Area 1
- Narrow Endemic Plant Species Survey Area 7
- Clay Soils
- Long-spined Spineflower (MSHCP Covered)
- Coast Live Oak

*No special-status plants were detected during the 2020 survey season. Final results of the 2021 survey season will be incorporated prior to Caltrans approval.

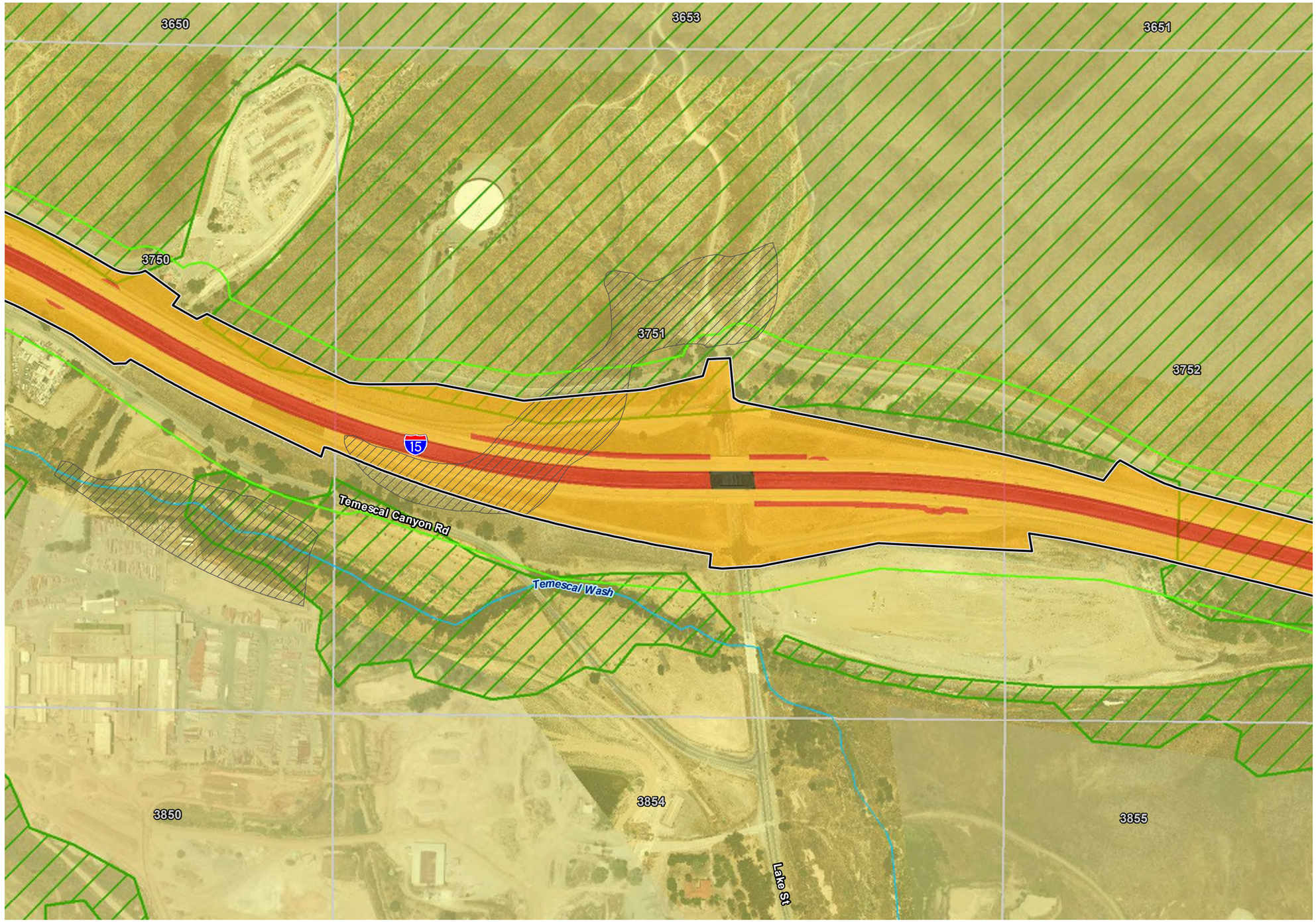
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 9 - Sheet 4
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- Rare Plant Survey Area (100-foot buffer)
- Criteria Cells

MSHCP Survey

- Criteria Area Species Survey Area
- Narrow Endemic Plant Species Survey Area 1
- Narrow Endemic Plant Species Survey Area 7
- Clay Soils
- Long-spined Spineflower (MSHCP Covered)
- Coast Live Oak

*No special-status plants were detected during the 2020 survey season. Final results of the 2021 survey season will be incorporated prior to Caltrans approval.

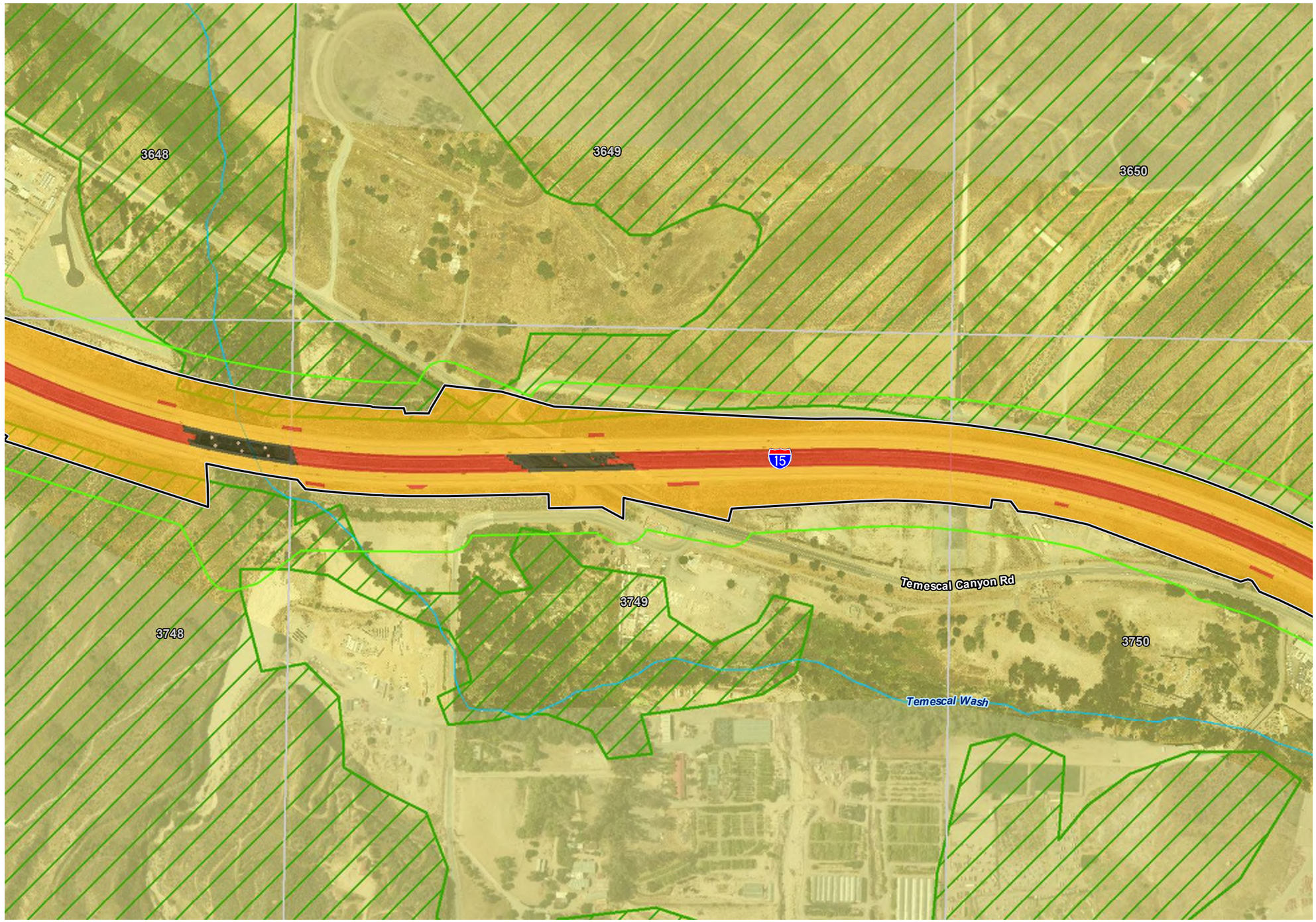
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 9 - Sheet 5
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- Rare Plant Survey Area (100-foot buffer)
- Criteria Cells

MSHCP Survey

- Criteria Area Species Survey Area
- Narrow Endemic Plant Species Survey Area 1
- Narrow Endemic Plant Species Survey Area 7
- Clay Soils
- Long-spined Spineflower (MSHCP Covered)
- Coast Live Oak

*No special-status plants were detected during the 2020 survey season. Final results of the 2021 survey season will be incorporated prior to Caltrans approval.

Source: ESRI USA Imagery

N

0 200 400 Feet

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Figure 9 - Sheet 6
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- Rare Plant Survey Area (100-foot buffer)
- Criteria Cells

MSHCP Survey

- Criteria Area Species Survey Area
- Narrow Endemic Plant Species Survey Area 1
- Narrow Endemic Plant Species Survey Area 7
- Clay Soils
- Long-spined Spineflower (MSHCP Covered)
- Coast Live Oak

*No special-status plants were detected during the 2020 survey season. Final results of the 2021 survey season will be incorporated prior to Caltrans approval.

Source: ESRI USA Imagery

N

0 200 400 Feet

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Figure 9 - Sheet 7
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- Rare Plant Survey Area (100-foot buffer)
- Criteria Cells

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- Criteria Area Species Survey Area
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- Clay Soils
- Long-spined Spineflower (MSHCP Covered)
- Coast Live Oak

*No special-status plants were detected during the 2020 survey season. Final results of the 2021 survey season will be incorporated prior to Caltrans approval.

Source: ESRI USA Imagery

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0 200 400 Feet

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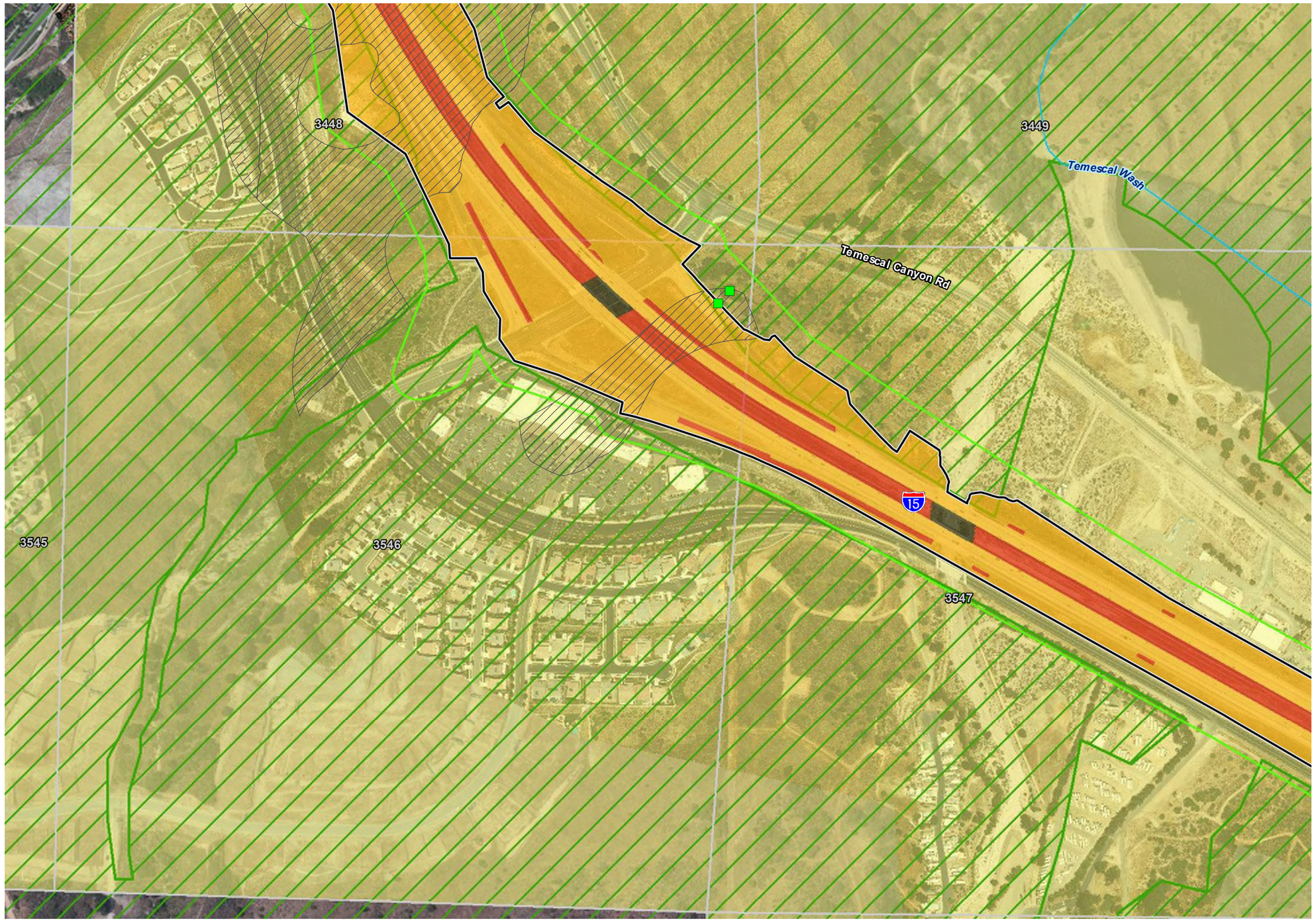
Figure 9 - Sheet 8
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

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Source: ESRI USA Imagery

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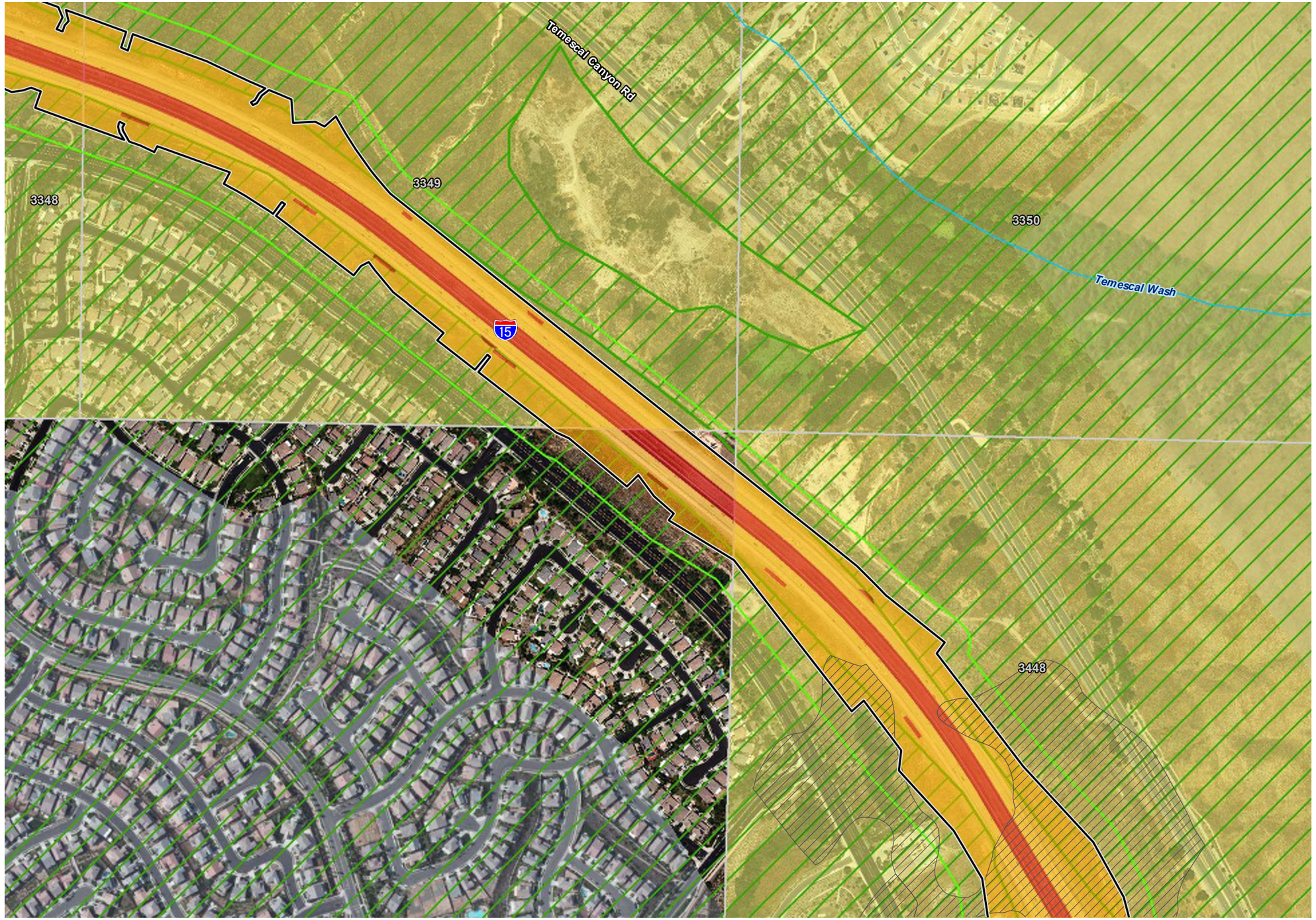
0 200 400 Feet

1:4,800

Figure 9 - Sheet 9
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

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- Temporary Impact
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Source: ESRI USA Imagery

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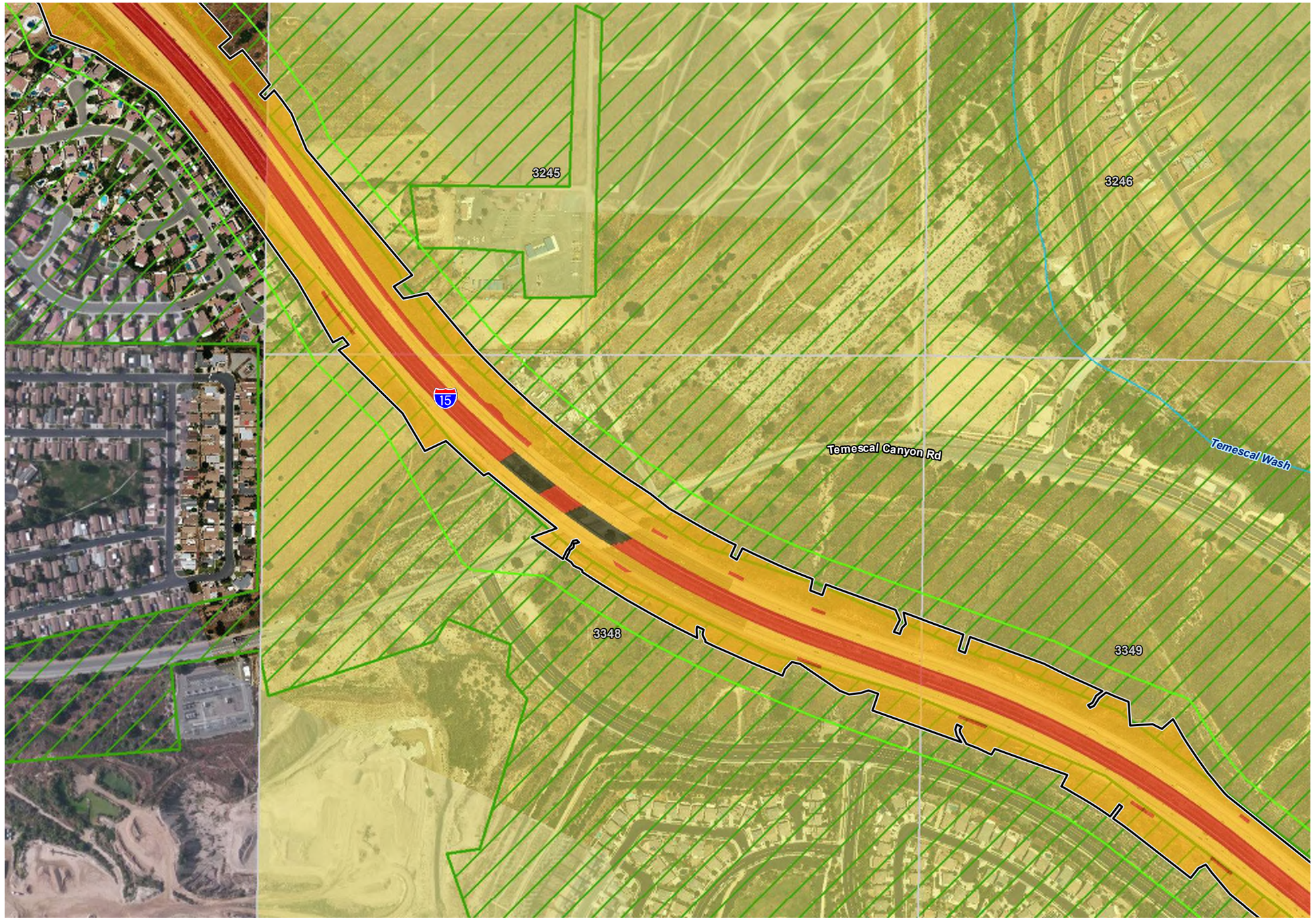
0 200 400 Feet

1:4,800

Figure 9 - Sheet 10
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
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*No special-status plants were detected during the 2020 survey season. Final results of the 2021 survey season will be incorporated prior to Caltrans approval.

Source: ESRI USA Imagery

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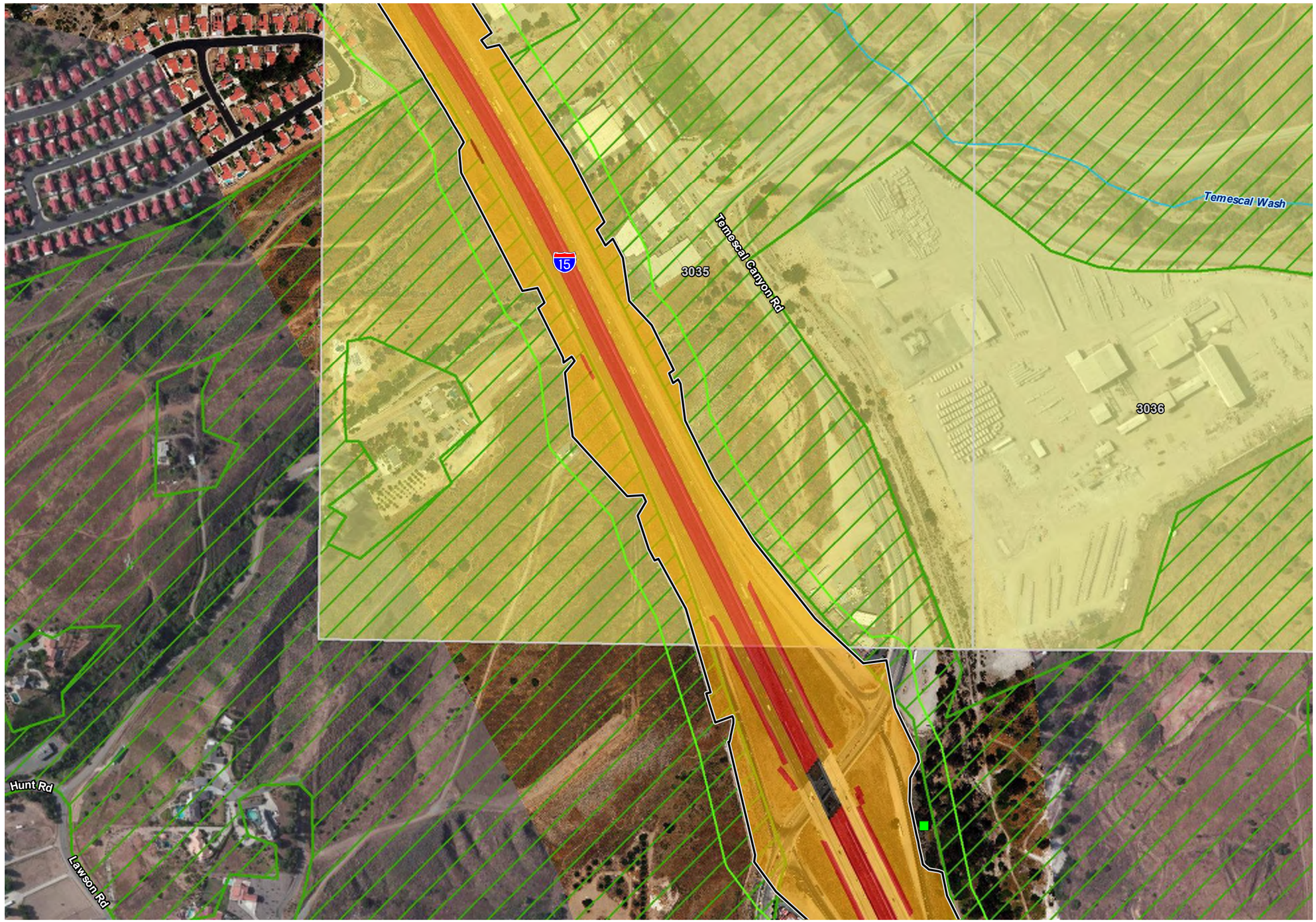
Figure 9 - Sheet 11
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
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Source: ESRI USA Imagery

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0 200 400 Feet

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Figure 9 - Sheet 12
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- Rare Plant Survey Area (100-foot buffer)
- Criteria Cells

MSHCP Survey

- Criteria Area Species Survey Area
- Narrow Endemic Plant Species Survey Area 1
- Narrow Endemic Plant Species Survey Area 7
- Clay Soils
- Long-spined Spineflower (MSHCP Covered)
- Coast Live Oak

*No special-status plants were detected during the 2020 survey season. Final results of the 2021 survey season will be incorporated prior to Caltrans approval.

Source: ESRI USA Imagery

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0 200 400 Feet

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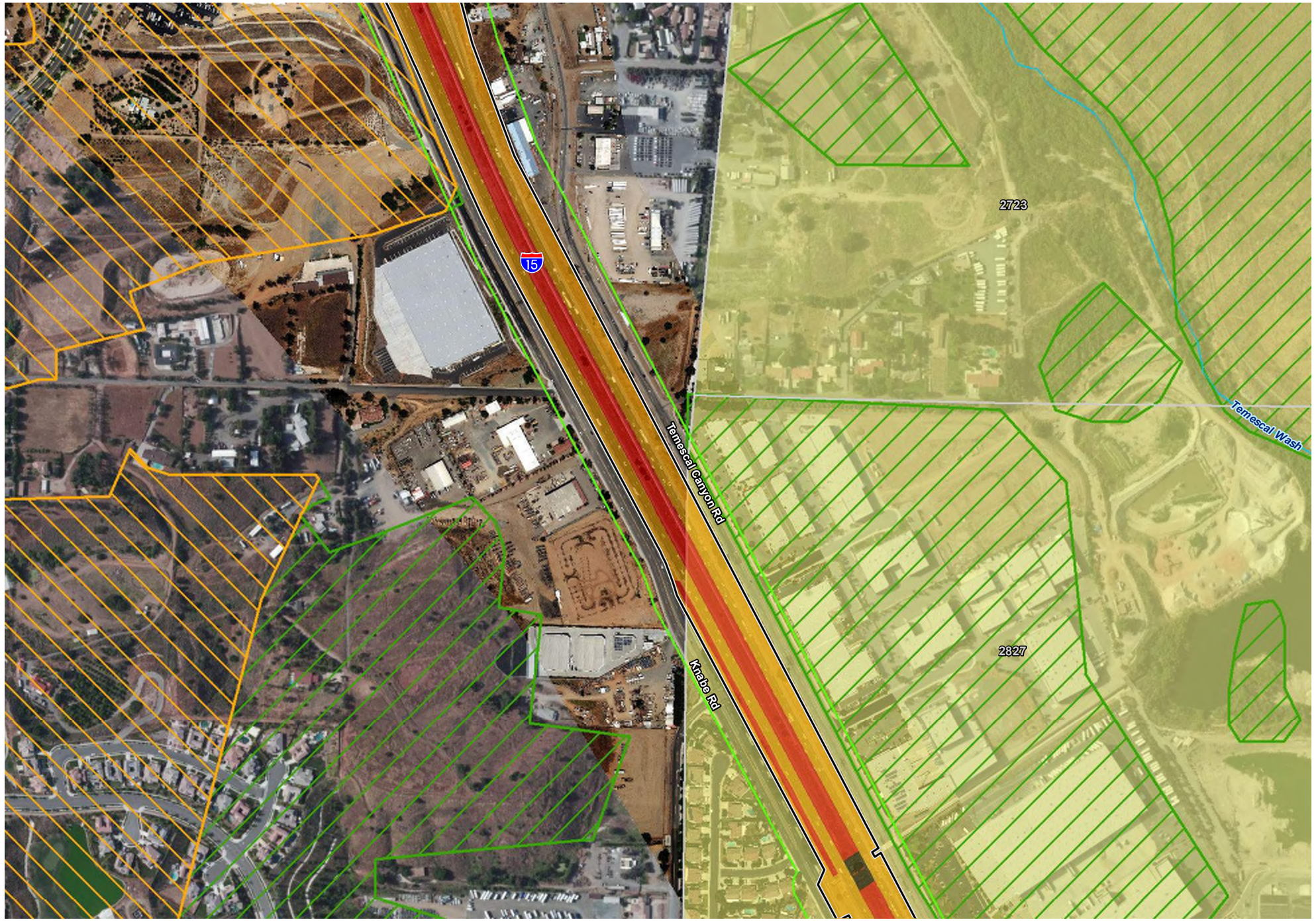
Figure 9 - Sheet 13
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- Rare Plant Survey Area (100-foot buffer)
- Criteria Cells

MSHCP Survey

- Criteria Area Species Survey Area
- Narrow Endemic Plant Species Survey Area 1
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- Long-spined Spineflower (MSHCP Covered)
- Coast Live Oak

*No special-status plants were detected during the 2020 survey season. Final results of the 2021 survey season will be incorporated prior to Caltrans approval.

Source: ESRI USA Imagery

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0 200 400 Feet

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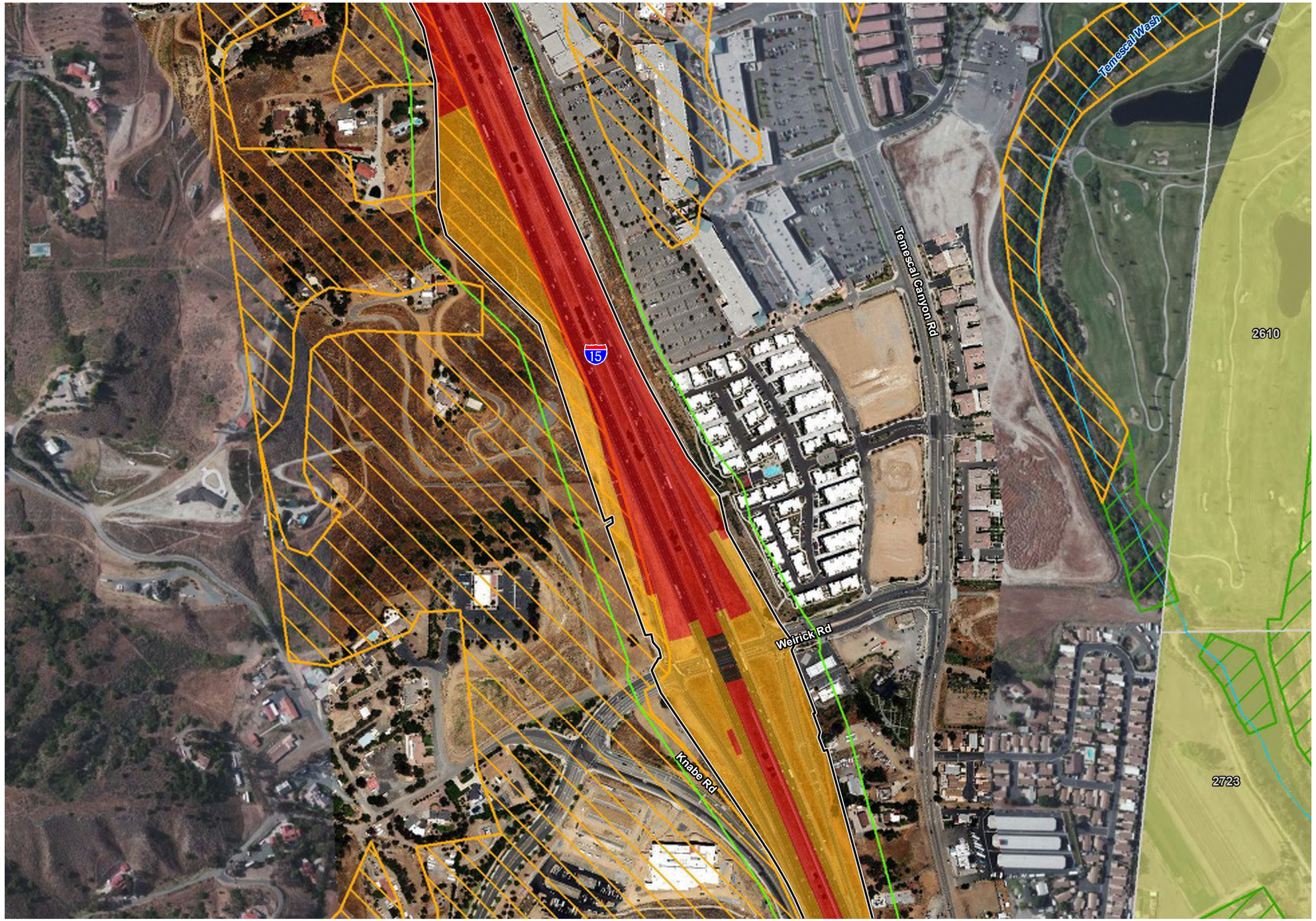
Figure 9 - Sheet 14
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- Rare Plant Survey Area (100-foot buffer)
- Criteria Cells

MSHCP Survey

- Criteria Area Species Survey Area
- Narrow Endemic Plant Species Survey Area 1
- Narrow Endemic Plant Species Survey Area 7
- Clay Soils
- Long-spined Spineflower (MSHCP Covered)
- Coast Live Oak

*No special-status plants were detected during the 2020 survey season. Final results of the 2021 survey season will be incorporated prior to Caltrans approval.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 9 - Sheet 15
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor
- Temporary Impact
- Shading Impact
- Rare Plant Survey Area (100-foot buffer)
- Criteria Cells

MSHCP Survey

- Criteria Area Species Survey Area
- Narrow Endemic Plant Species Survey Area 1
- Narrow Endemic Plant Species Survey Area 7
- Clay Soils
- Long-spined Spineflower (MSHCP Covered)
- Coast Live Oak

*No special-status plants were detected during the 2020 survey season. Final results of the 2021 survey season will be incorporated prior to Caltrans approval.

Source: ESRI USA Imagery

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Figure 9 - Sheet 16
Rare Plant Survey Results
Interstate 15 Express Lanes Project Southern Extension

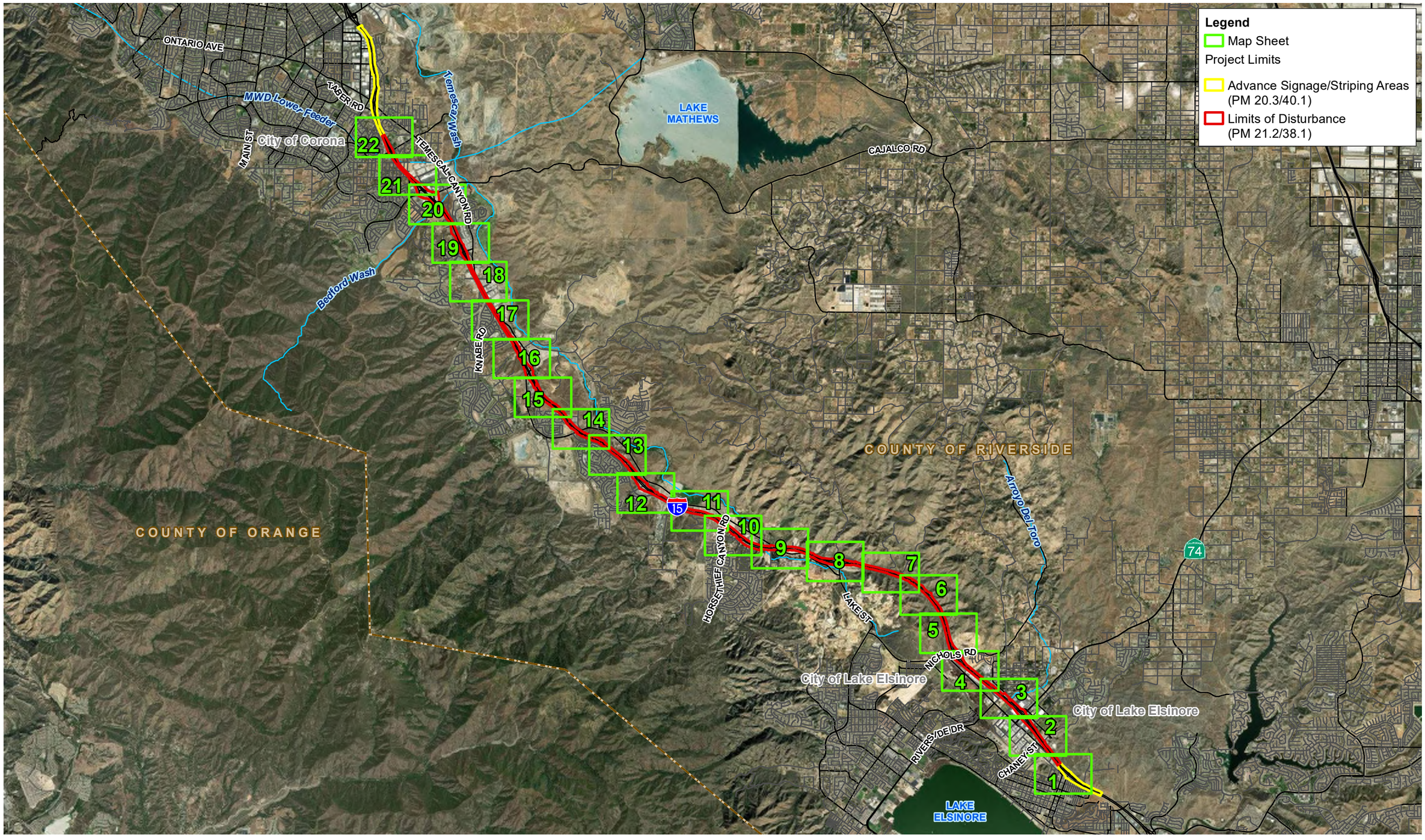

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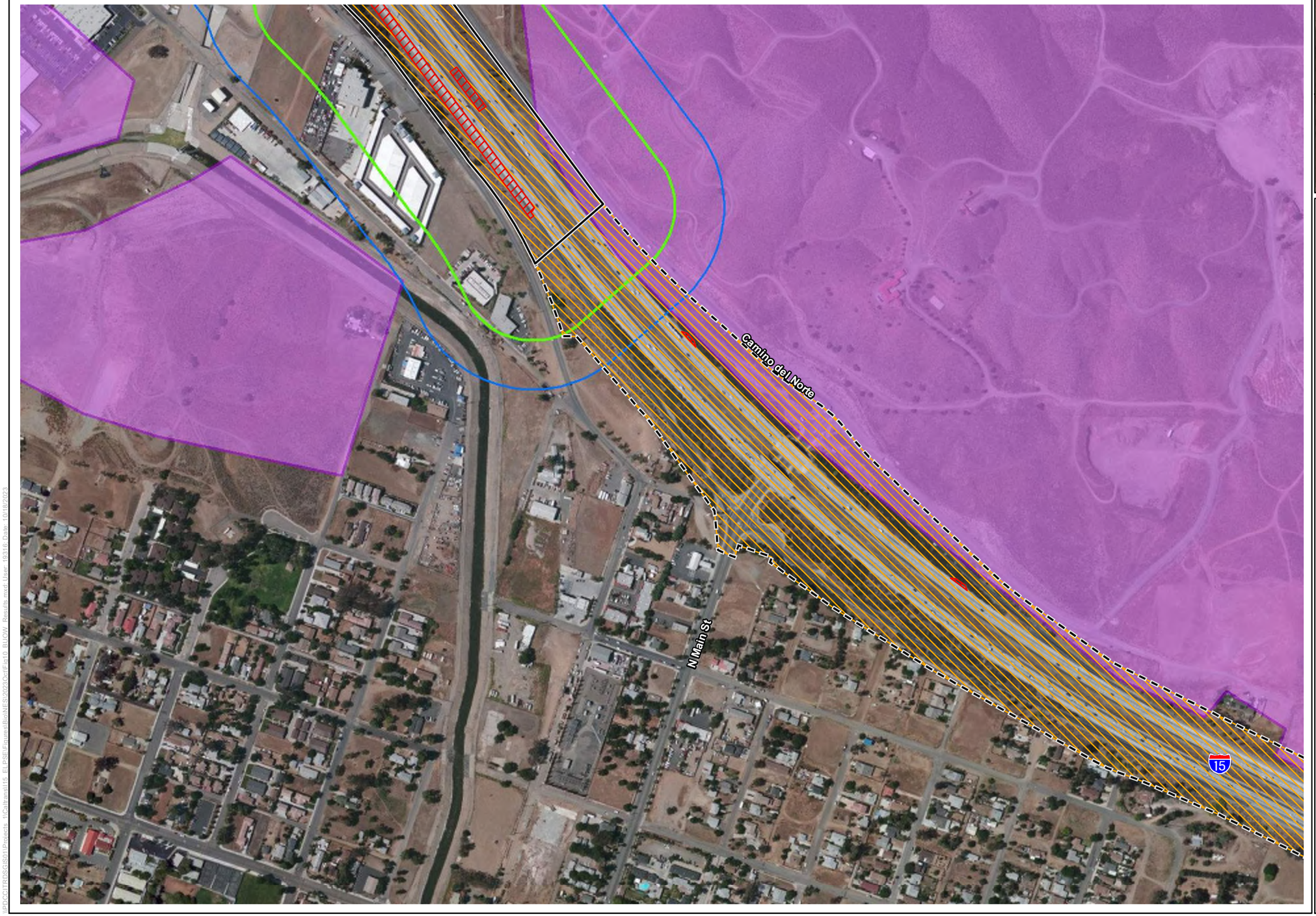
Figure 10 - Map Index
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 500-foot BSA
- BUOW Study Area (300-foot)
- MSHCP Burrowing Owl Survey
- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

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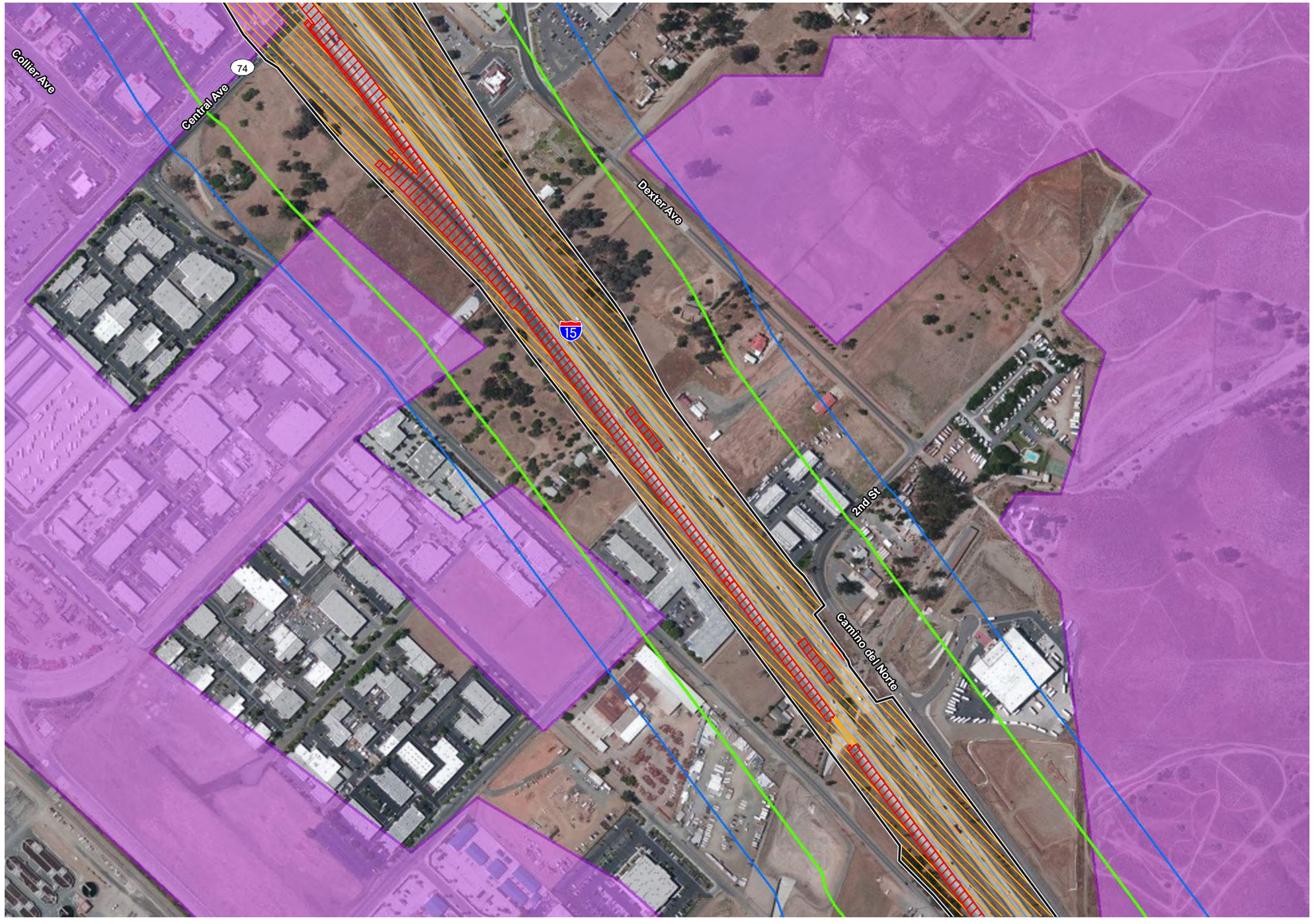
Figure 10 - Sheet 1
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 500-foot BSA
- BUOW Study Area (300-foot)
- MSHCP Burrowing Owl Survey
- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

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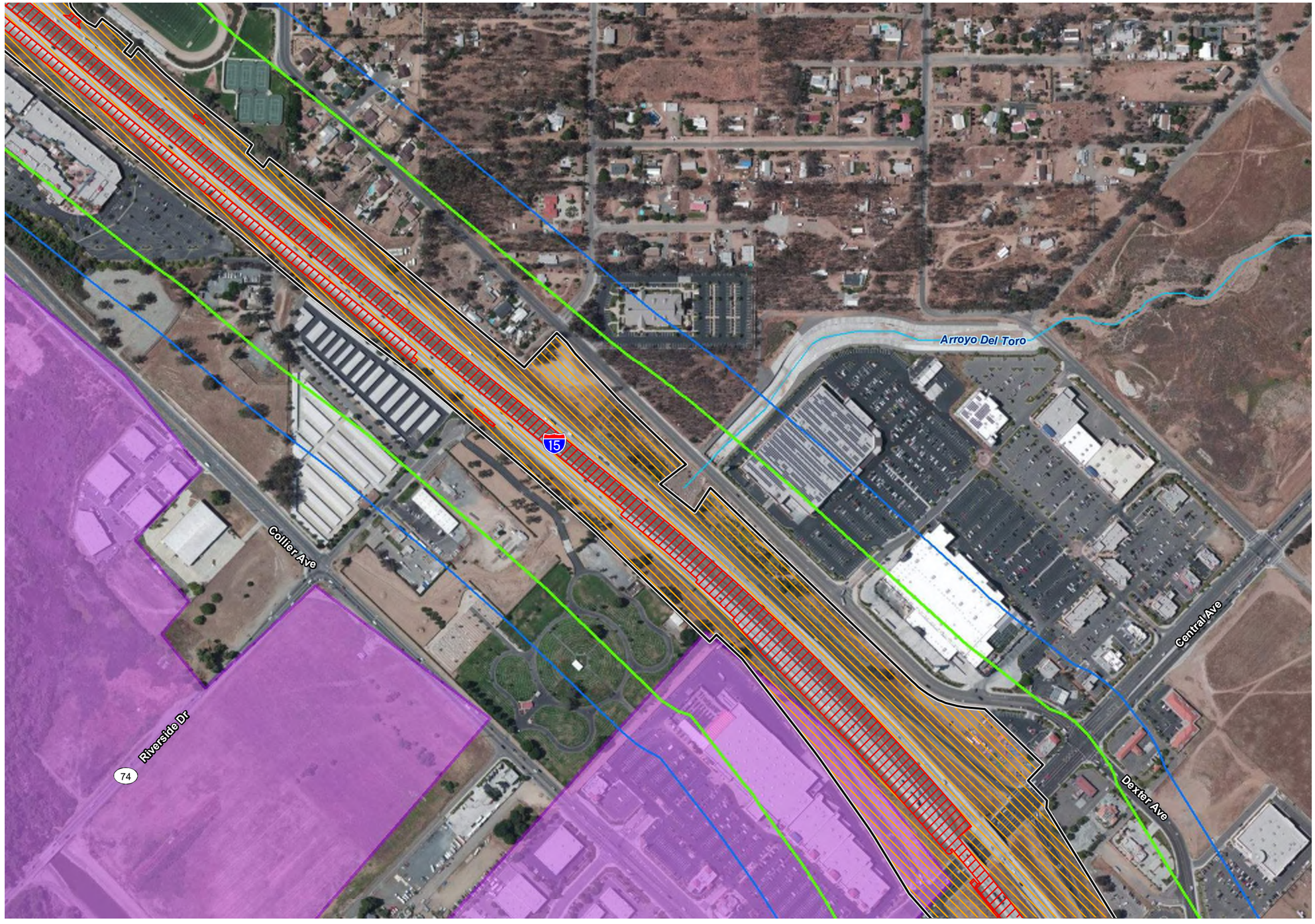
Figure 10 - Sheet 2
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension

P:\CONTRACTS\SOUTH Projects - I-CA\Project\I-15 ELPS\EP\Figures\BioNES\2023\Oct\Fig10_BUOW_Results.mxd User: tkirk Date: 10/18/2023



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

500-foot BSA

BUOW Study Area (300-foot)

MSHCP Burrowing Owl Survey

Focus Survey Areas

Potential Burrowing Owl Feature (eg. rip rap)

Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

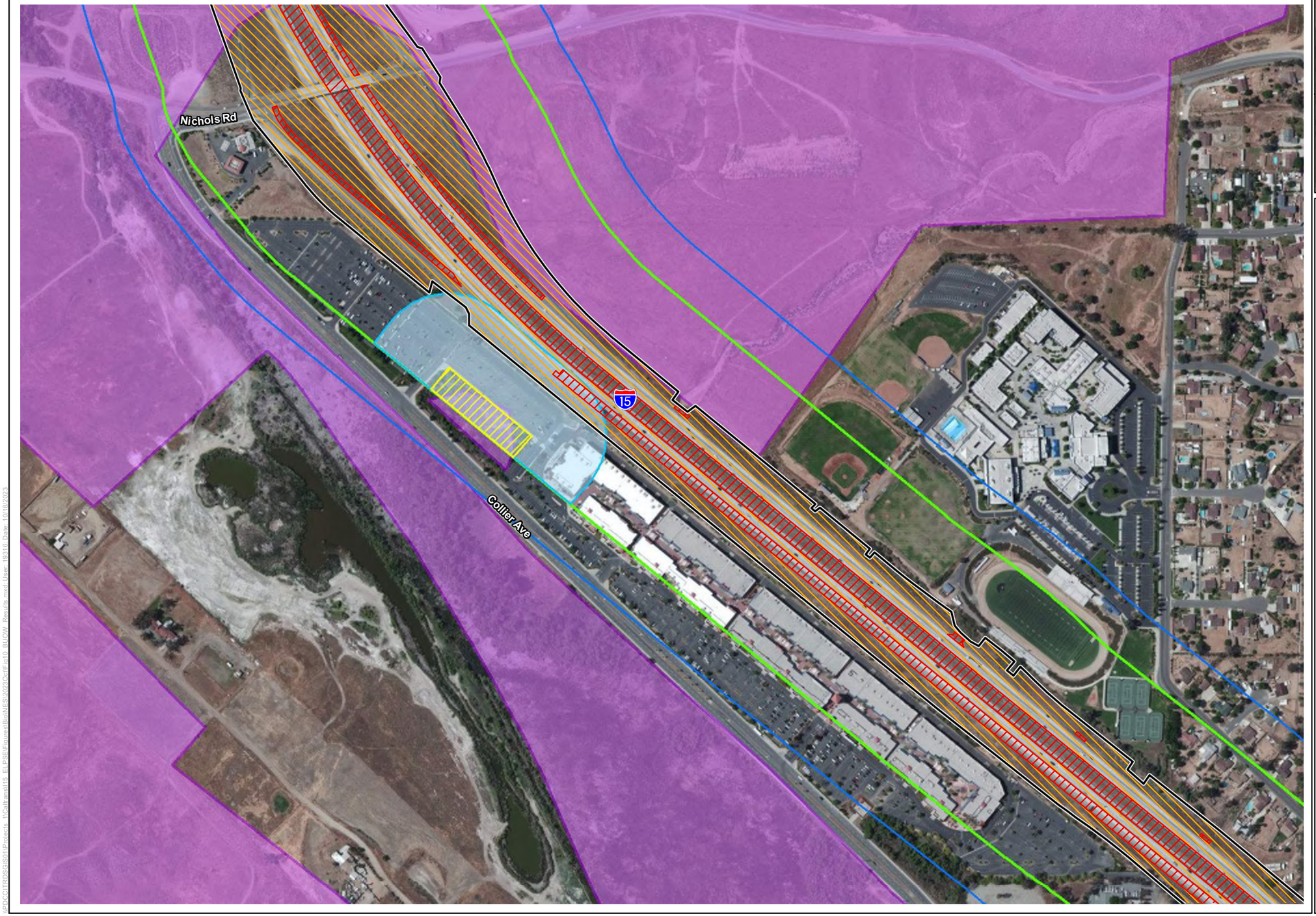
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 3
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 500-foot BSA
- BUOW Study Area (300-foot)
- MSHCP Burrowing Owl Survey
- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 4
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 500-foot BSA
- BUOW Study Area (300-foot)
- MSHCP Burrowing Owl Survey
- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

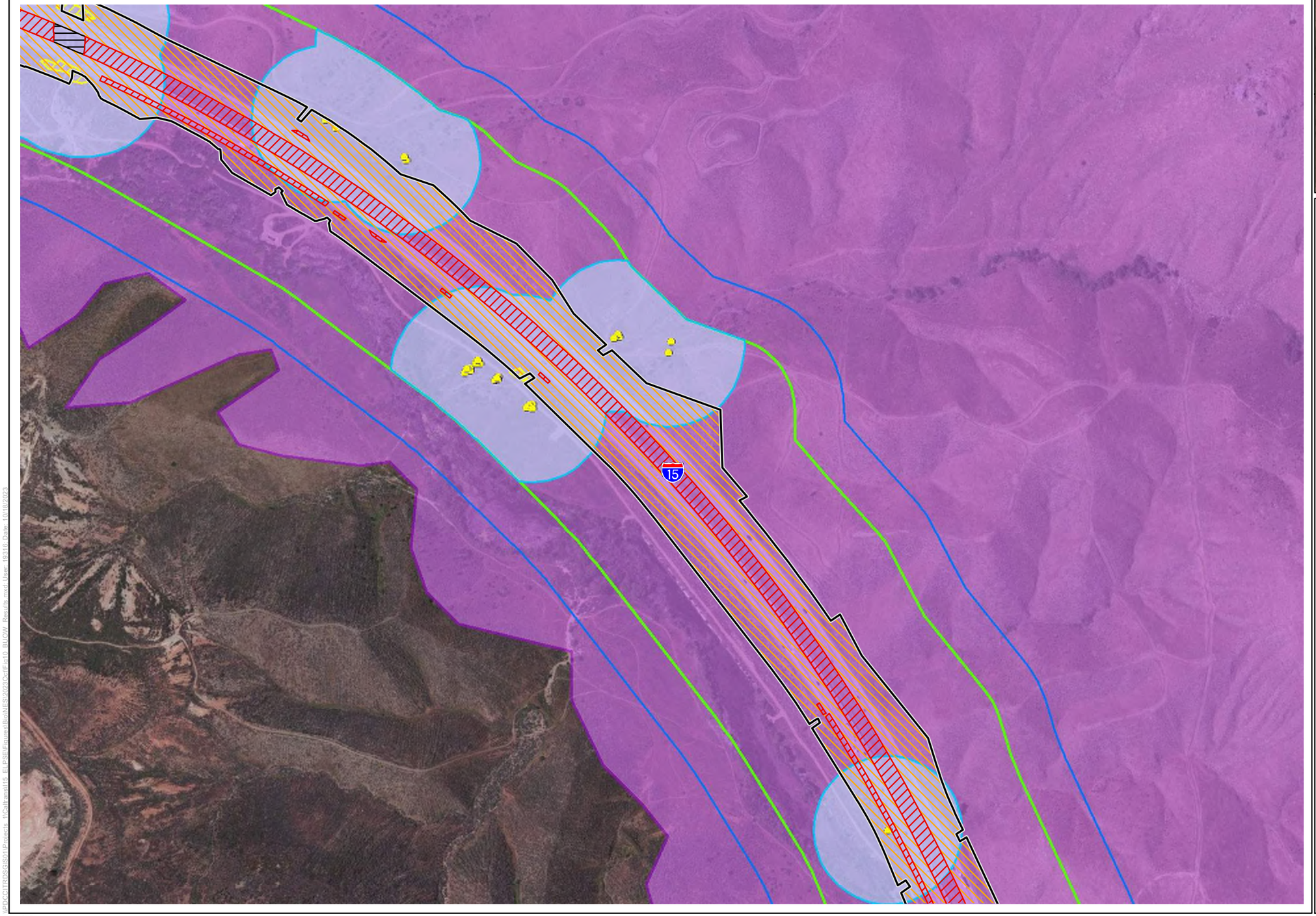
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 5
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

500-foot BSA

BUOW Study Area (300-foot)

MSHCP Burrowing Owl Survey

Focus Survey Areas

Potential Burrowing Owl Feature (eg. rip rap)

Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

Source: ESRI USA Imagery

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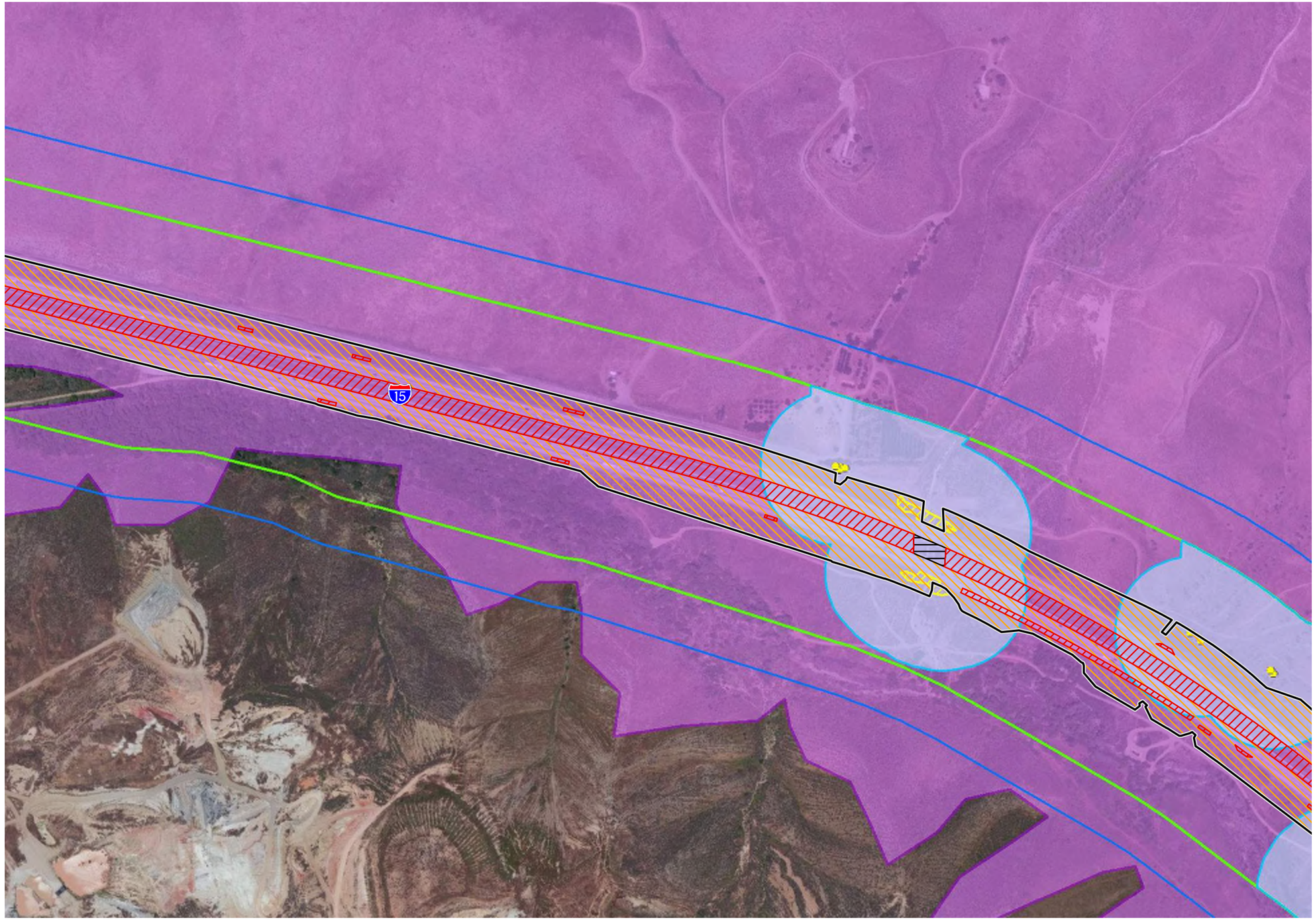
0 200 400 Feet

1:4,800

Figure 10 - Sheet 6
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 500-foot BSA
- BUOW Study Area (300-foot)
- MSHCP Burrowing Owl Survey
- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

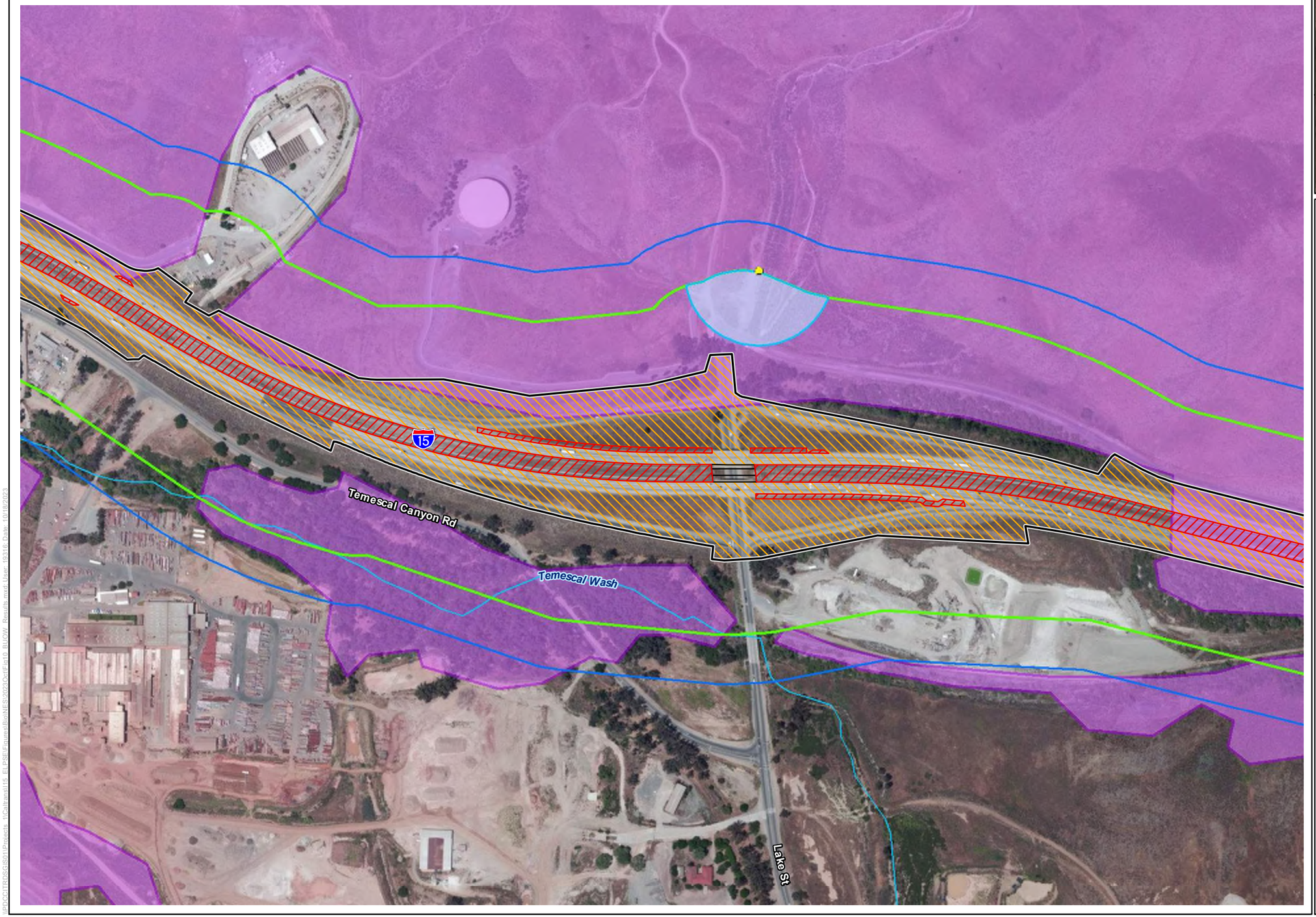
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 7
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

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Project Impacts

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- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

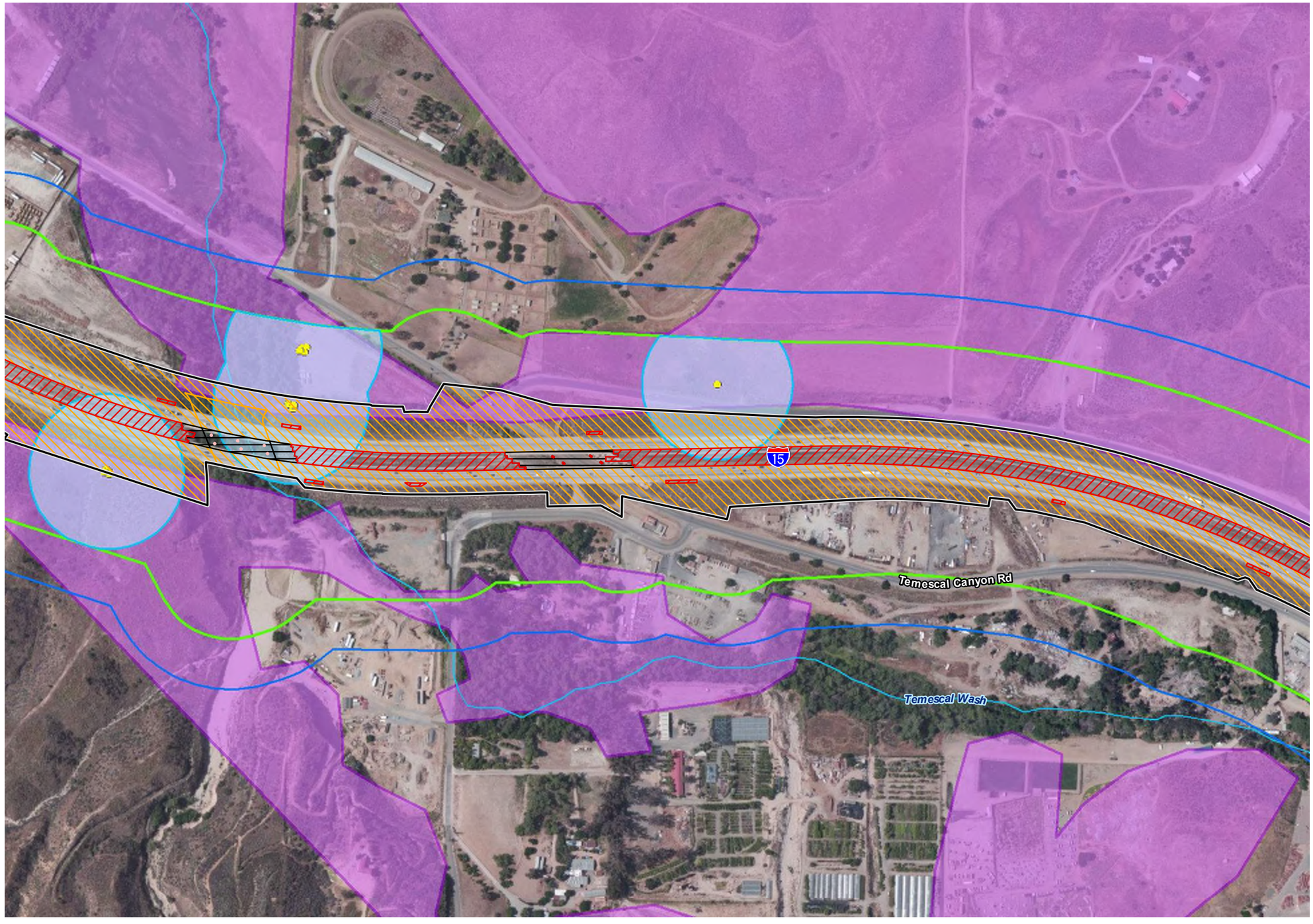
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 8
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

500-foot BSA

BUOW Study Area (300-foot)

MSHCP Burrowing Owl Survey

Focus Survey Areas

Potential Burrowing Owl Feature (eg. rip rap)

Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

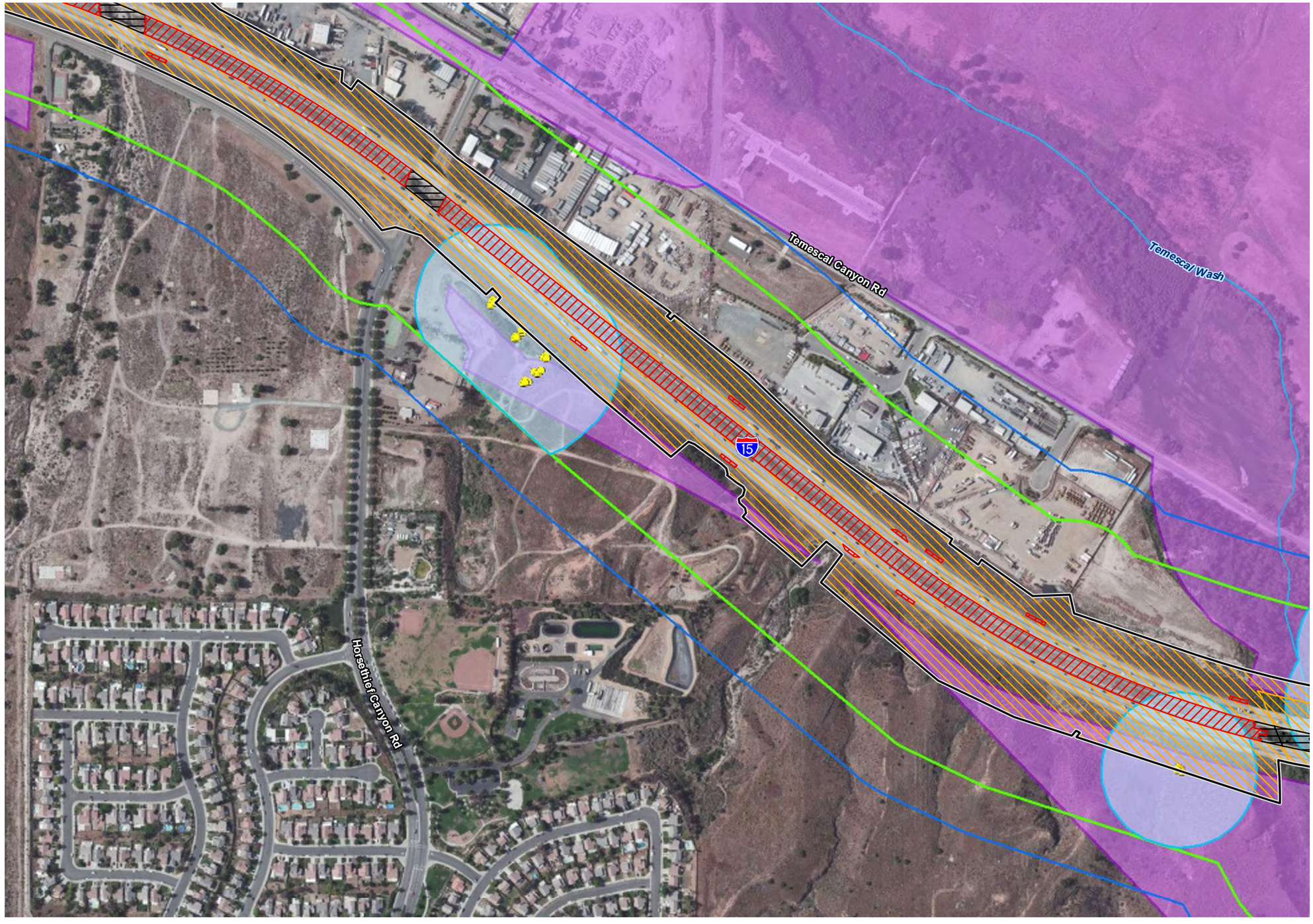
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 9
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

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- Focus Survey Areas
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- Potential Burrowing Owl Burrow

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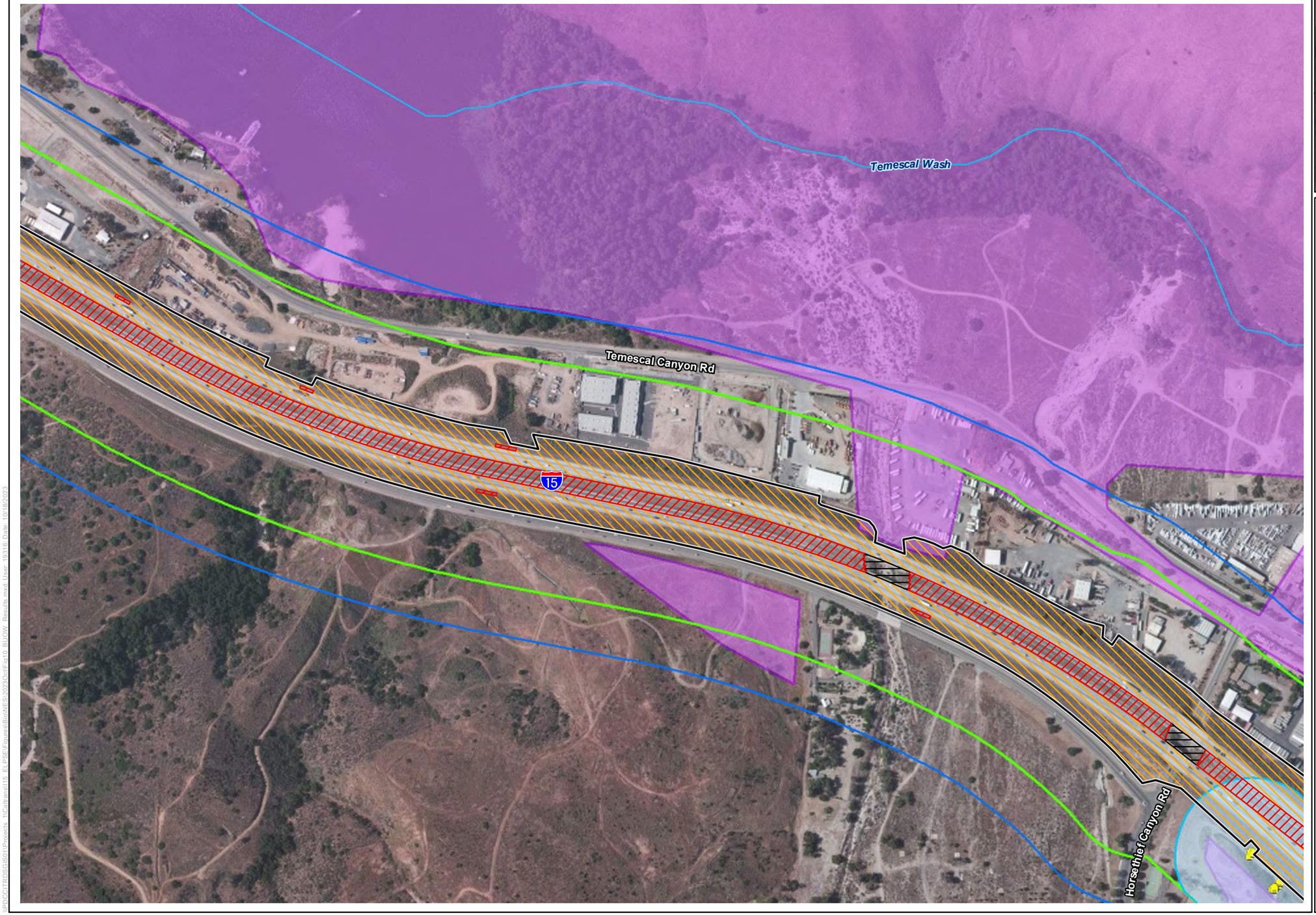
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 10
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



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- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

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Source: ESRI USA Imagery

0 200 400 Feet

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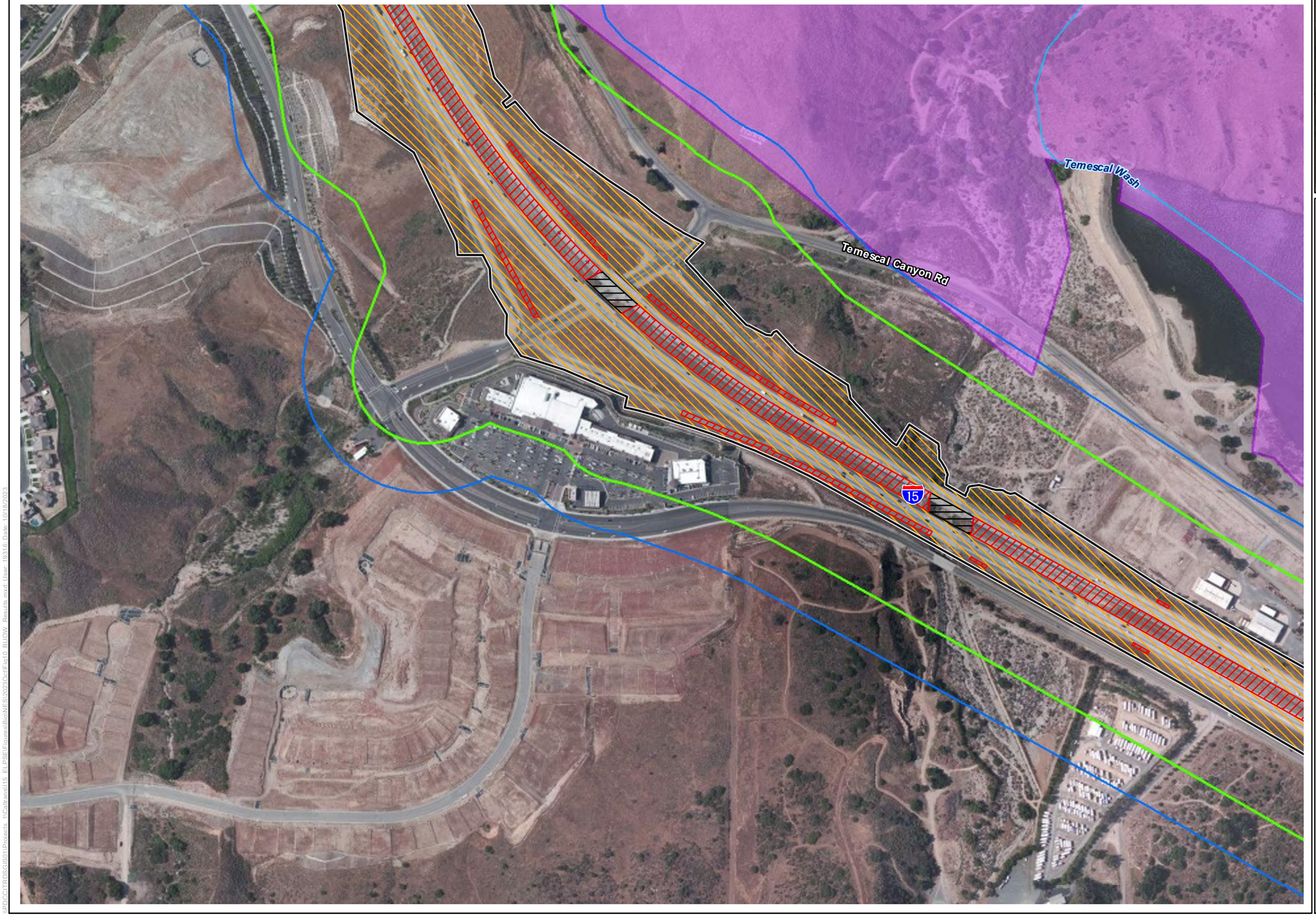
Figure 10 - Sheet 11
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

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- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

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- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
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- MSHCP Burrowing Owl Survey
- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

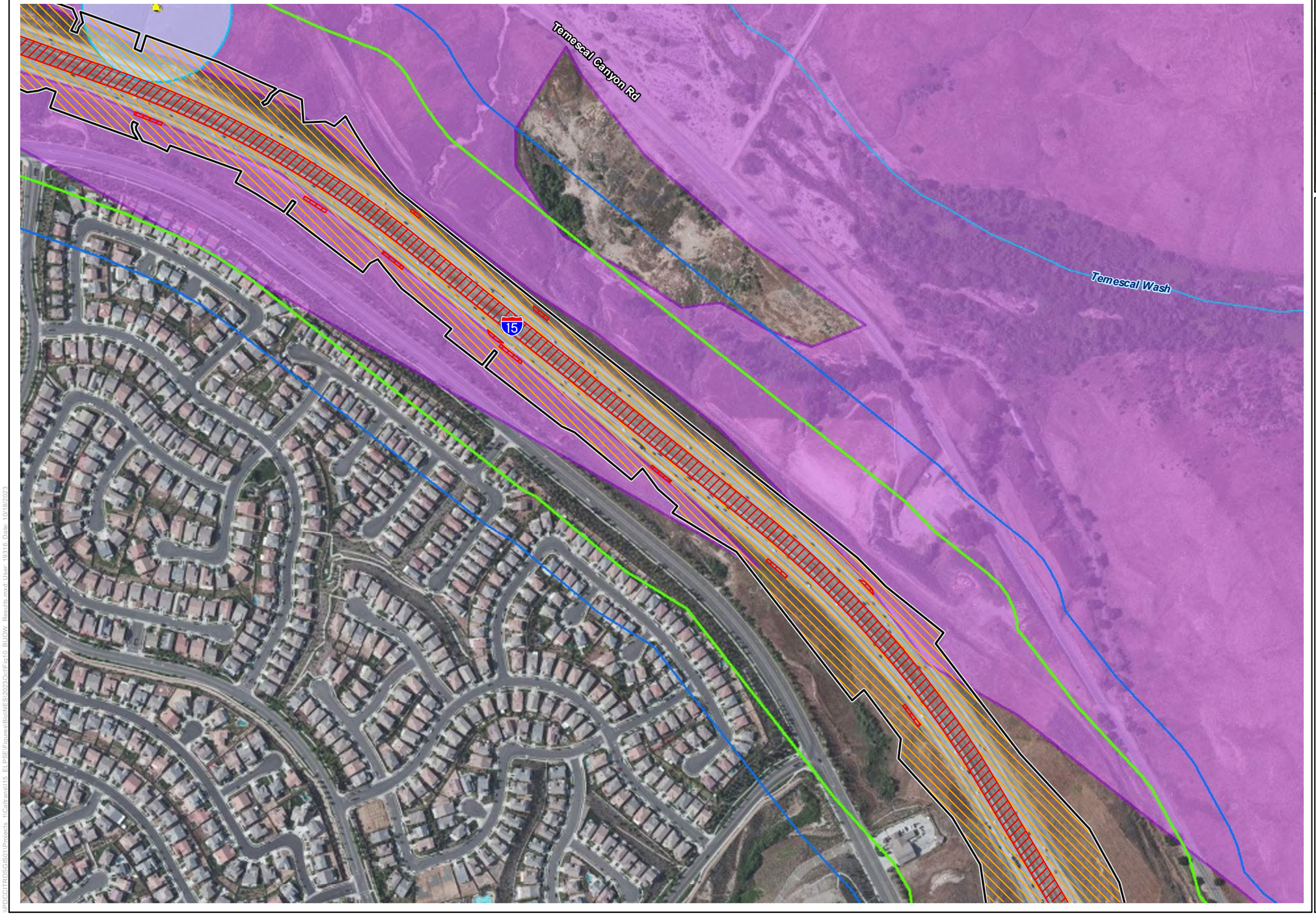
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 12
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
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- BUOW Study Area (300-foot)
- MSHCP Burrowing Owl Survey
- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

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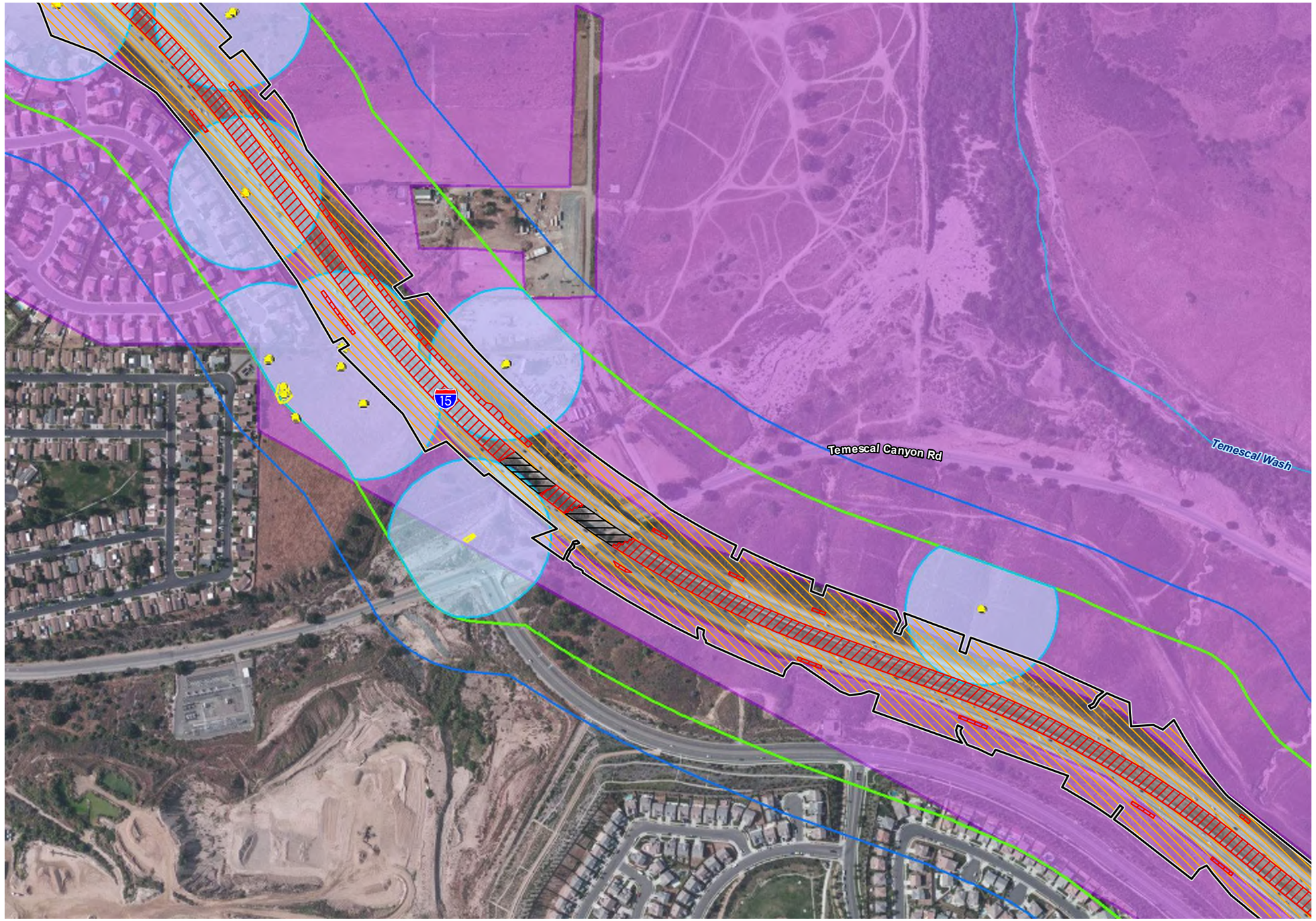
Figure 10 - Sheet 13
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

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BUOW Study Area (300-foot)

MSHCP Burrowing Owl Survey

Focus Survey Areas

Potential Burrowing Owl Feature (eg. rip rap)

Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

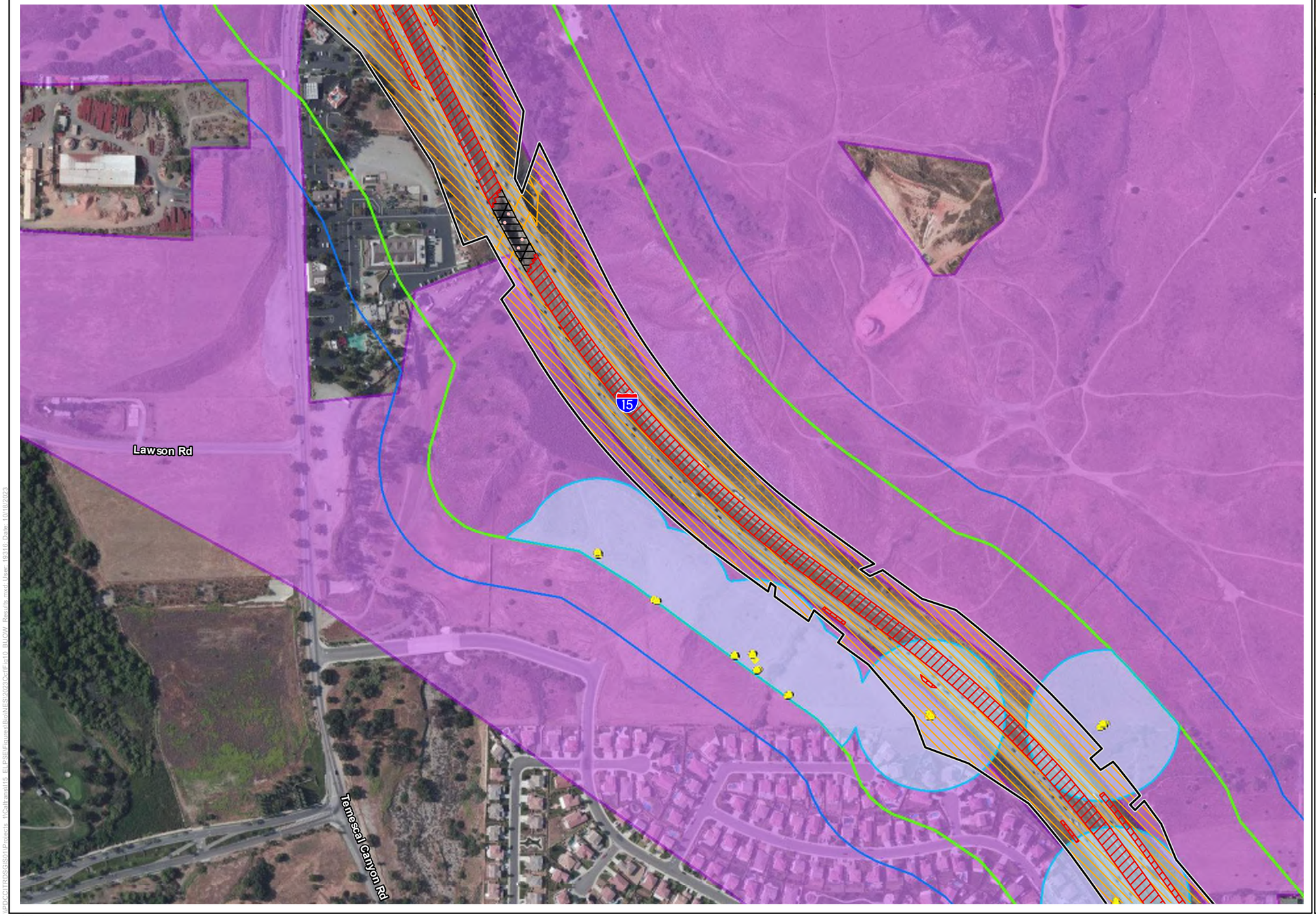
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 14
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

500-foot BSA

BUOW Study Area (300-foot)

MSHCP Burrowing Owl Survey

Focus Survey Areas

Potential Burrowing Owl Feature (eg. rip rap)

Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

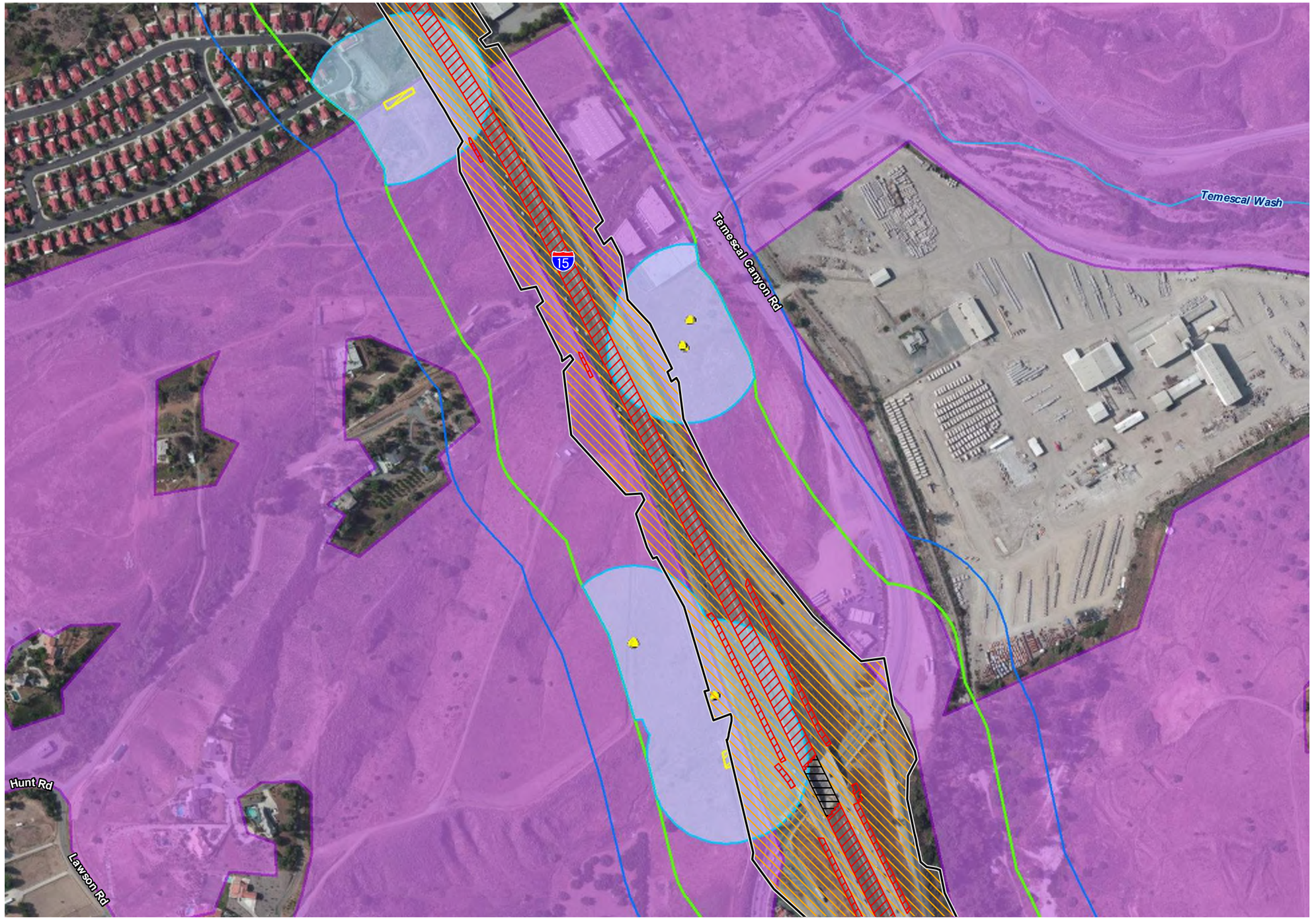
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 15
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 500-foot BSA
- BUOW Study Area (300-foot)
- MSHCP Burrowing Owl Survey
- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

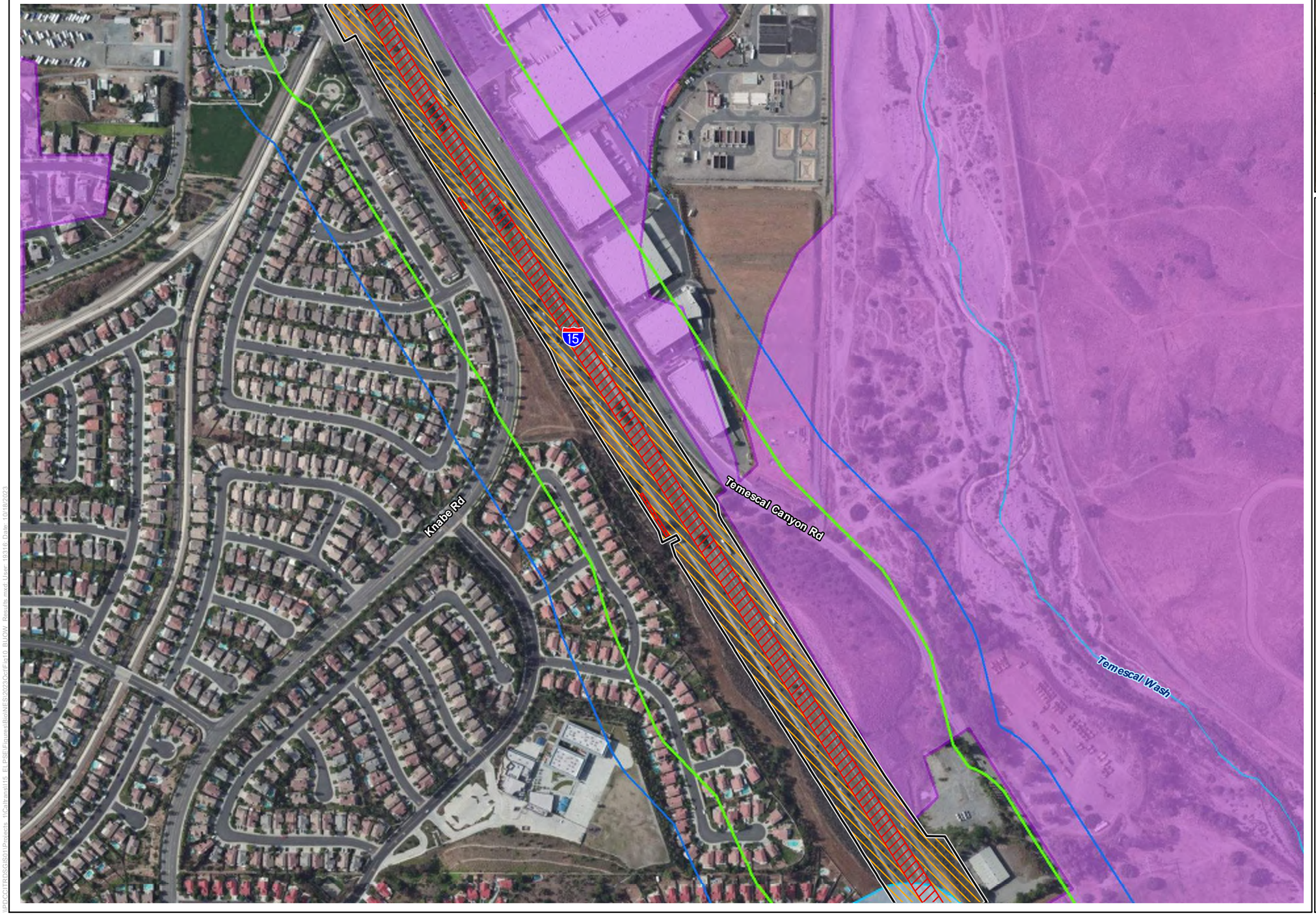
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 16
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 500-foot BSA
- BUOW Study Area (300-foot)
- MSHCP Burrowing Owl Survey
- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

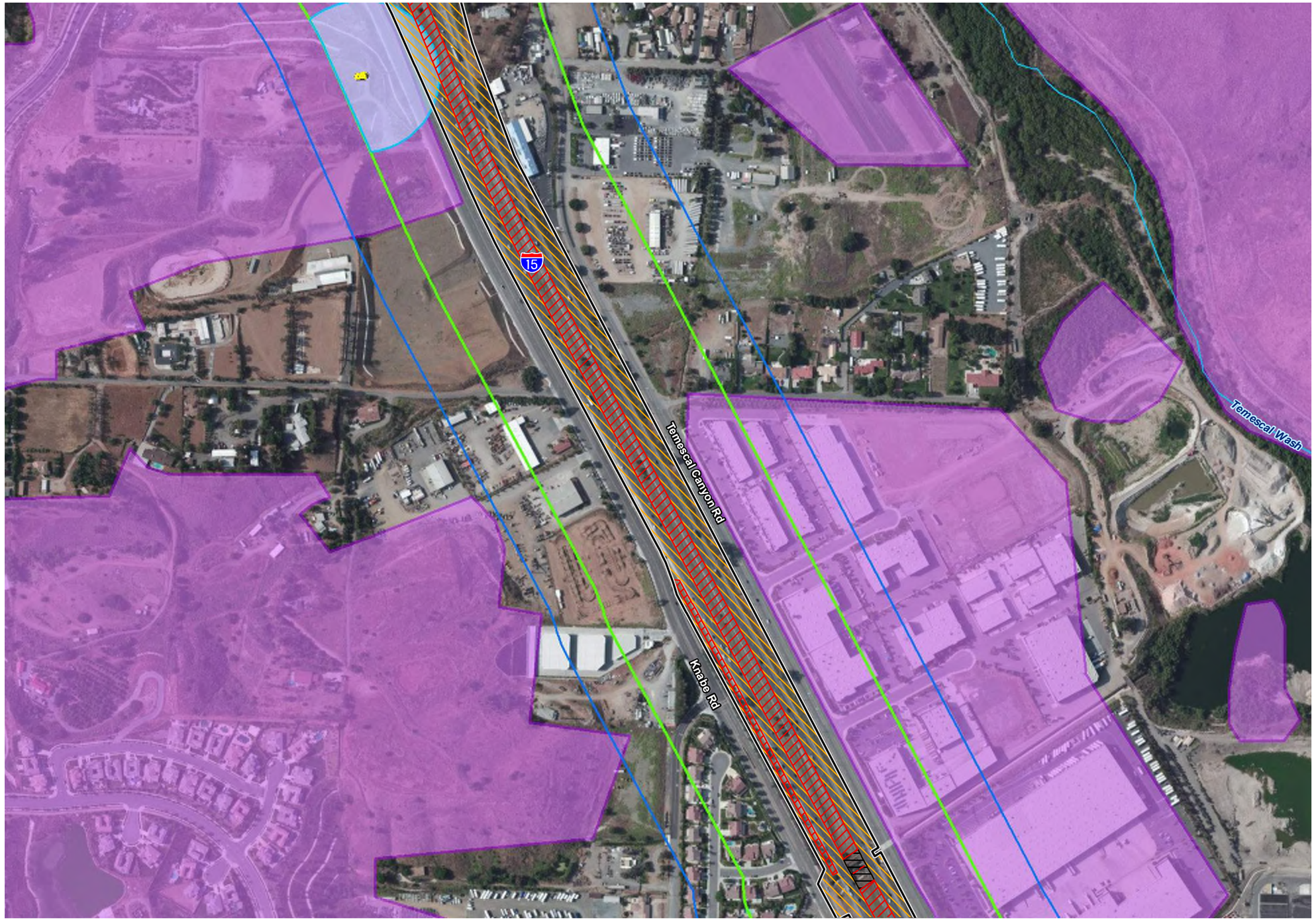
Source: ESRI USA Imagery

0 200 400 Feet

1:4,800

N

Figure 10 - Sheet 17
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 500-foot BSA
- BUOW Study Area (300-foot)
- MSHCP Burrowing Owl Survey
- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

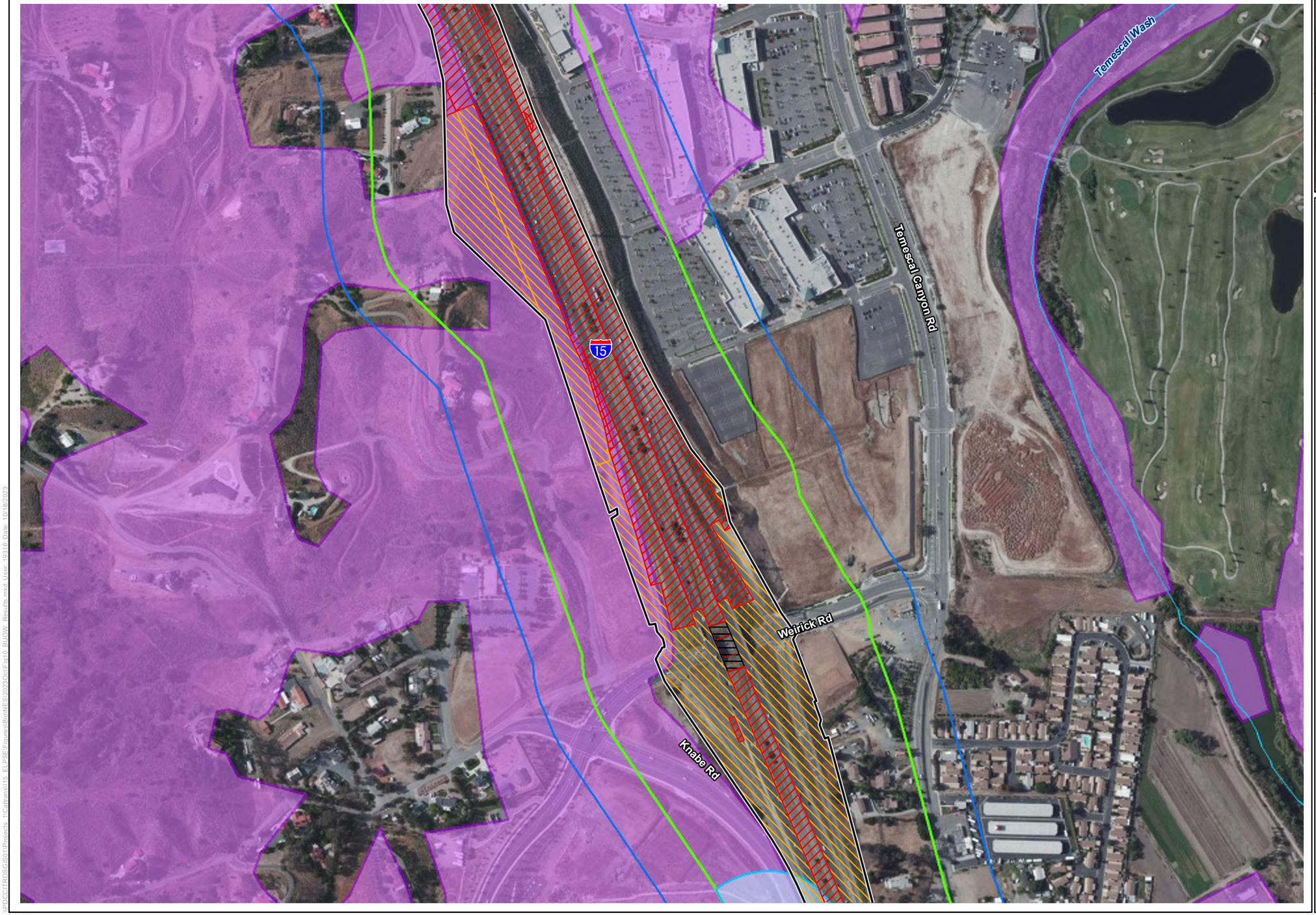
Source: ESRI USA Imagery

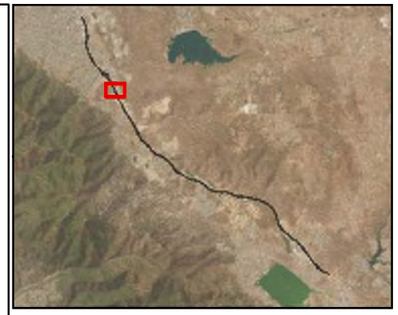
N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 18
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension





Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

500-foot BSA

BUOW Study Area (300-foot)

MSHCP Burrowing Owl Survey

Focus Survey Areas

Potential Burrowing Owl Feature (eg. rip rap)

Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

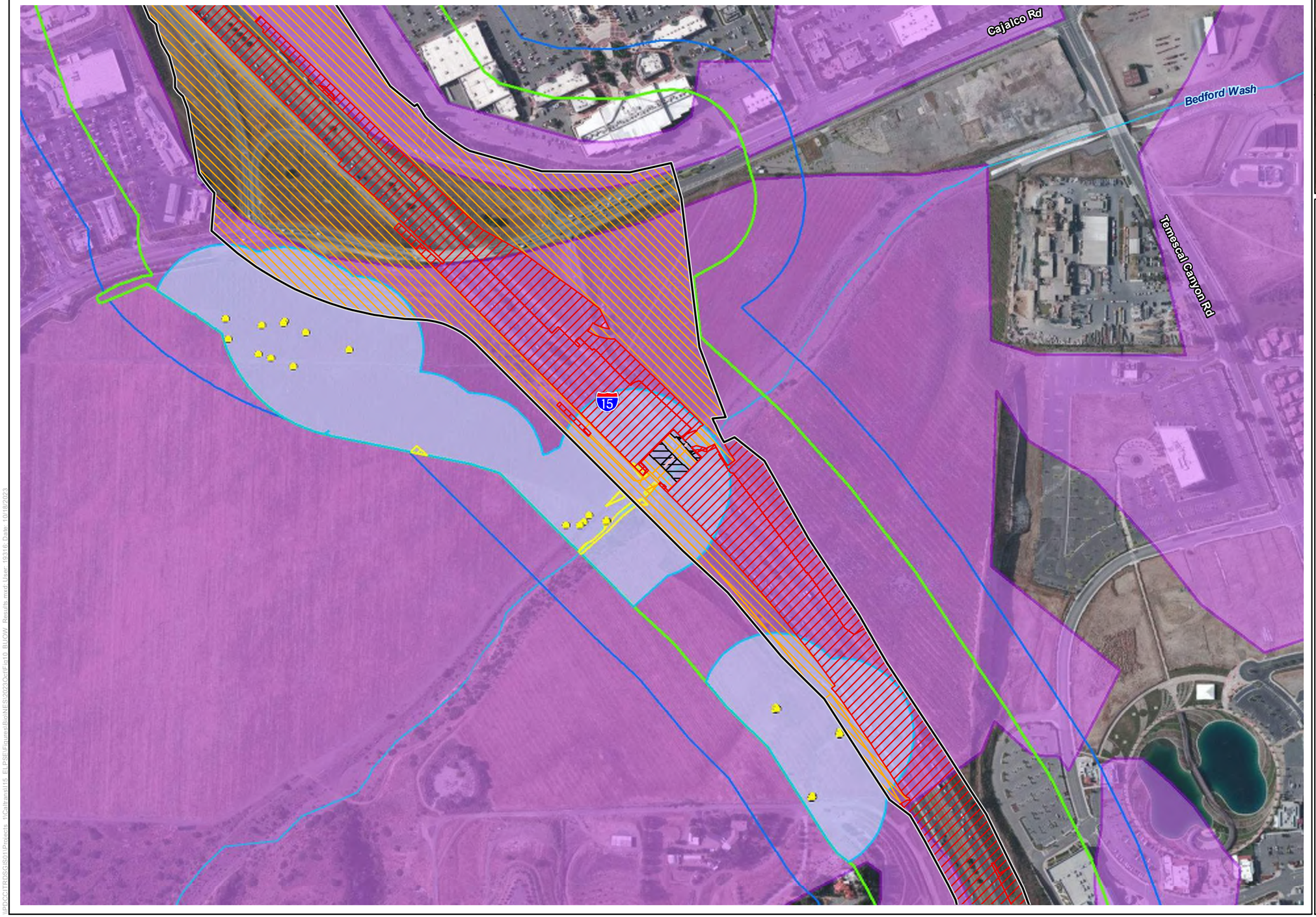
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 19
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 500-foot BSA
- BUOW Study Area (300-foot)
- MSHCP Burrowing Owl Survey
- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

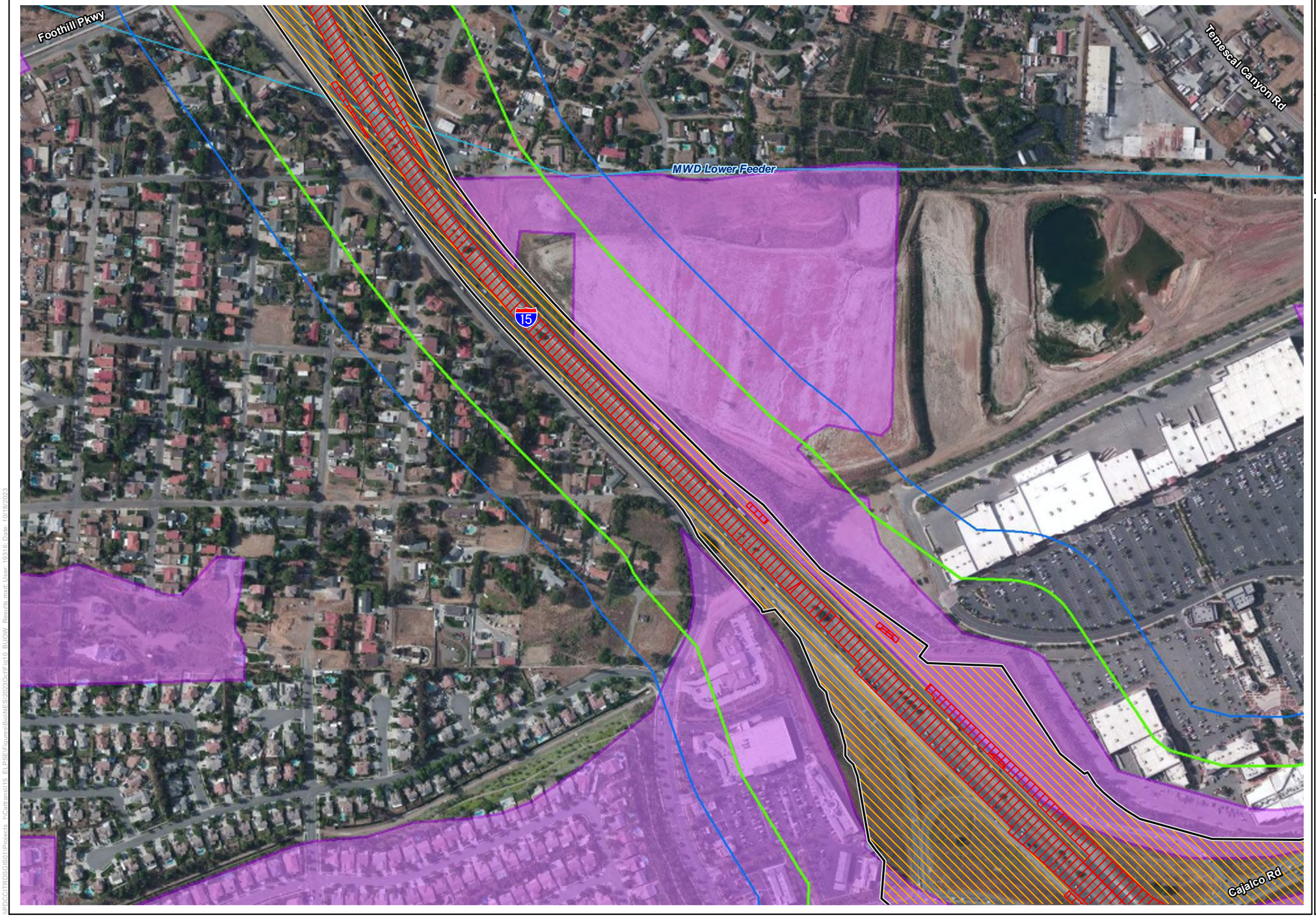
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 20
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 500-foot BSA
- BUOW Study Area (300-foot)
- MSHCP Burrowing Owl Survey
- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 21
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 500-foot BSA
- BUOW Study Area (300-foot)
- MSHCP Burrowing Owl Survey
- Focus Survey Areas
- Potential Burrowing Owl Feature (eg. rip rap)
- Potential Burrowing Owl Burrow

*No Burrowing Owl were detected during the 2020 or 2021 Focused Survey.

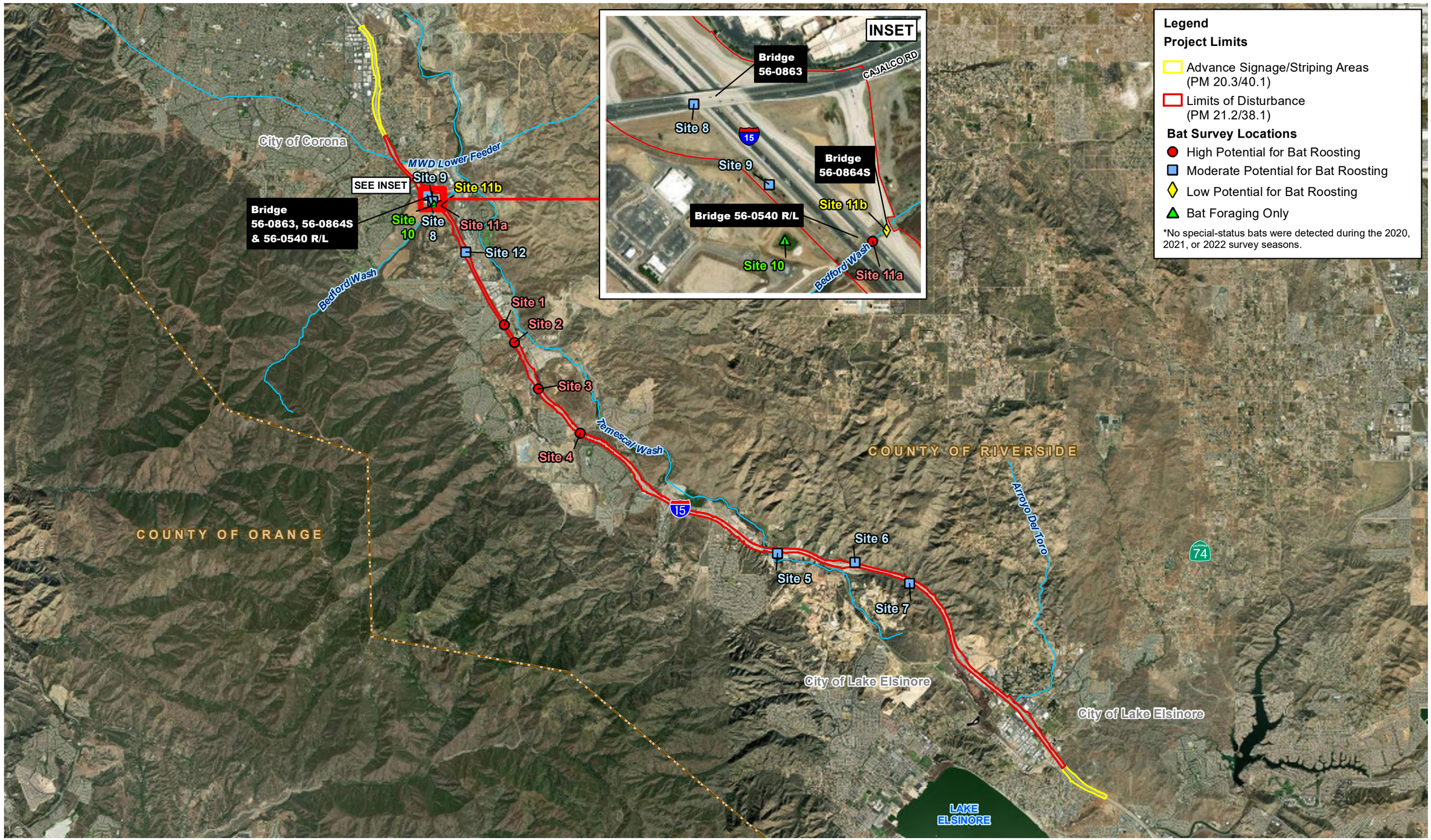
Source: ESRI USA Imagery

N

0 200 400 Feet

1:4,800

Figure 10 - Sheet 22
Burrowing Owl Survey Results
Interstate 15 Express Lanes Project Southern Extension



N

0 1 2 Miles

1:100,000

Figure 11
Special-Status Bat Survey Locations
Interstate 15 Express Lanes Project Southern Extension

Legend

- Map Sheet
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Agency/Jurisdiction	Hydrology	Permanent Impact (acres)	Temporary Impacts (acres)	Total Impacts (acres)
CWA Section 404/401 Non-Wetland	Ephemeral, Intermittent, and Perennial	0.01	2.51	2.52
CWA Section 404/401 Wetland	Wetland	--	0.03	0.03
Grand Total CWA Section 404/401 Non-Wetland and Wetlands	**--**	**0.01**	**2.53**	**2.54**
Porter-Cologne Wetland	Wetland (Isolated)	--	--	--
Potential Non-Jurisdictional Non-Wetland	Constructed in Uplands	0.01	0.19	0.20
Grand Total Porter-Cologne Non-Wetland and Wetlands	**--**	**0.01**	**0.19**	**0.20**

N

0 1 2 Miles

1:100,000

Figure 12 - Map Index
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 12 - Sheet 1
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

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Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 12 - Sheet 2
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 12 - Sheet 3
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

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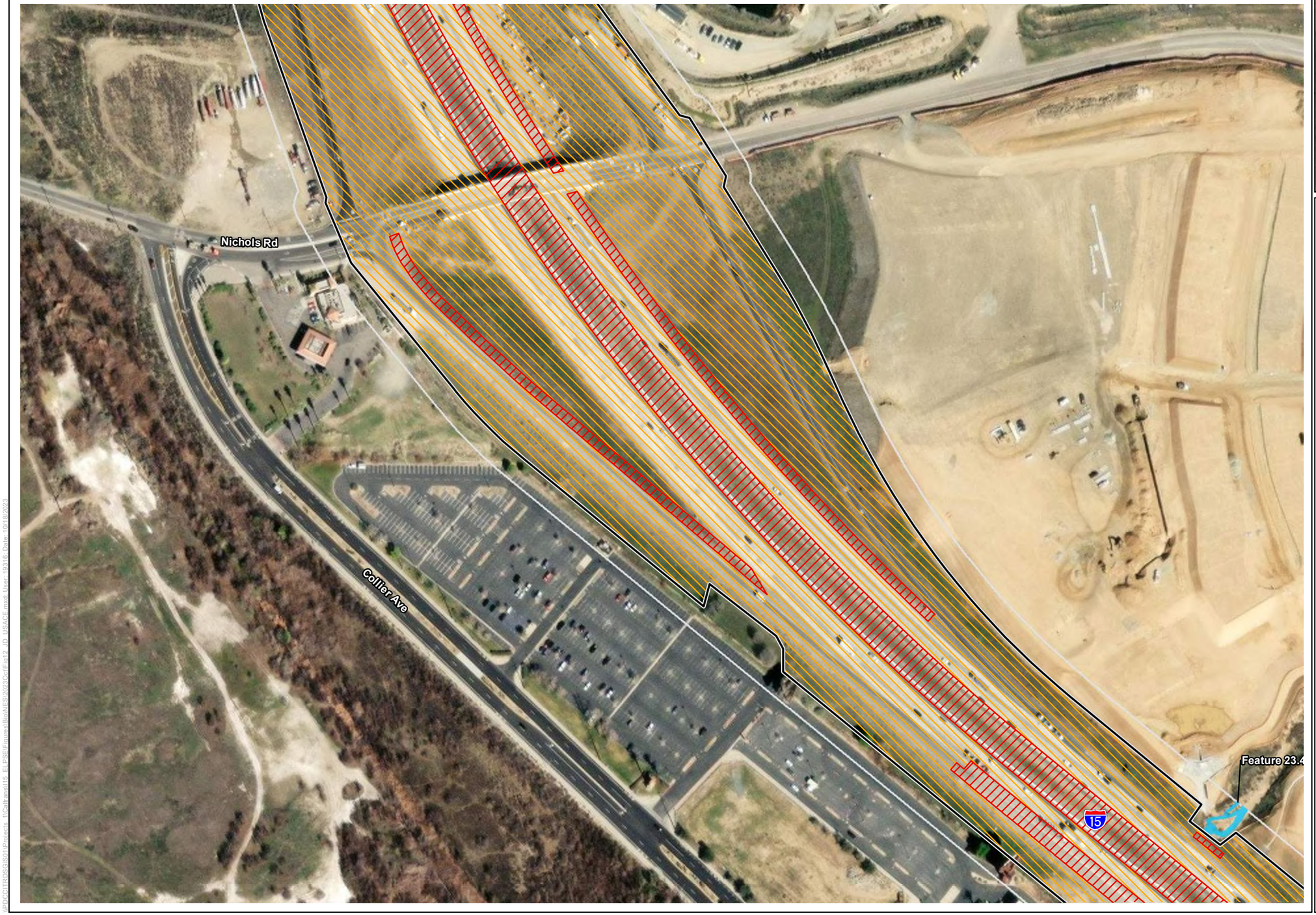
Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 12 - Sheet 4
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

50-foot Study Area - Jurisdictional Delineation

NHD Flowline

USACE/RWQCB Jurisdictional Features

OHWM (Ephemeral)

OHWM (Intermittent)

OHWM (Perennial)

Wetland

RWQCB Jurisdictional Features

OHWM (Isolated)

Wetland (Isolated)

Other Aquatic Features

Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 12 - Sheet 5
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

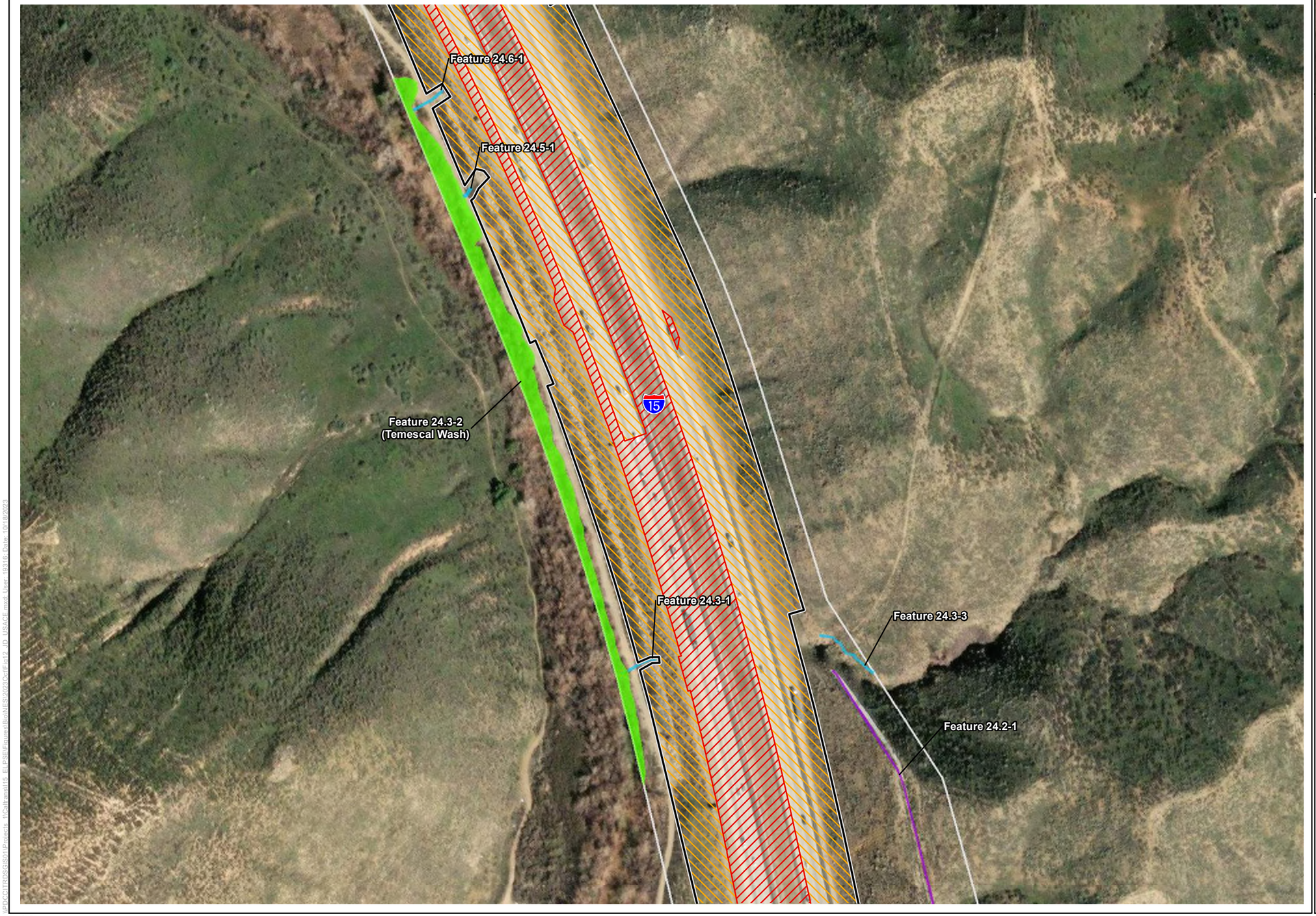
Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 12 - Sheet 6
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

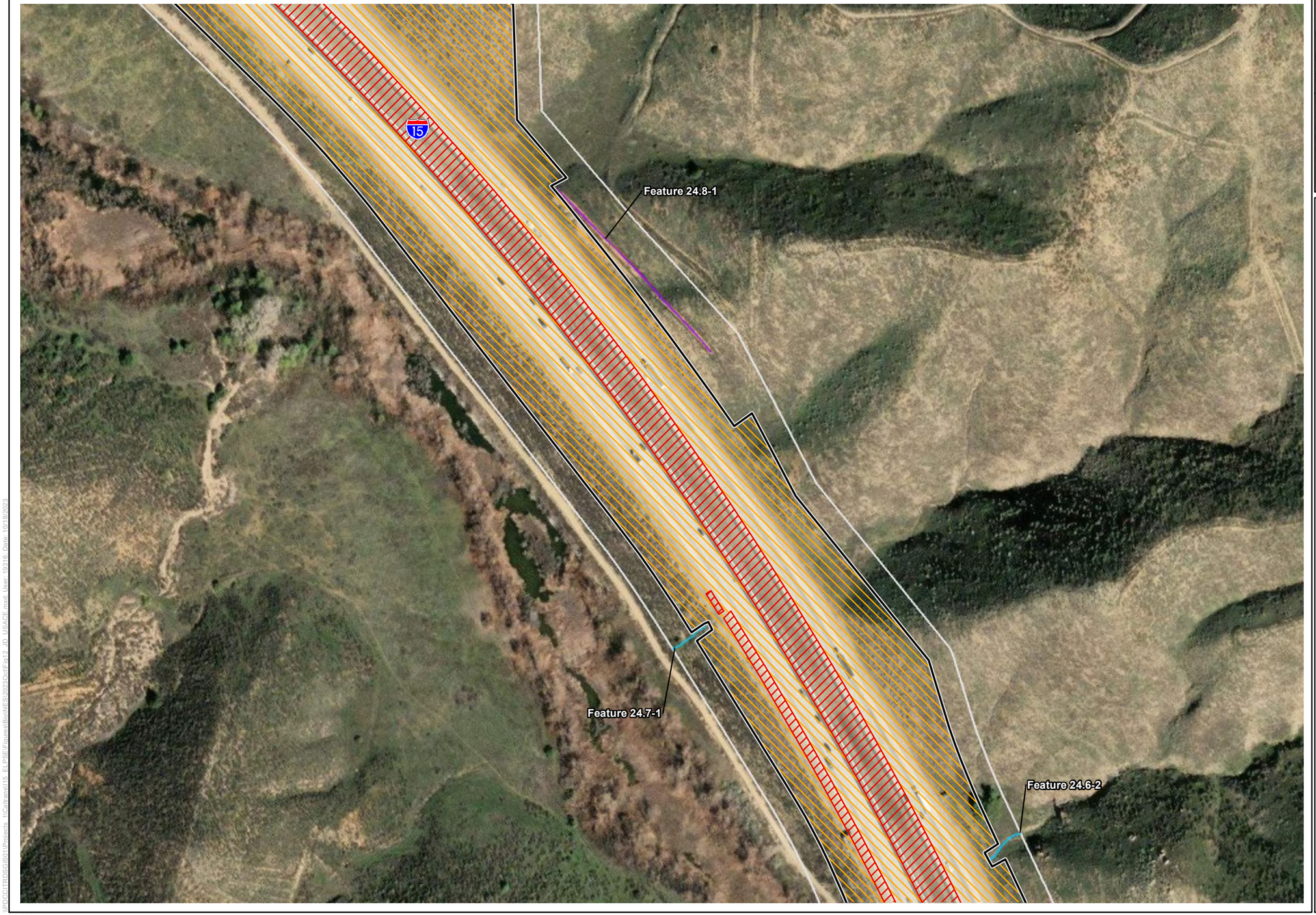
Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 12 - Sheet 7
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

50-foot Study Area - Jurisdictional Delineation

NHD Flowline

USACE/RWQCB Jurisdictional Features

OHWM (Ephemeral)

OHWM (Intermittent)

OHWM (Perennial)

Wetland

RWQCB Jurisdictional Features

OHWM (Isolated)

Wetland (Isolated)

Other Aquatic Features

Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

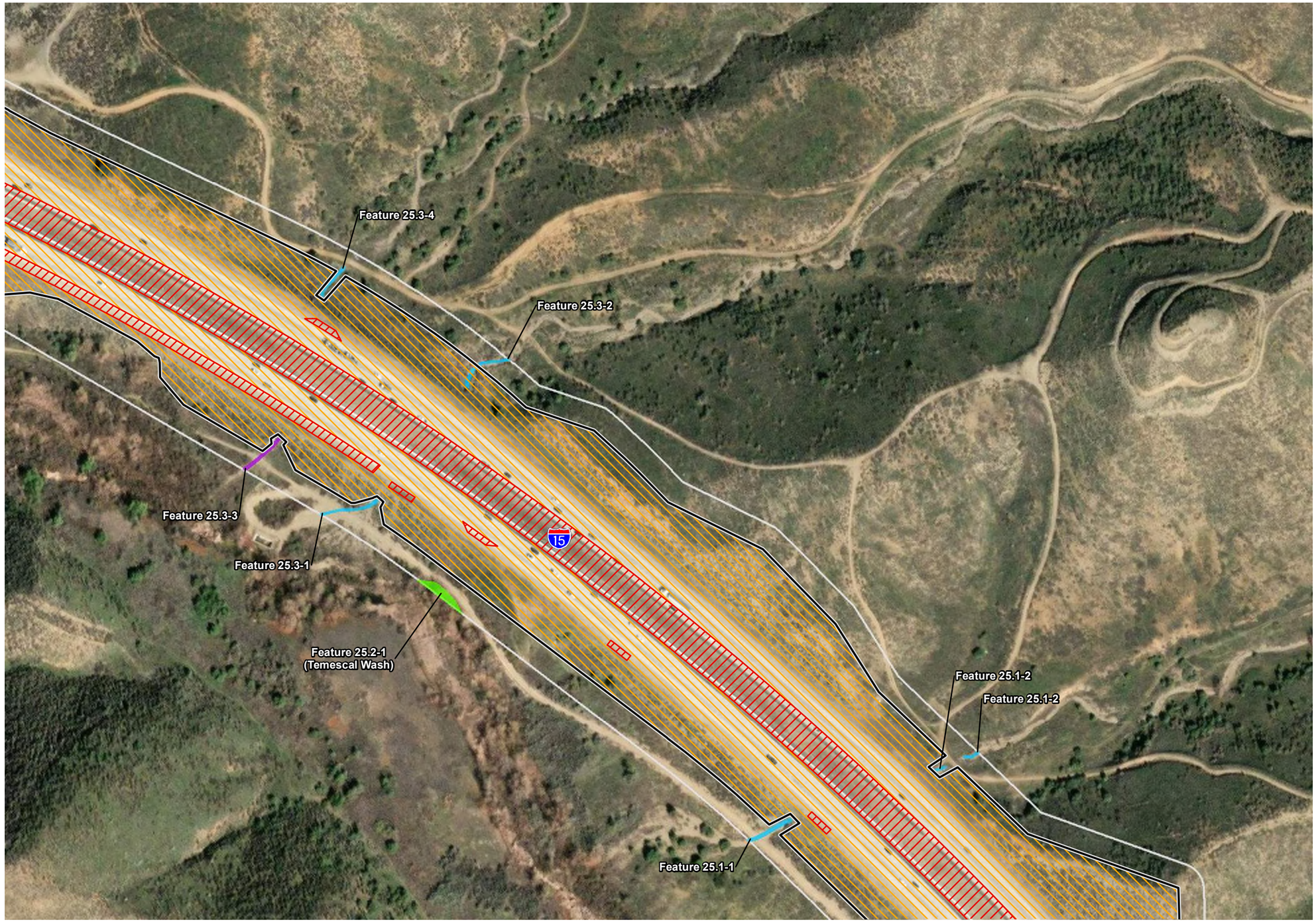
Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 12 - Sheet 8
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

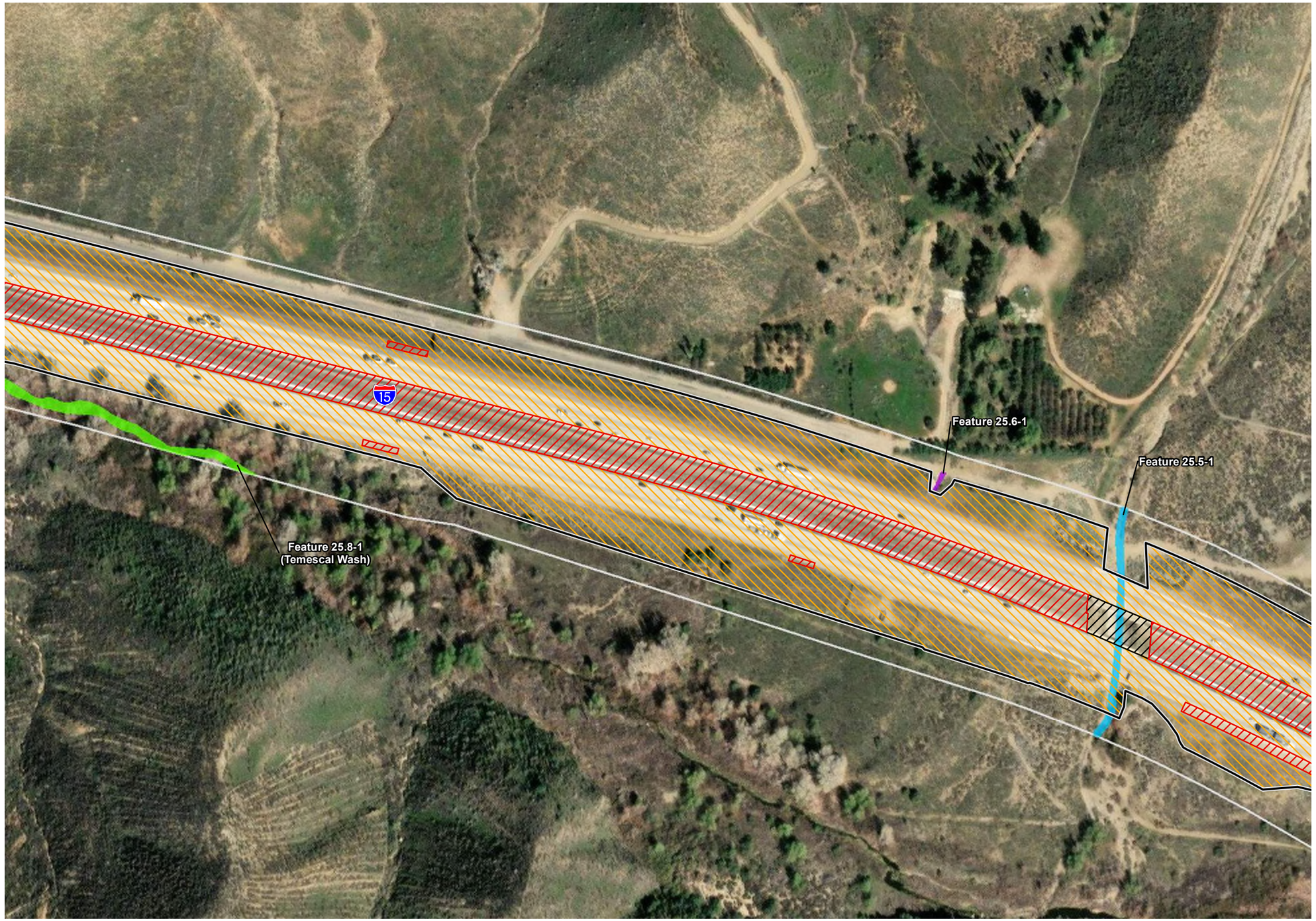
Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 12 - Sheet 9
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

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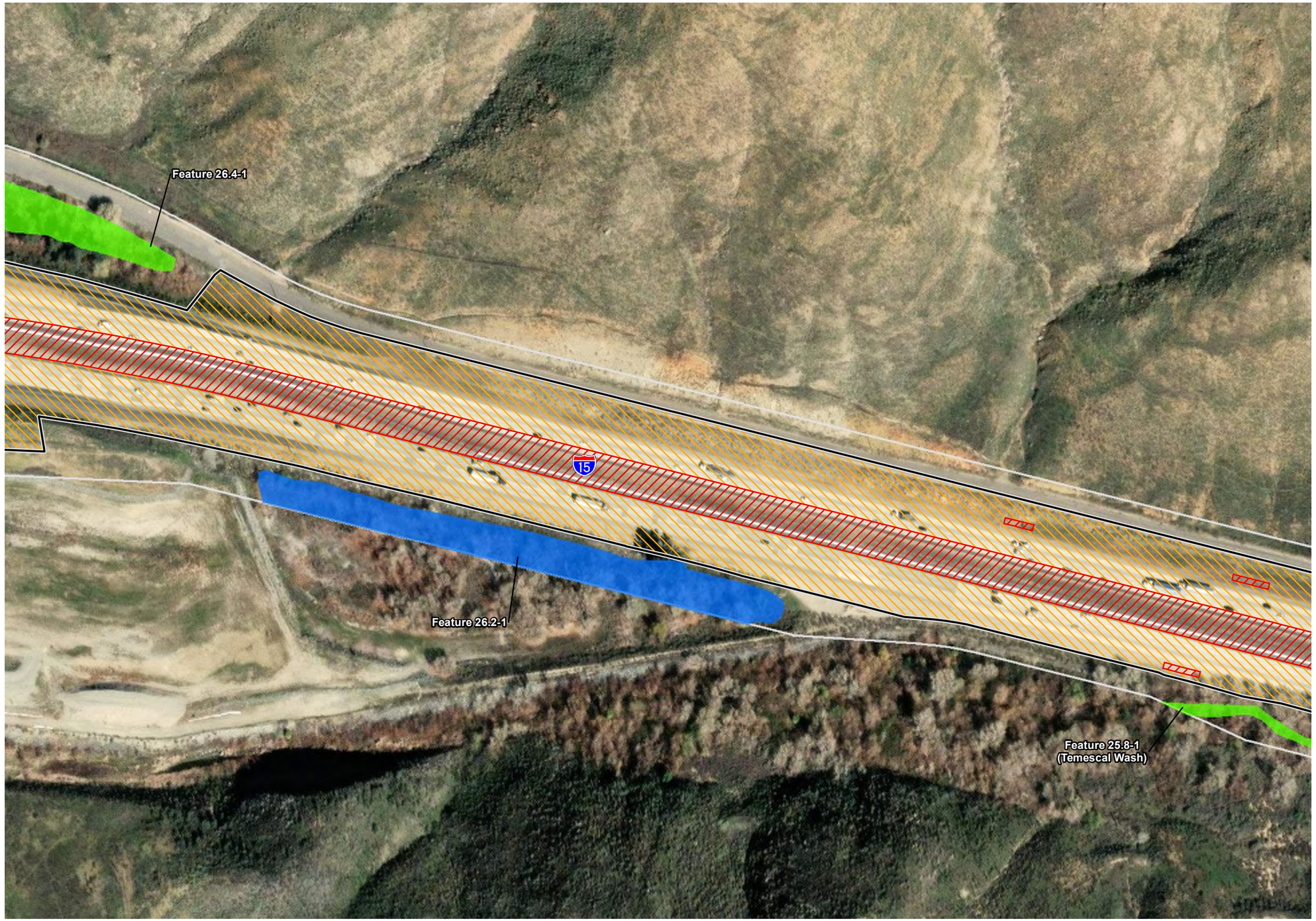
Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 12 - Sheet 10
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

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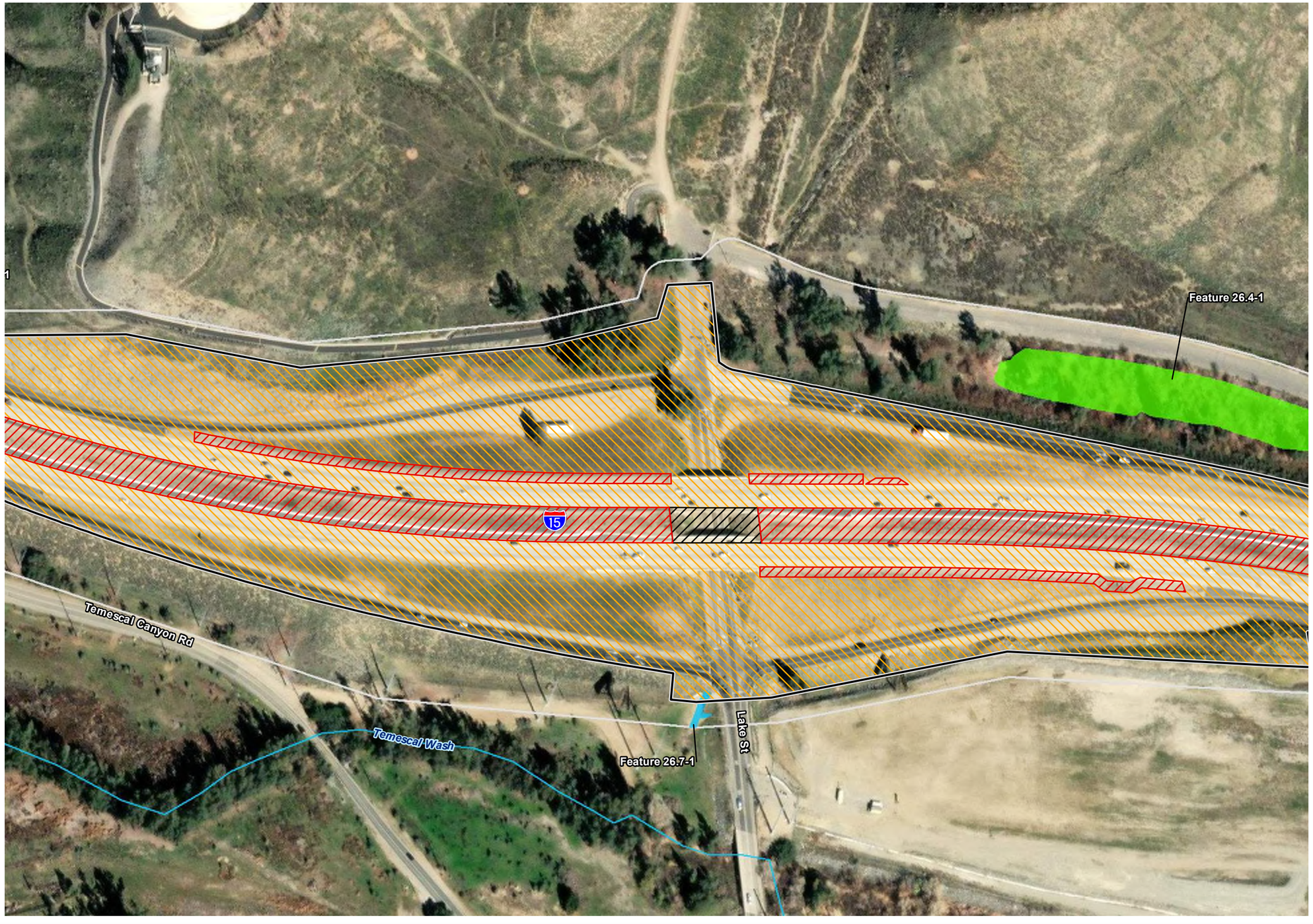
Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 12 - Sheet 11
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

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Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 12 - Sheet 12
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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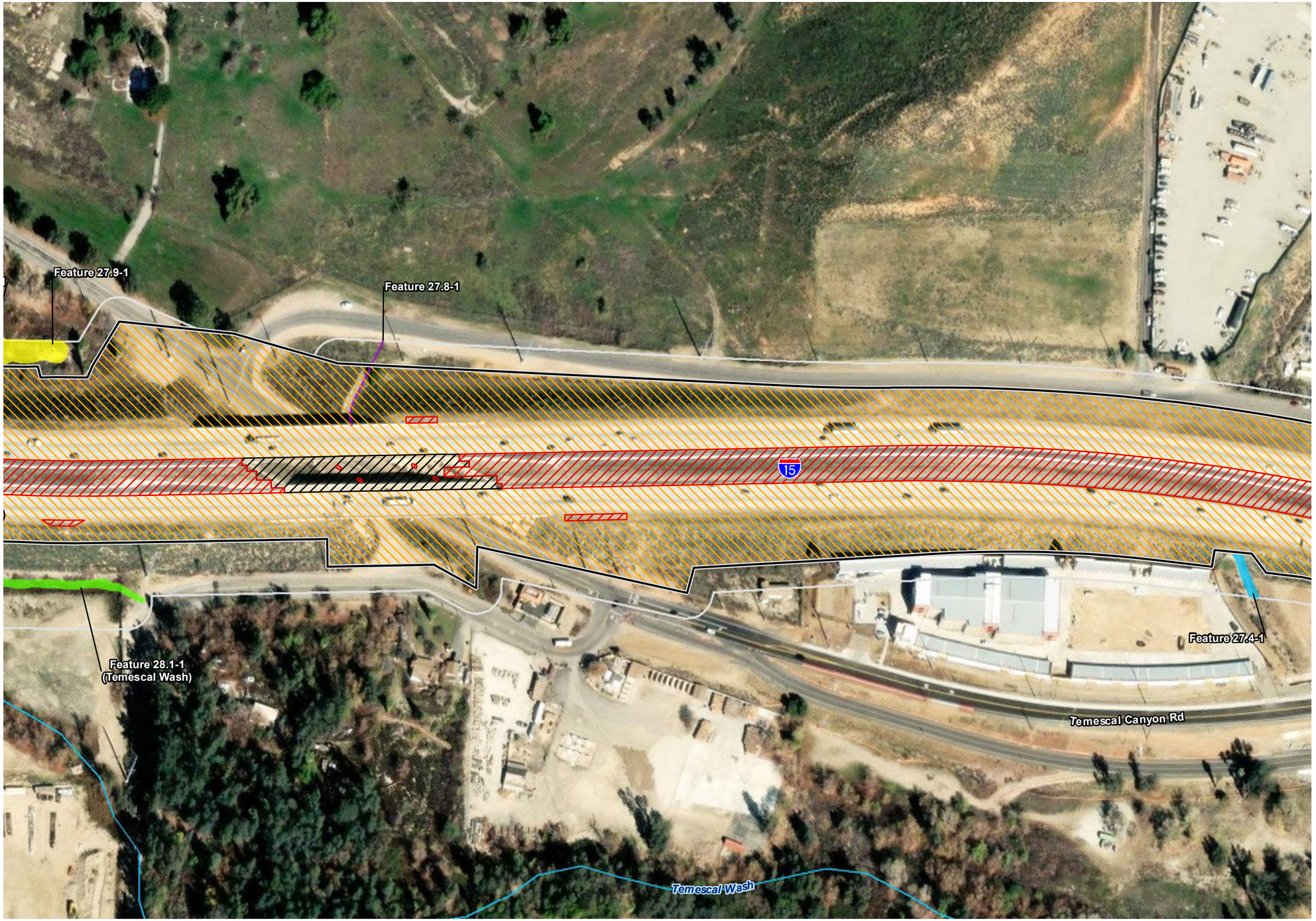
Figure 12 - Sheet 13
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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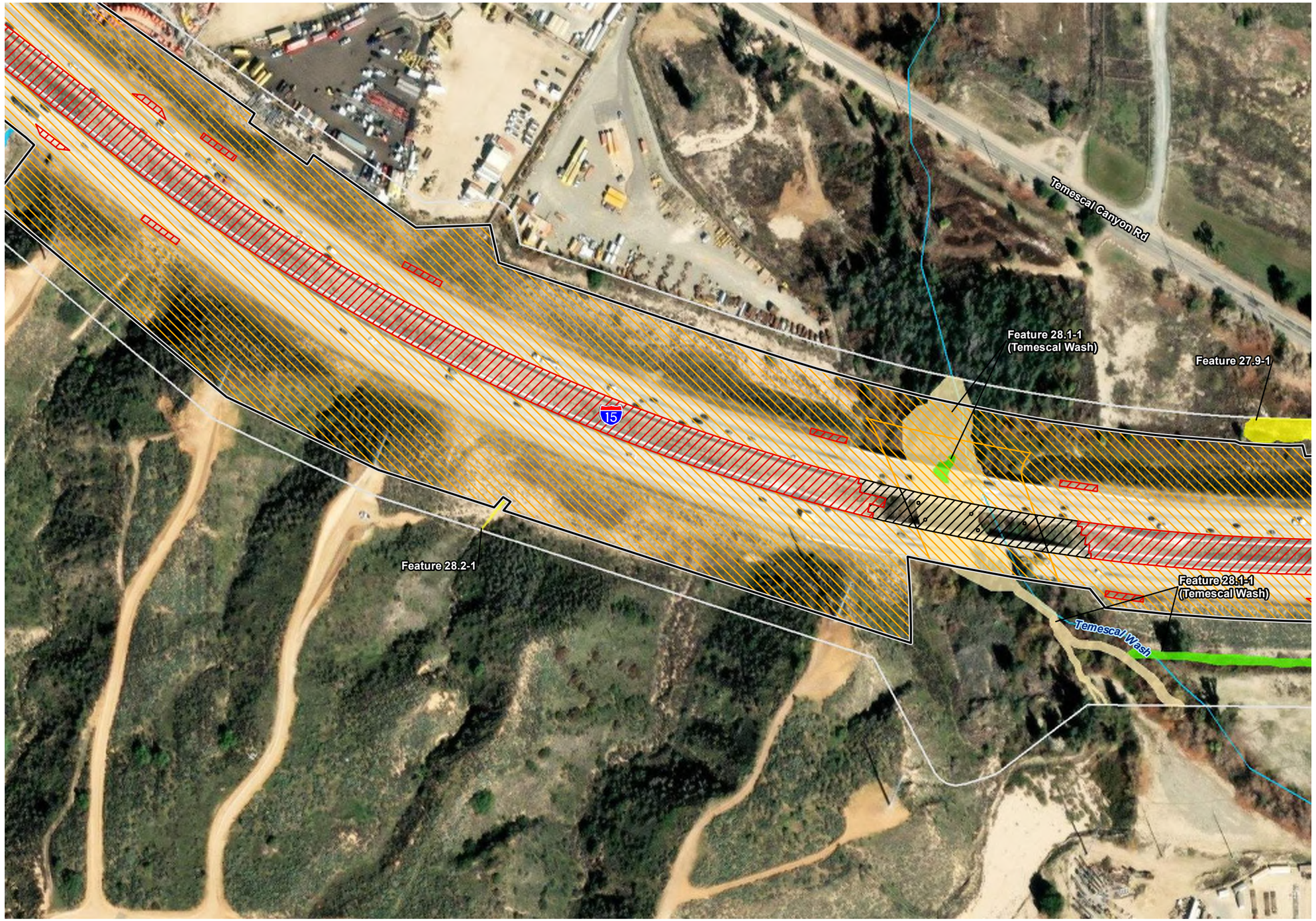
Figure 12 - Sheet 14
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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Figure 12 - Sheet 15
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

50-foot Study Area - Jurisdictional Delineation

NHD Flowline

USACE/RWQCB Jurisdictional Features

OHWM (Ephemeral)

OHWM (Intermittent)

OHWM (Perennial)

Wetland

RWQCB Jurisdictional Features

OHWM (Isolated)

Wetland (Isolated)

Other Aquatic Features

Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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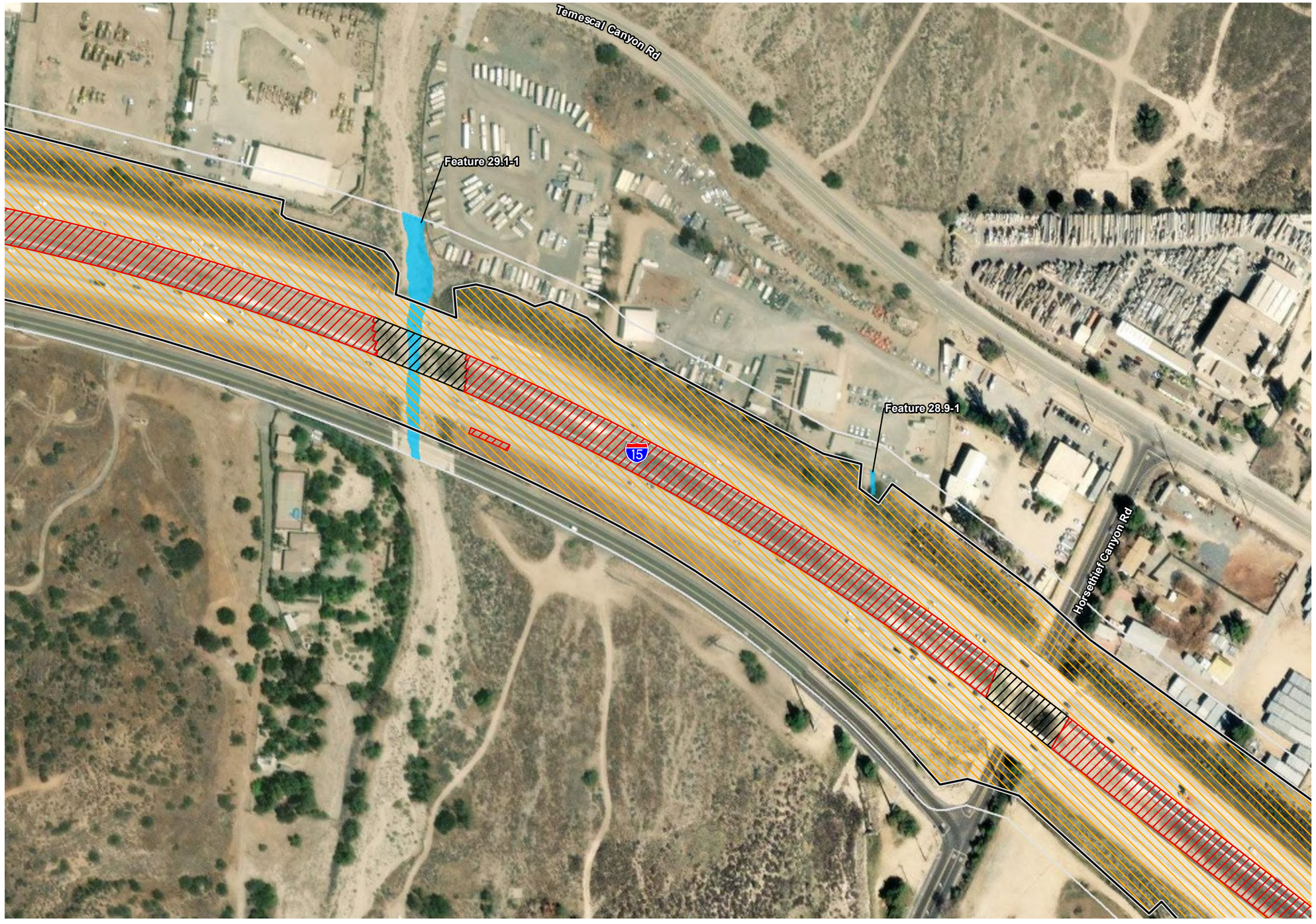
Figure 12 - Sheet 16
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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Figure 12 - Sheet 17
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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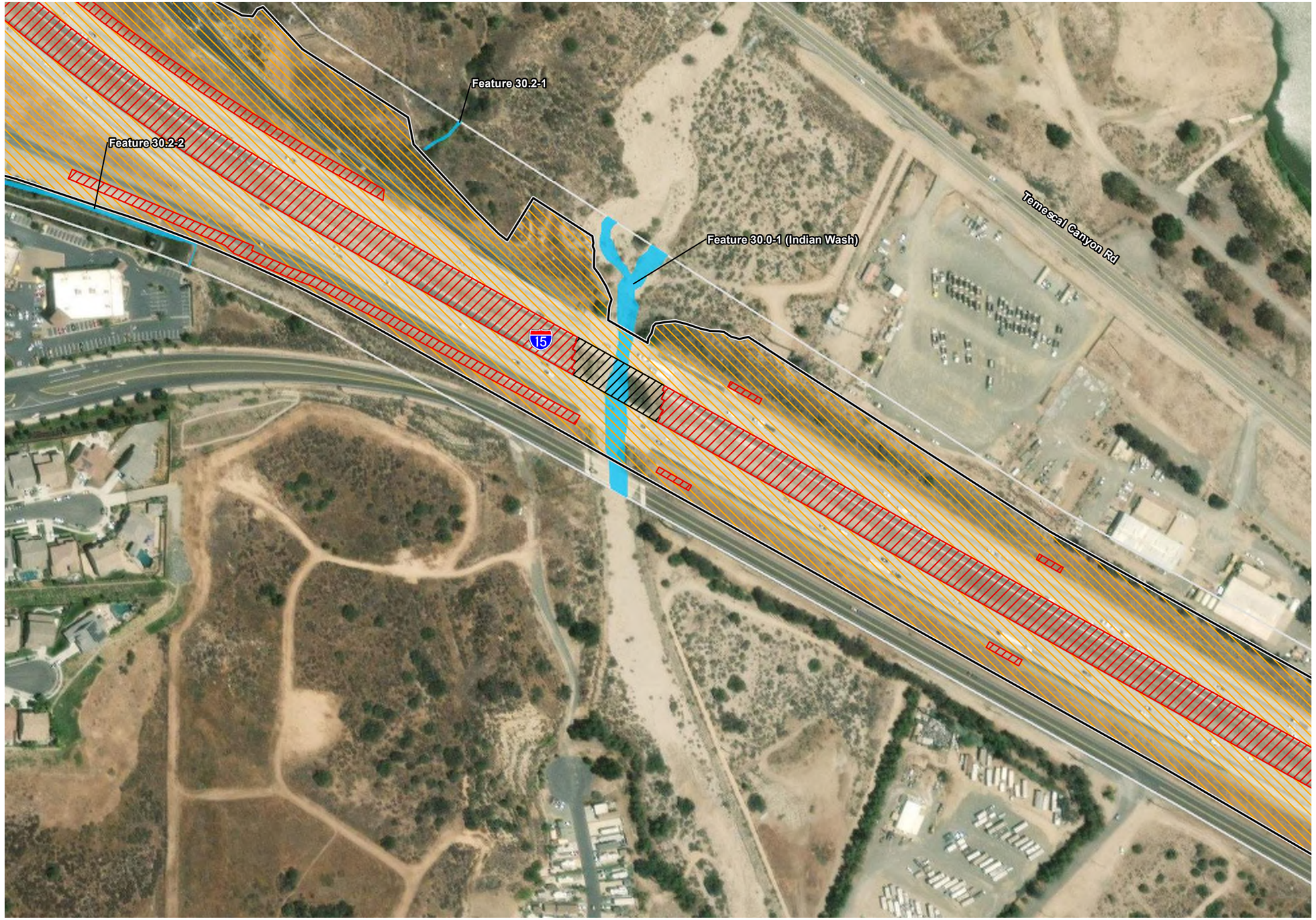
Figure 12 - Sheet 18
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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Figure 12 - Sheet 19
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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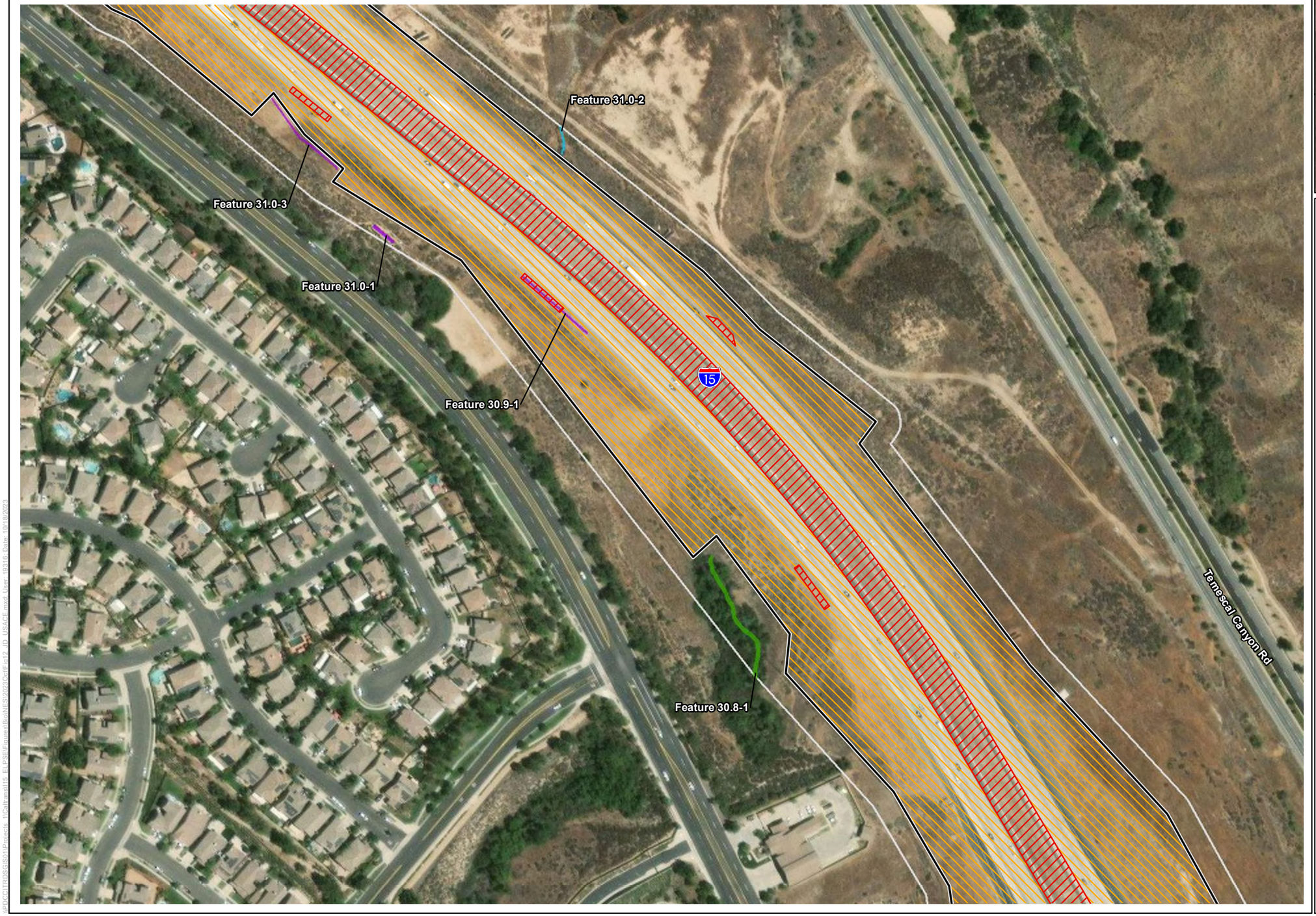
Figure 12 - Sheet 20
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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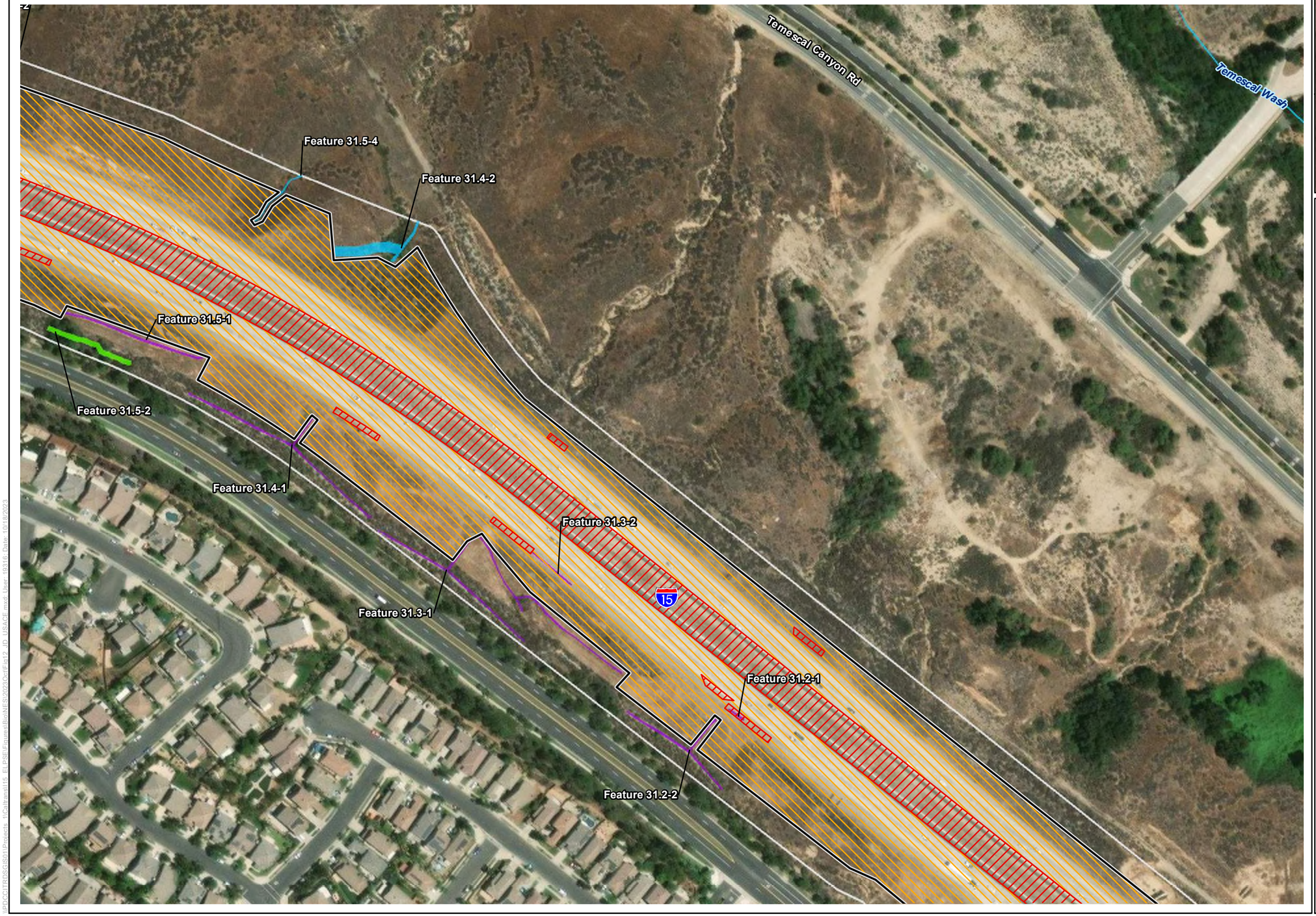
Figure 12 - Sheet 21
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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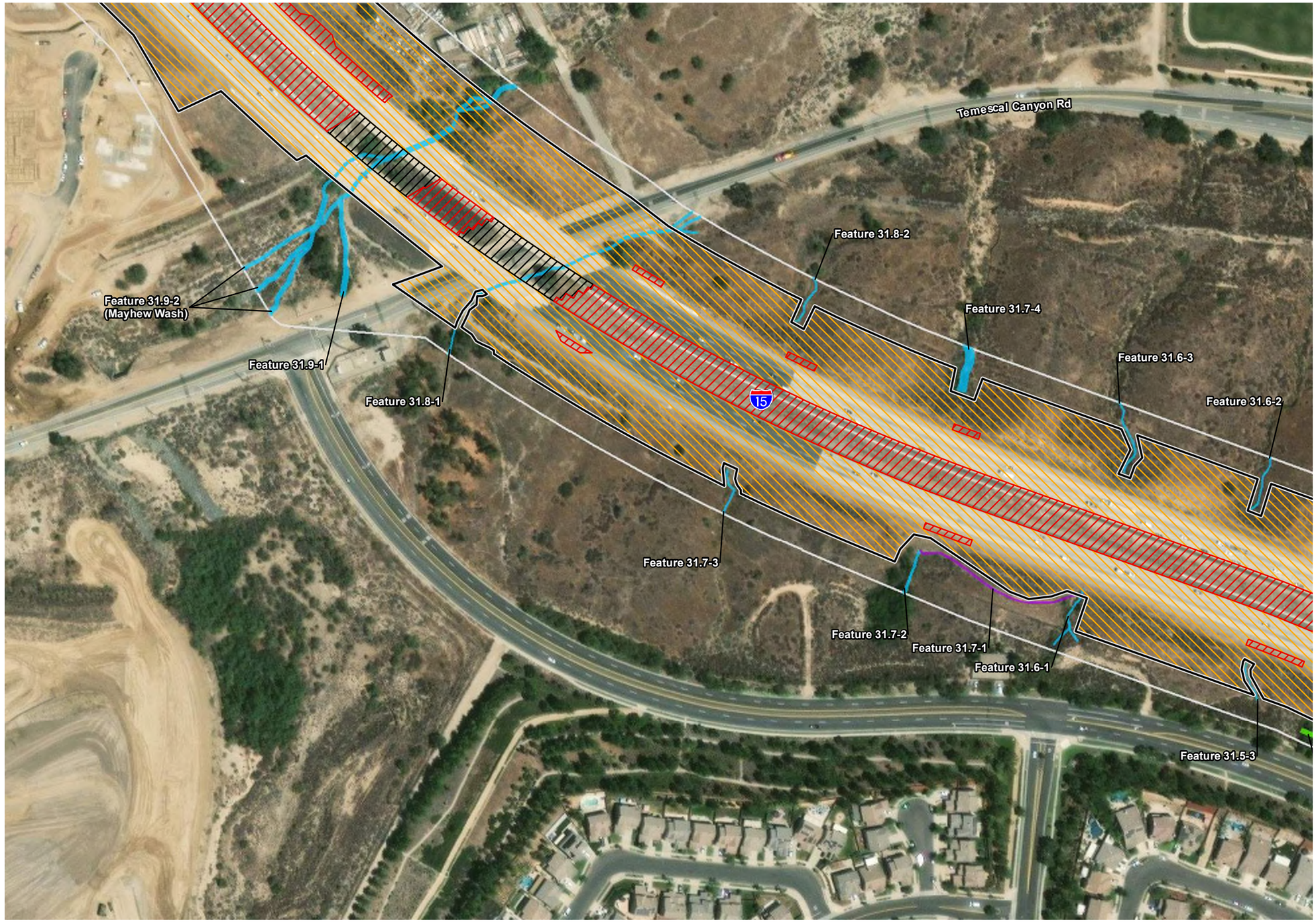
Figure 12 - Sheet 22
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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Figure 12 - Sheet 23
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

50-foot Study Area - Jurisdictional Delineation

NHD Flowline

USACE/RWQCB Jurisdictional Features

OHWM (Ephemeral)

OHWM (Intermittent)

OHWM (Perennial)

Wetland

RWQCB Jurisdictional Features

OHWM (Isolated)

Wetland (Isolated)

Other Aquatic Features

Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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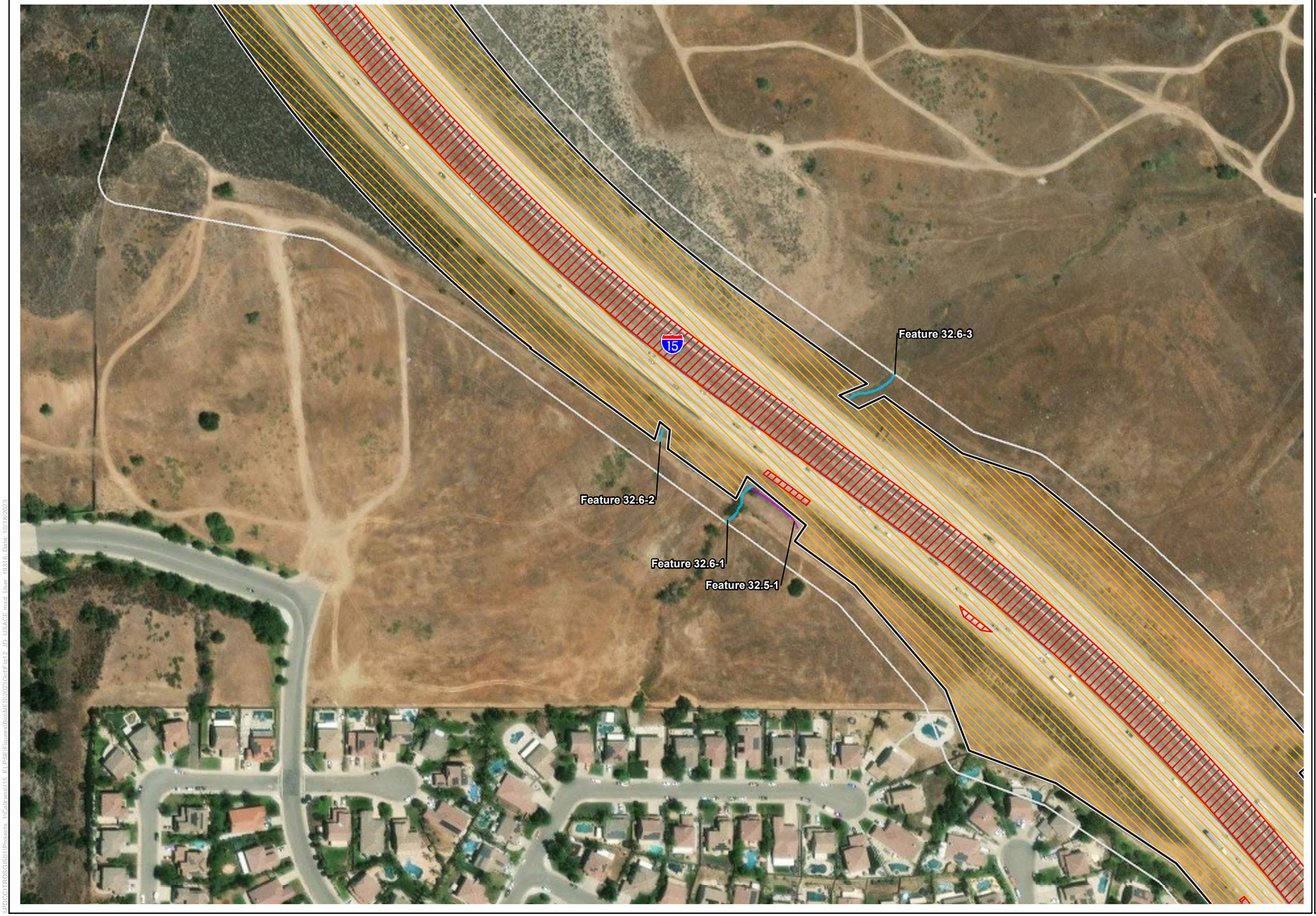
Figure 12 - Sheet 24
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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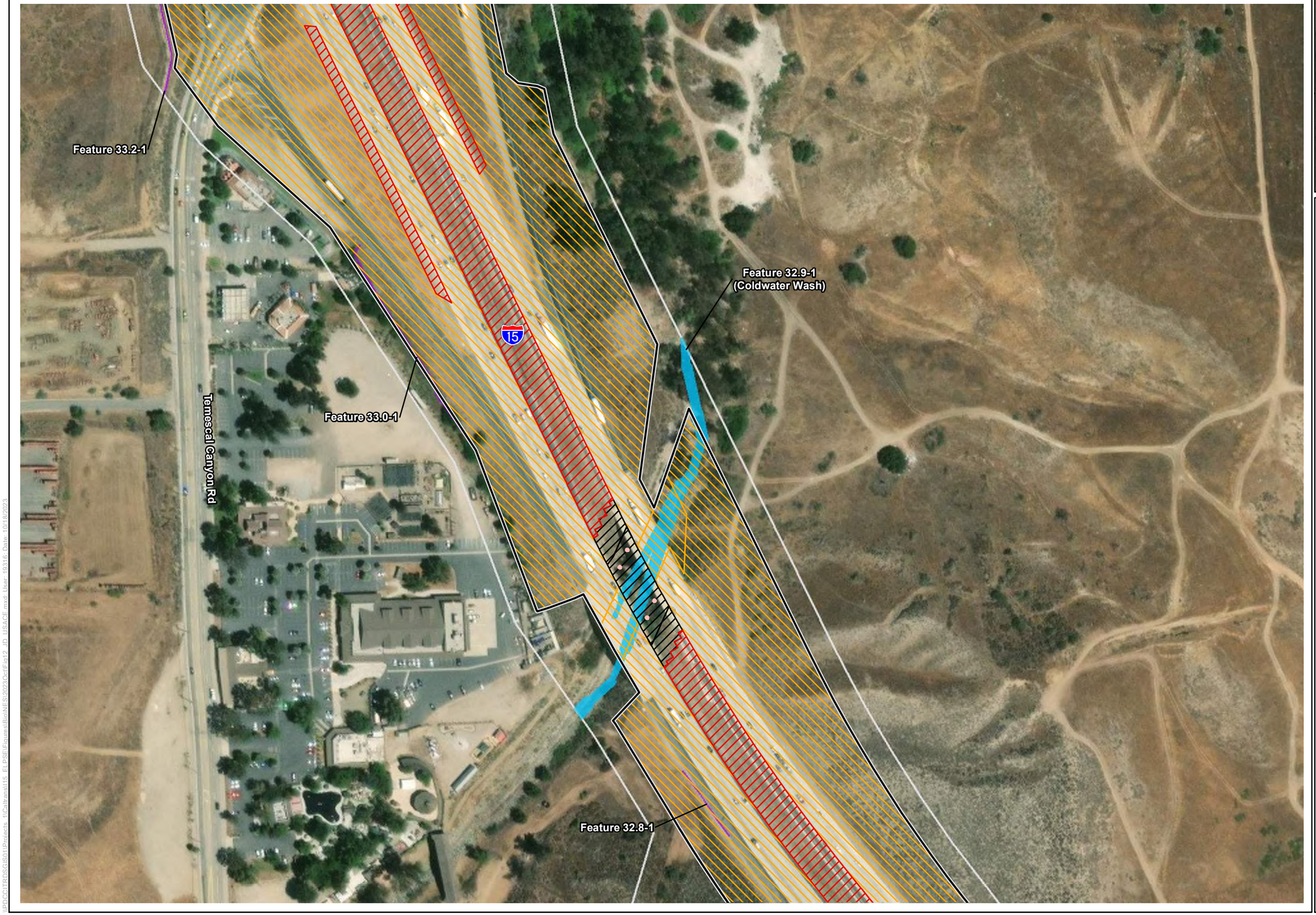
Figure 12 - Sheet 25
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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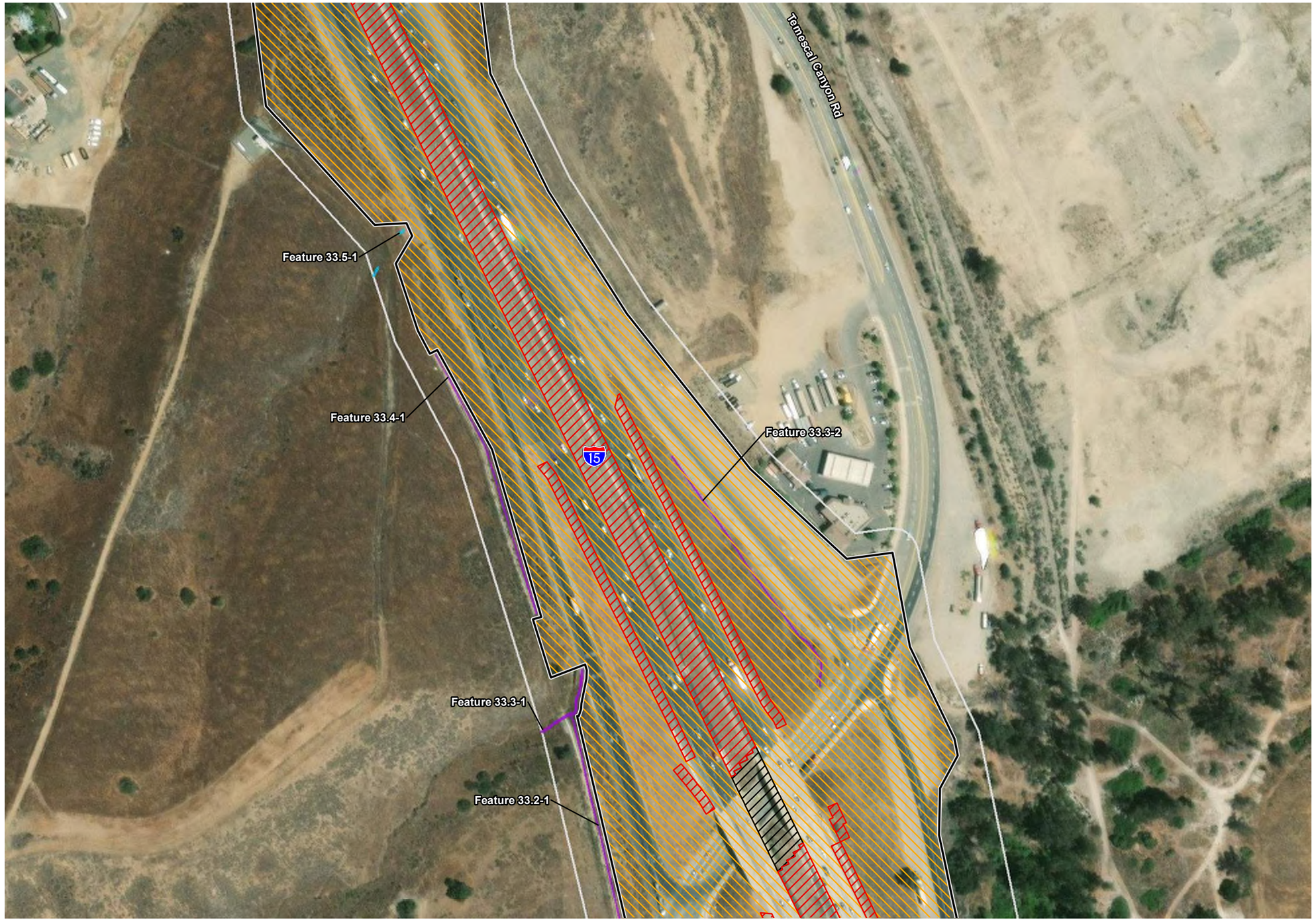
Figure 12 - Sheet 26
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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0 200 400 Feet

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Figure 12 - Sheet 27
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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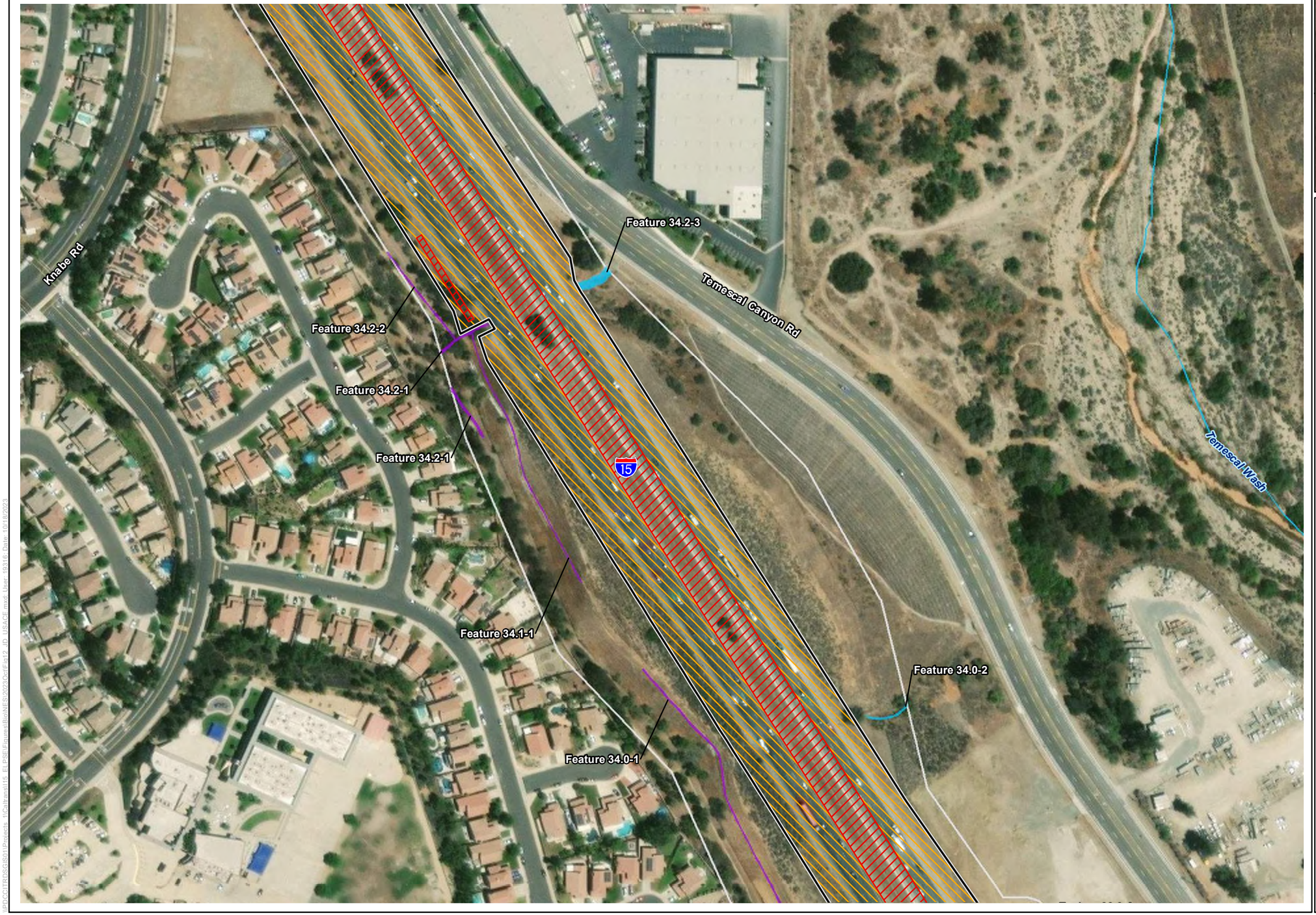
Figure 12 - Sheet 28
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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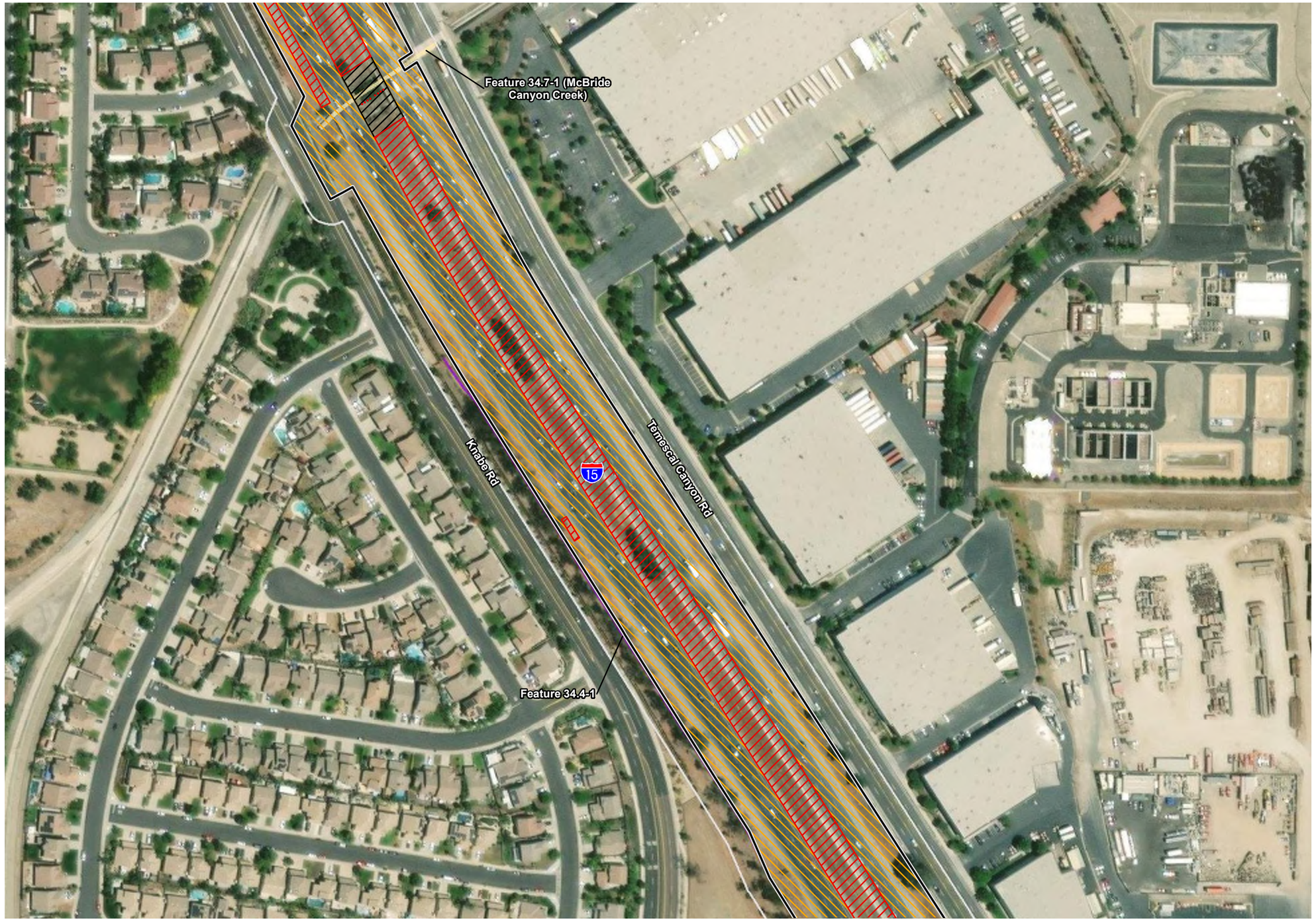
Figure 12 - Sheet 29
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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0 200 400 Feet

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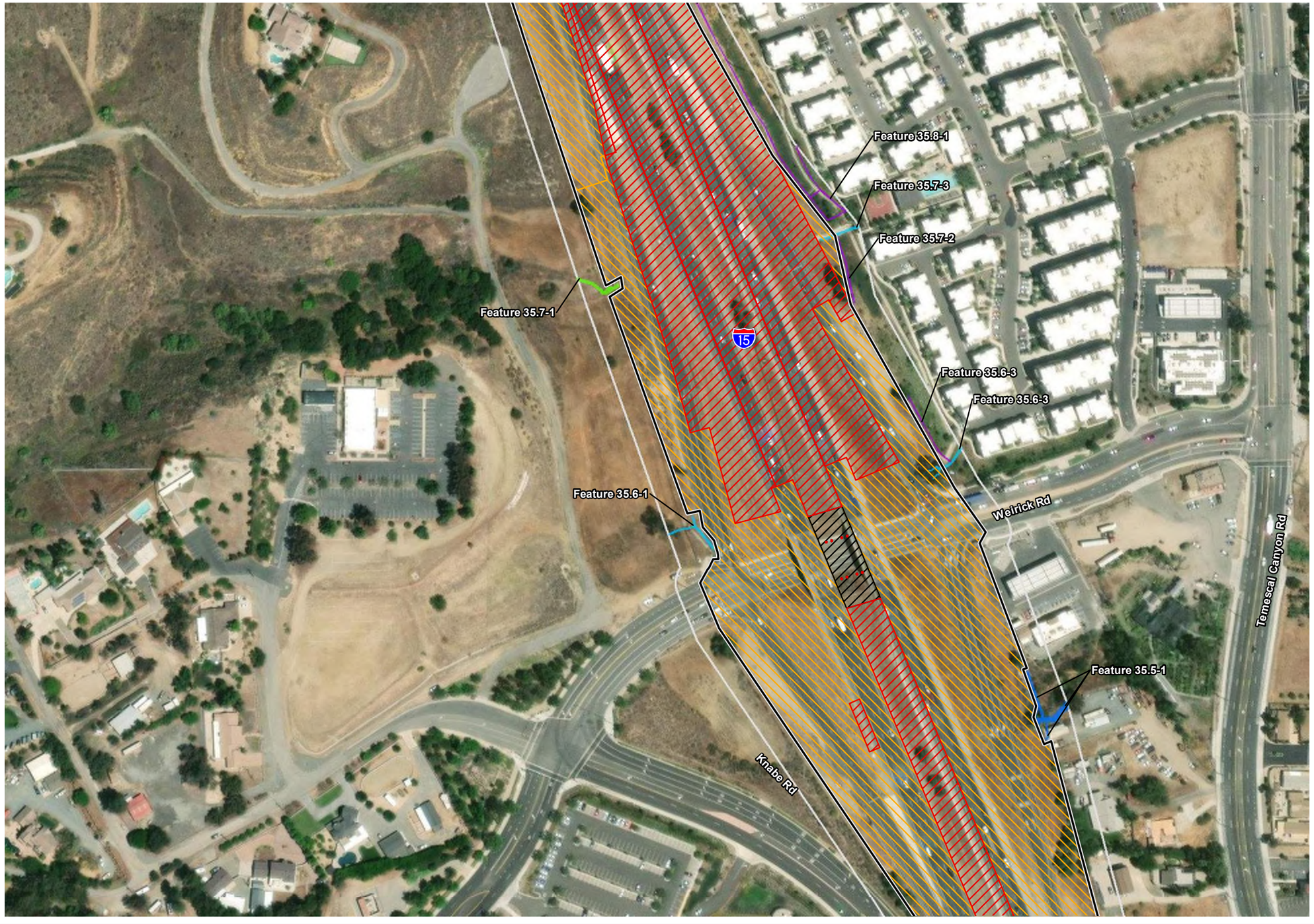
Figure 12 - Sheet 30
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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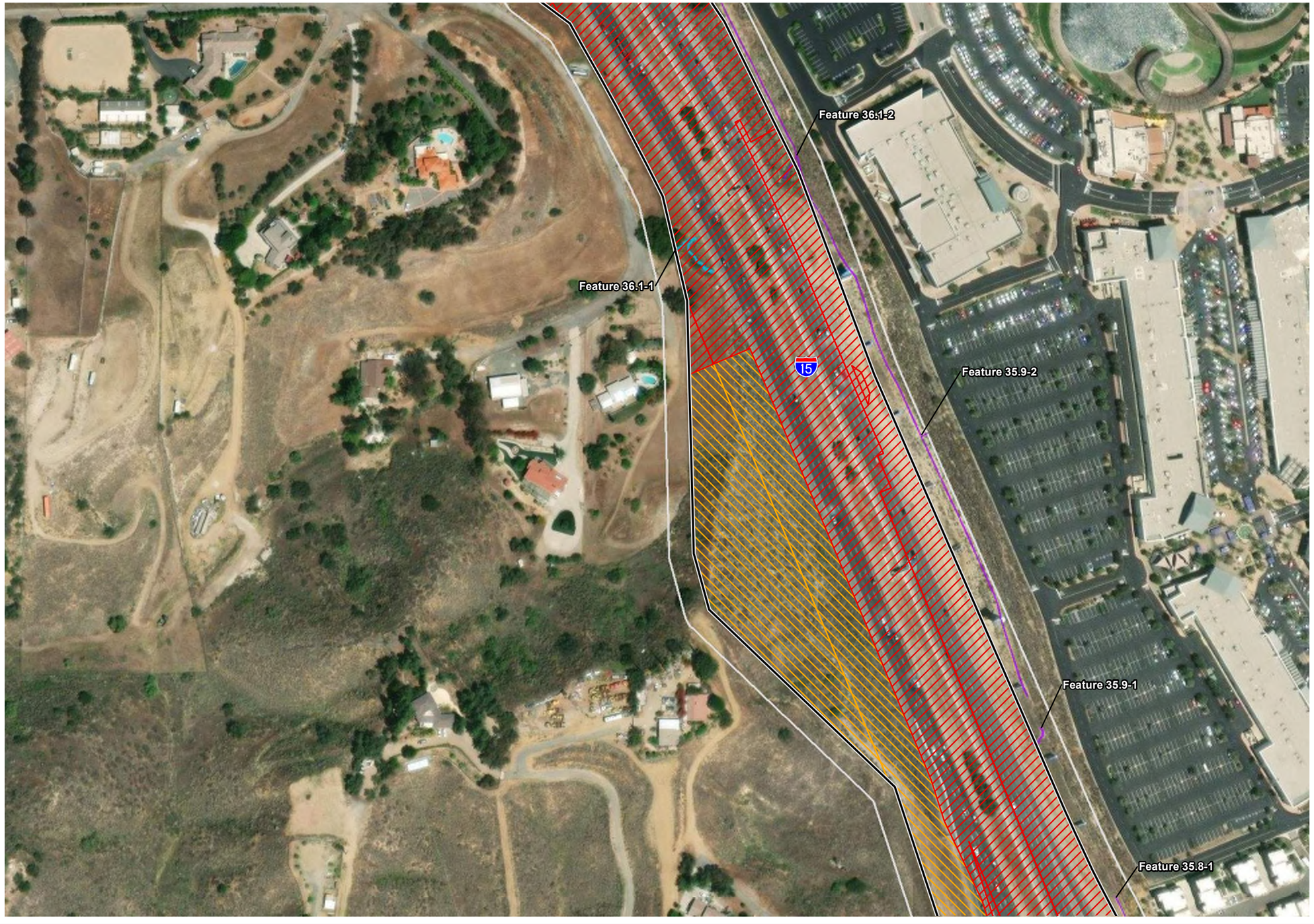
Figure 12 - Sheet 31
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

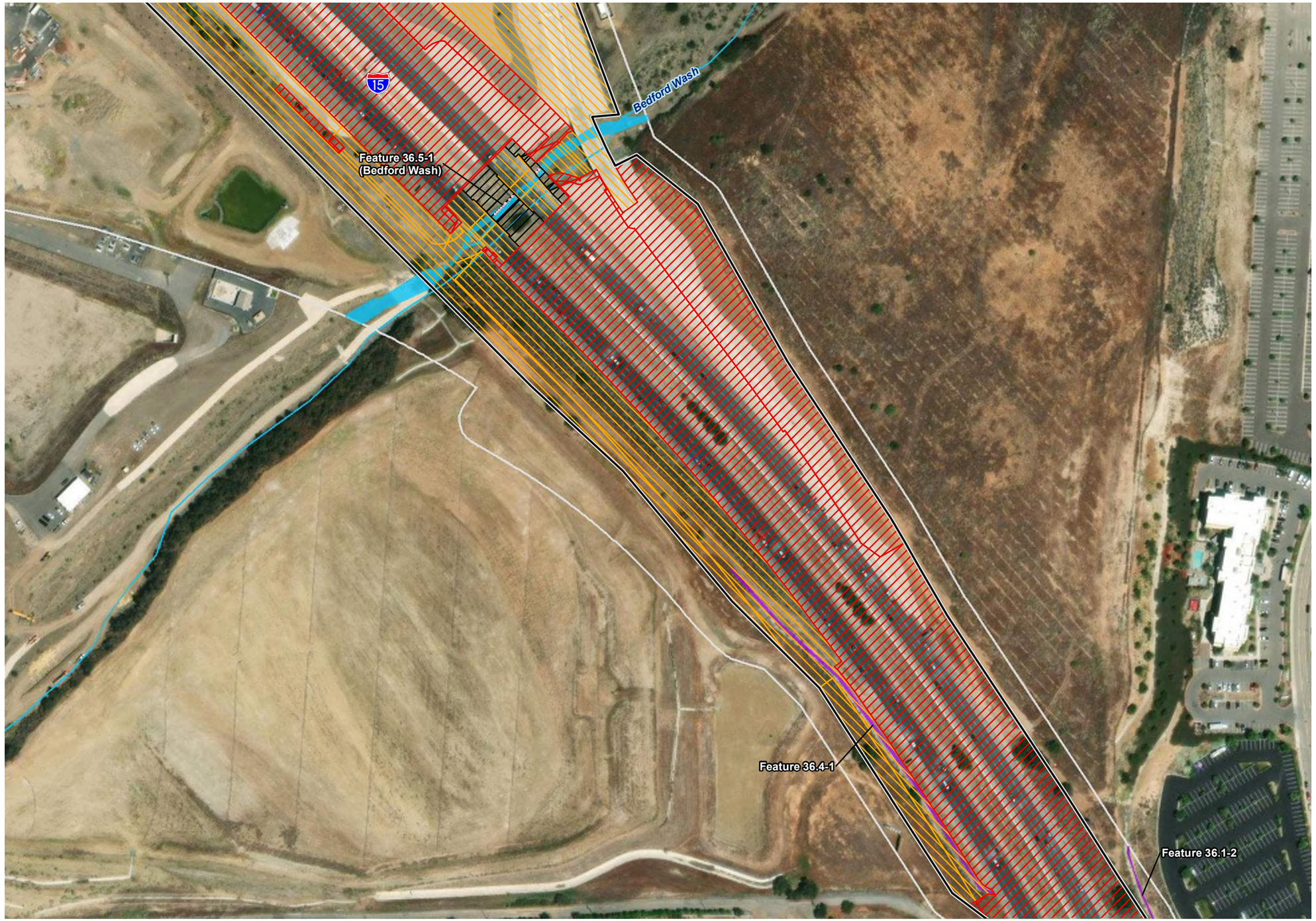
Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 12 - Sheet 32
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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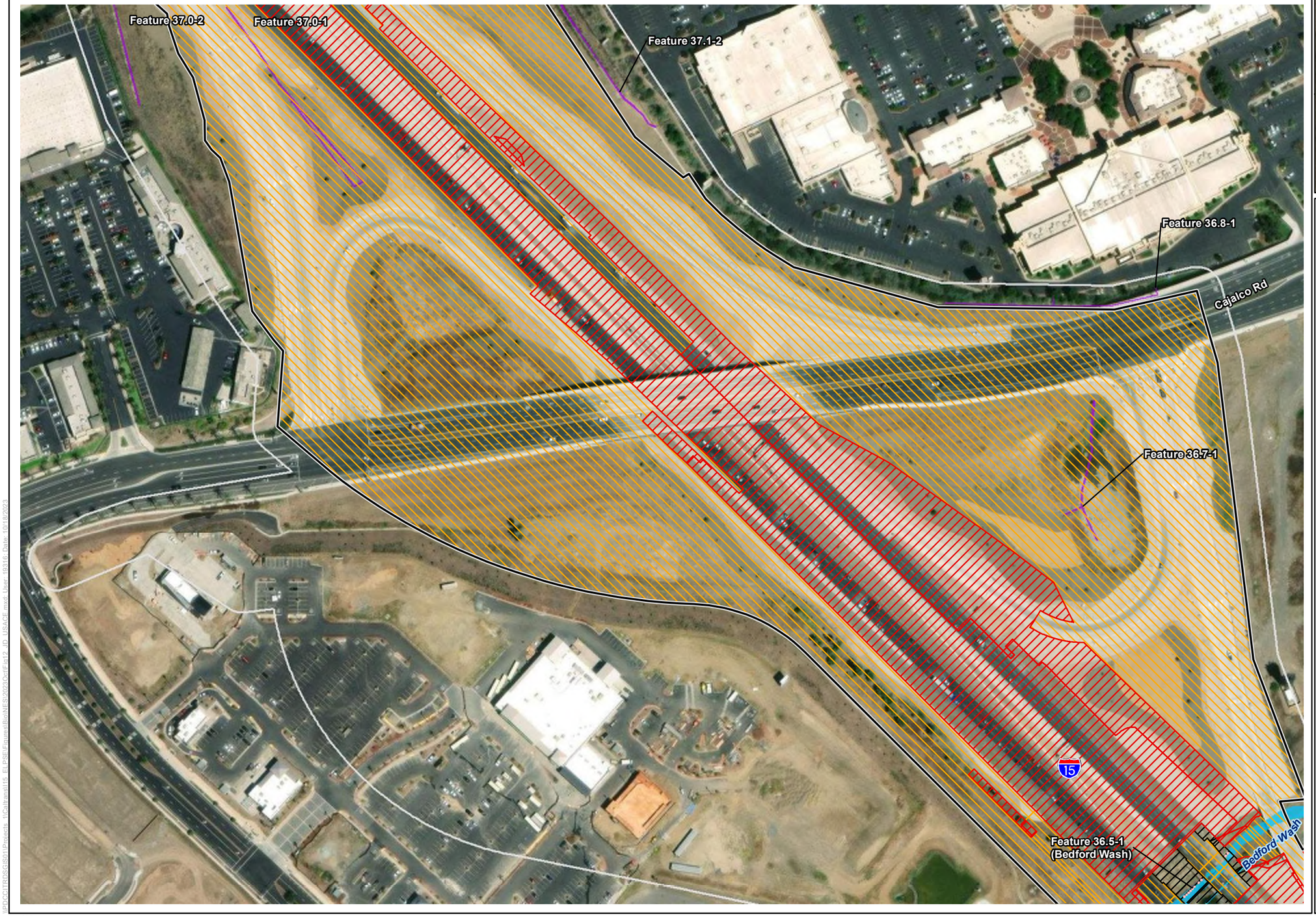
Figure 12 - Sheet 33
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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Figure 12 - Sheet 34
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

USACE/RWQCB Jurisdictional Features

- OHWM (Ephemeral)
- OHWM (Intermittent)
- OHWM (Perennial)
- Wetland

RWQCB Jurisdictional Features

- OHWM (Isolated)
- Wetland (Isolated)

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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Figure 12 - Sheet 35
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

50-foot Study Area - Jurisdictional Delineation

NHD Flowline

USACE/RWQCB Jurisdictional Features

OHWM (Ephemeral)

OHWM (Intermittent)

OHWM (Perennial)

Wetland

RWQCB Jurisdictional Features

OHWM (Isolated)

Wetland (Isolated)

Other Aquatic Features

Constructed in Uplands

*Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States and RWQCB Waters of the State are included for each feature in Appendix K of this document.

**All Shading Impacts for USACE/RWQCB jurisdictional resources are being considered temporary impacts.

Source: ESRI USA Imagery

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Figure 12 - Sheet 36
USACE/RWQCB Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

- Map Sheet
- Project Limits
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

CDFW Jurisdictional Resource	Permanent Impact (acres)	Temporary Impacts (acres)	Shading Impacts (acres)	Total Impacts (acres)
CDFW Unvegetated Streambed	0.07	3.82	1.00	**4.89**
Potential Non-Jurisdictional Unvegetated Streambed - Construction in Uplands	0.02	0.91	--	**0.93**
Total Streambed	***0.09***	***4.73***	***1.00***	***5.82***
CDFW Riparian	<0.01	1.80	0.46	**2.26**
Total Riparian	***<0.01***	***1.80***	***0.46***	***2.26***
Grand Total	**0.09**	**6.53**	**1.46**	**8.09**

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Figure 13 - Map Index
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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Figure 13 - Sheet 1
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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Figure 13 - Sheet 2
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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Figure 13 - Sheet 3
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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Figure 13 - Sheet 4
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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Figure 13 - Sheet 5
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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Figure 13 - Sheet 6
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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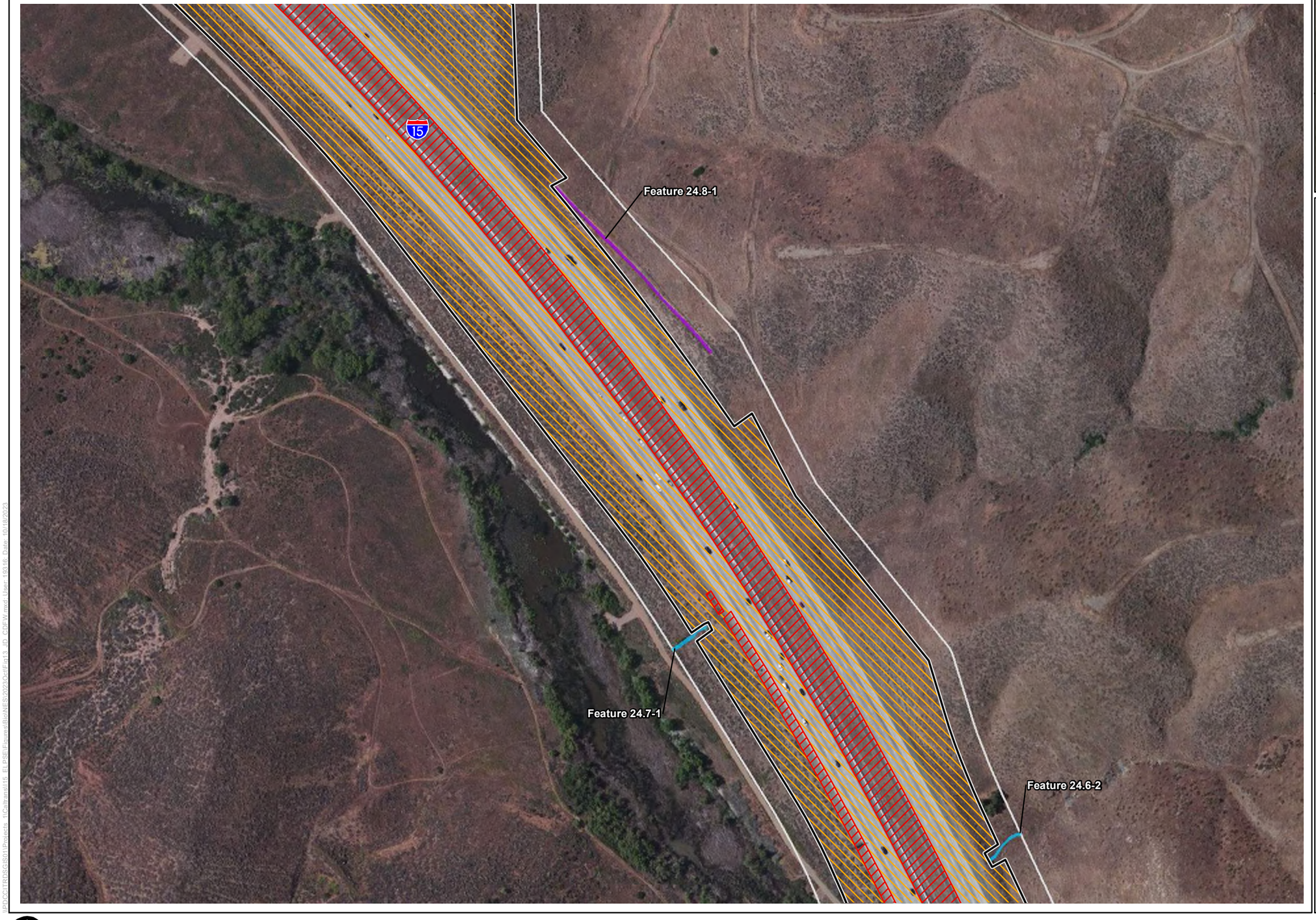
Figure 13 - Sheet 7
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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Figure 13 - Sheet 8
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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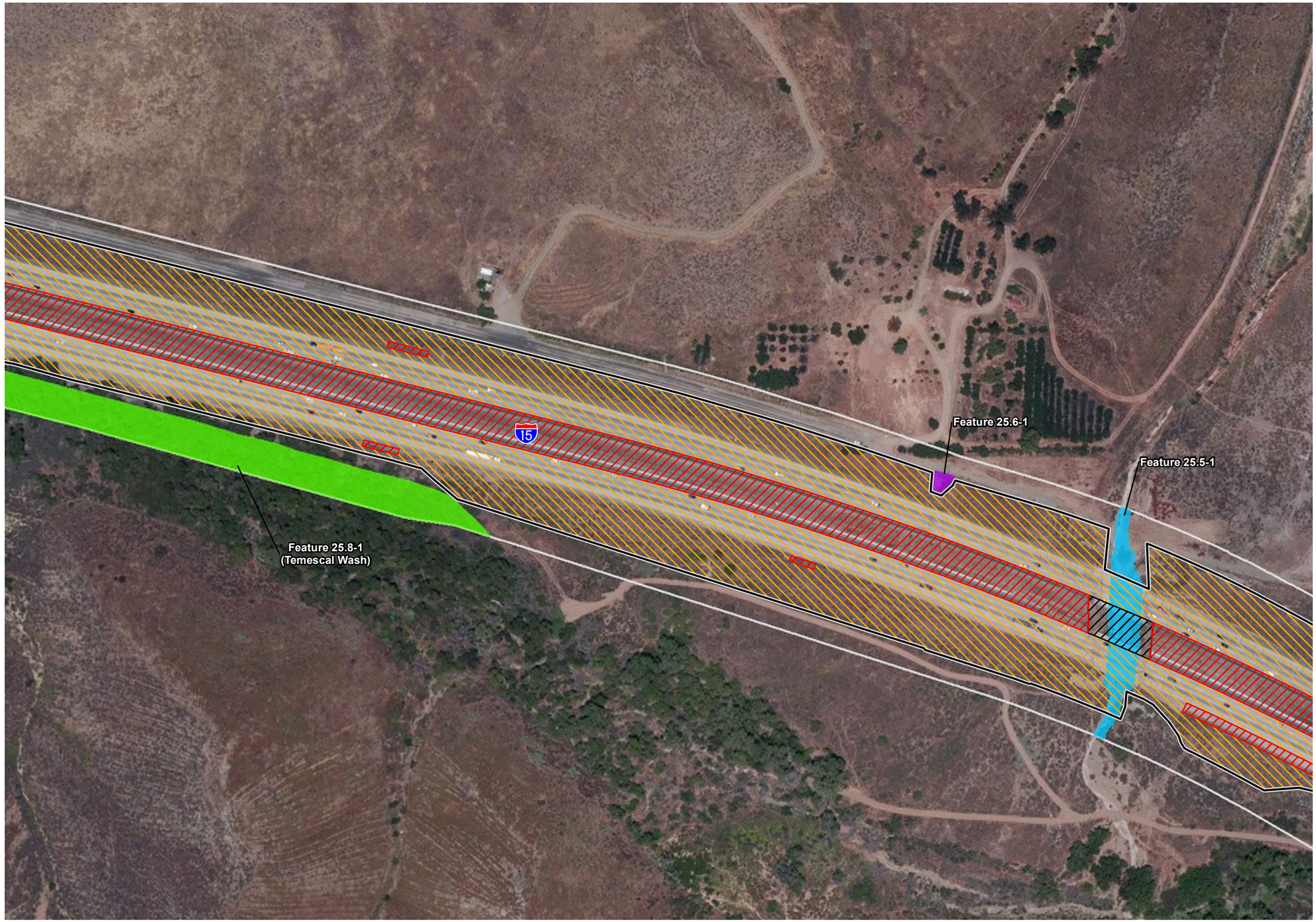
Figure 13 - Sheet 9
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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Figure 13 - Sheet 10
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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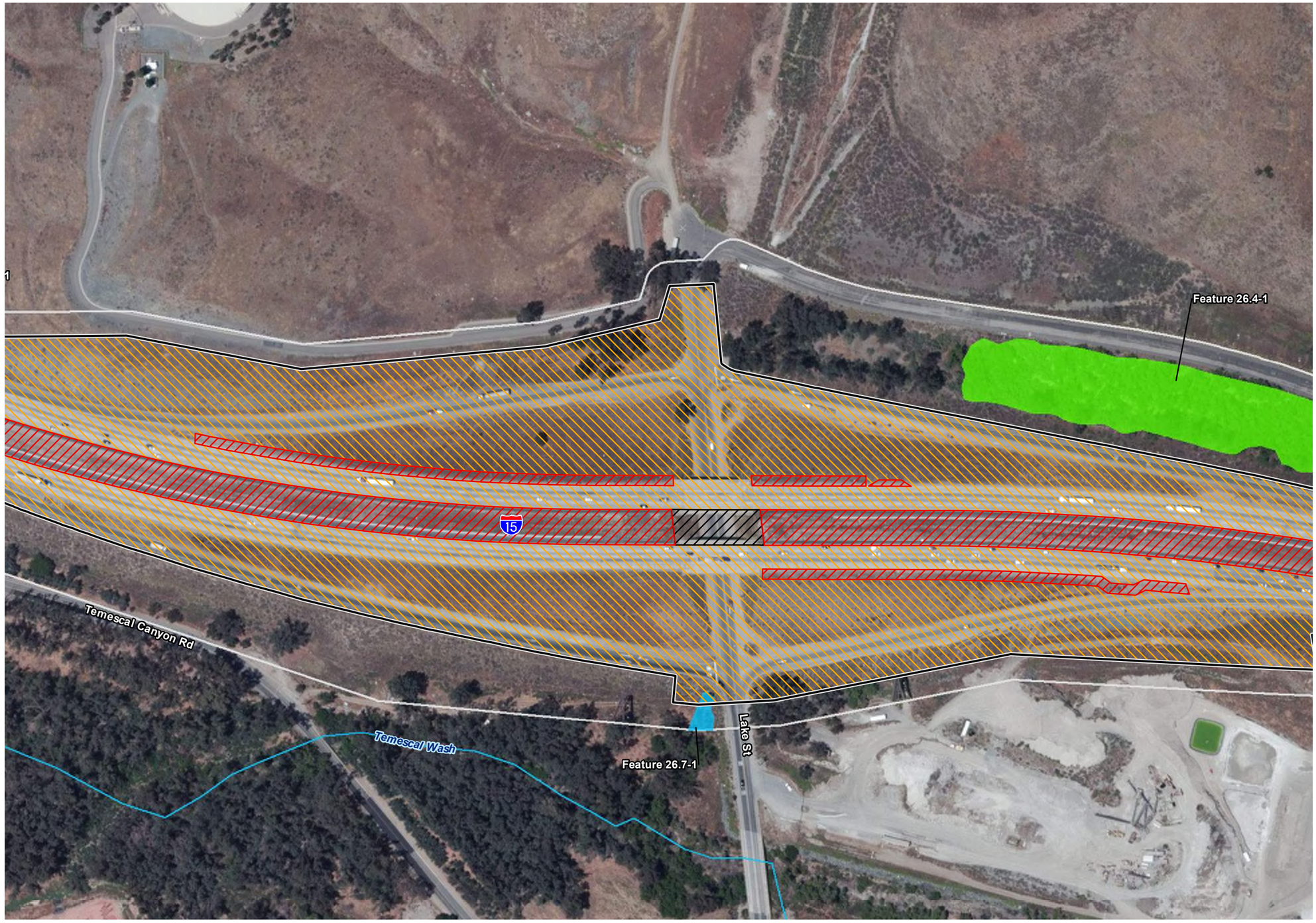
Figure 13 - Sheet 11
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

50-foot Study Area - Jurisdictional Delineation

NHD Flowline

CDFW Jurisdictional Features

Streambed

Streambed (Isolated)

Riparian

Other Aquatic Features

Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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Figure 13 - Sheet 12
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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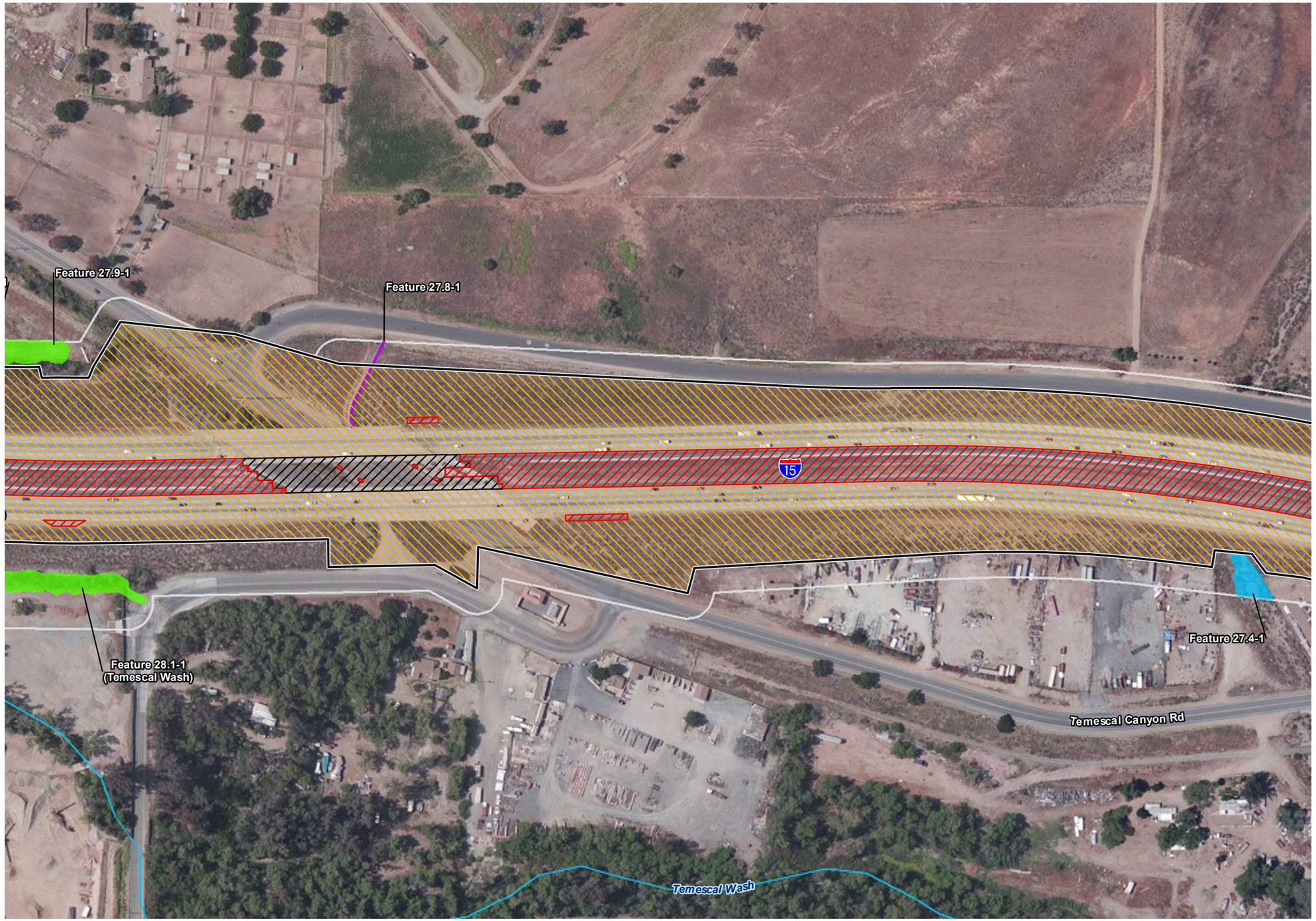
Figure 13 - Sheet 13
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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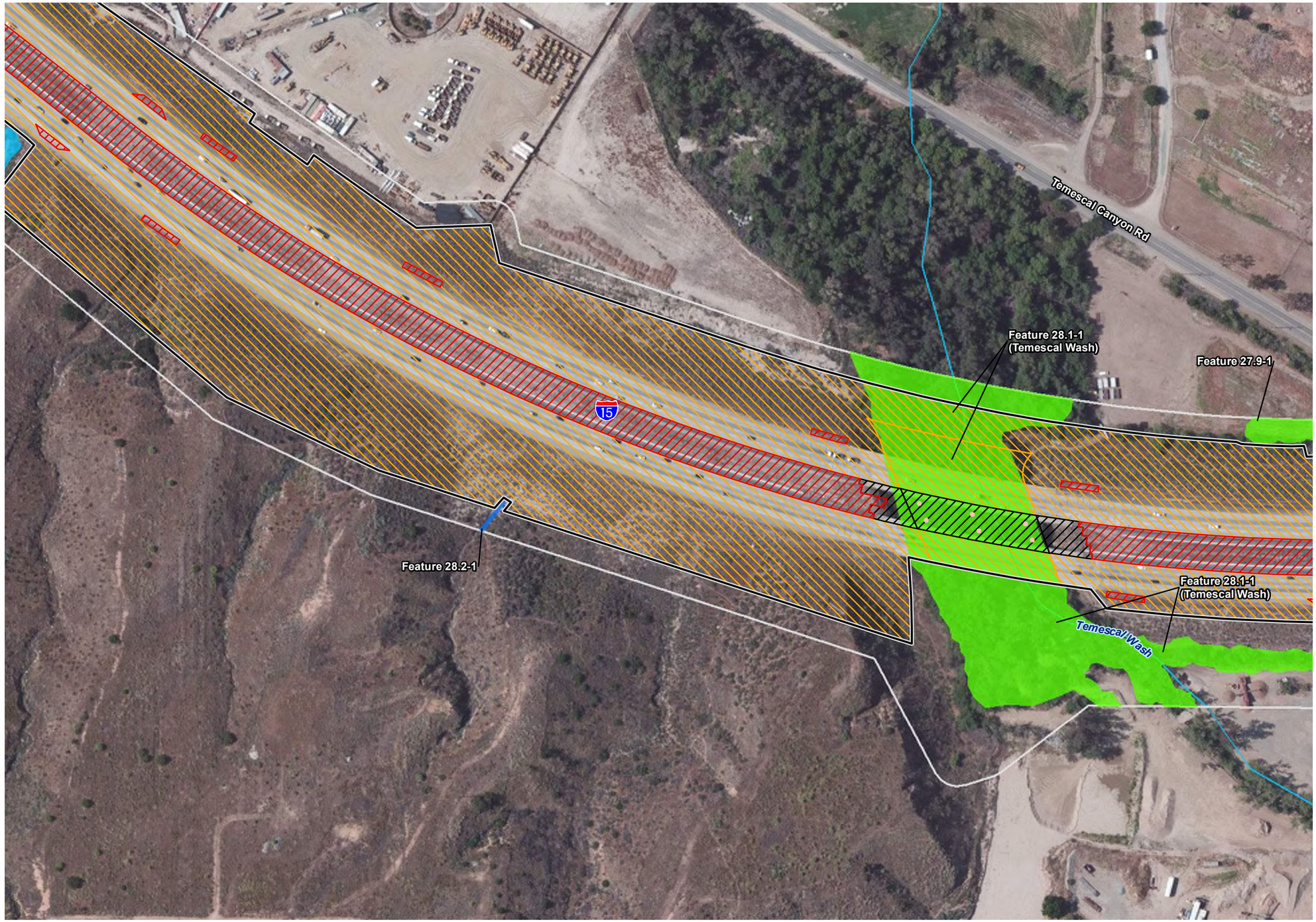
Figure 13 - Sheet 14
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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Figure 13 - Sheet 15
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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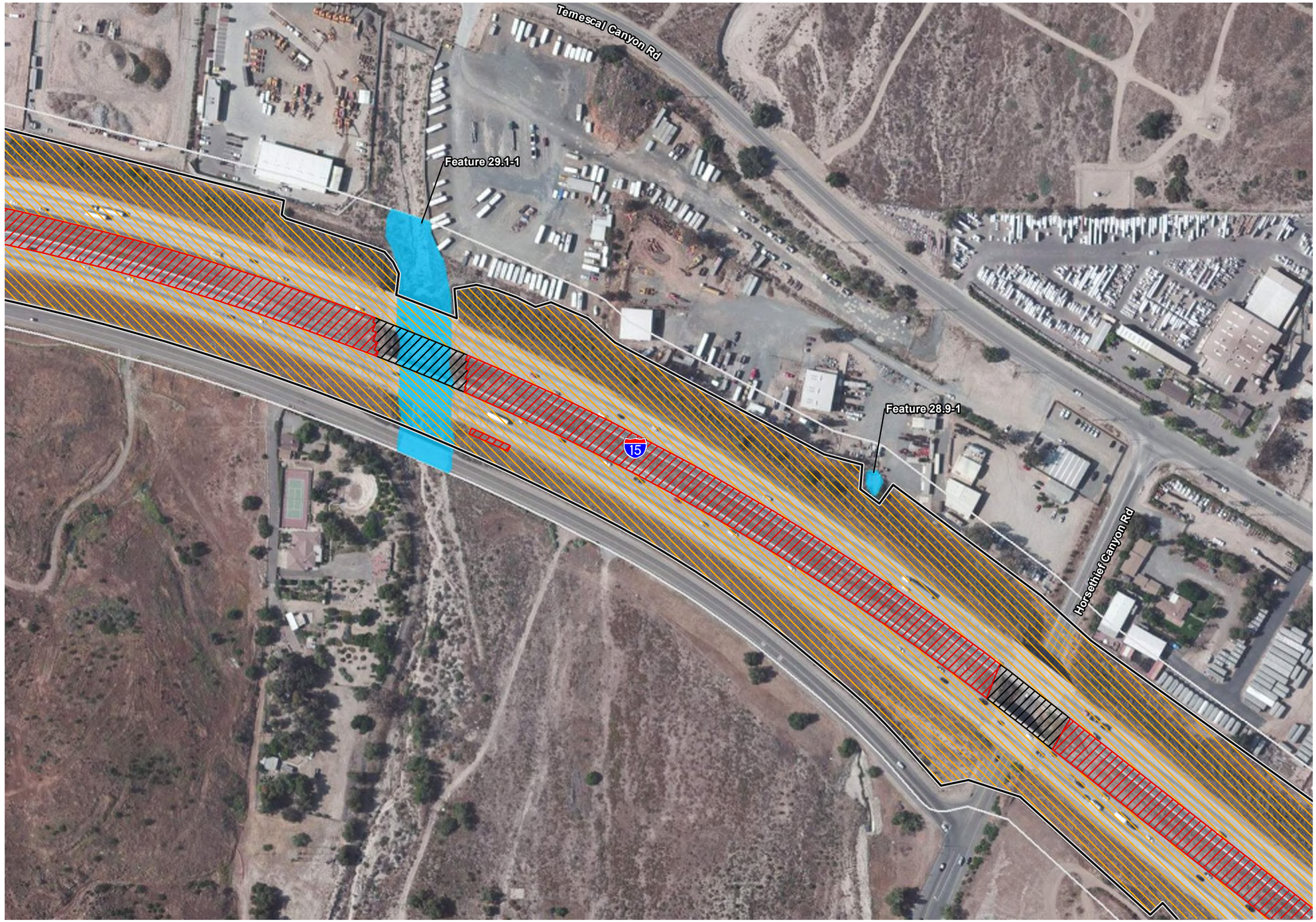
Figure 13 - Sheet 16
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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Figure 13 - Sheet 17
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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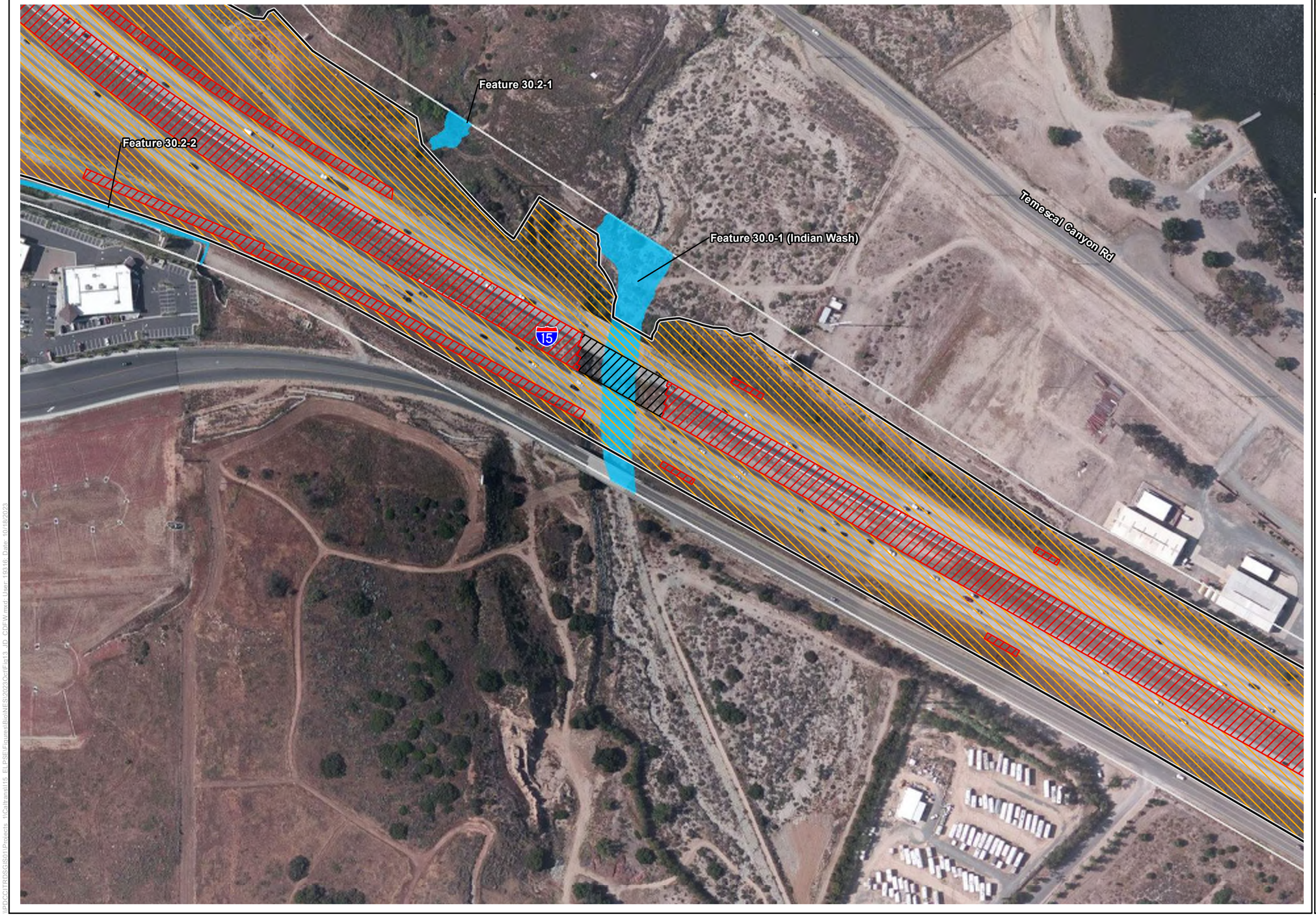
Figure 13 - Sheet 18
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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Figure 13 - Sheet 19
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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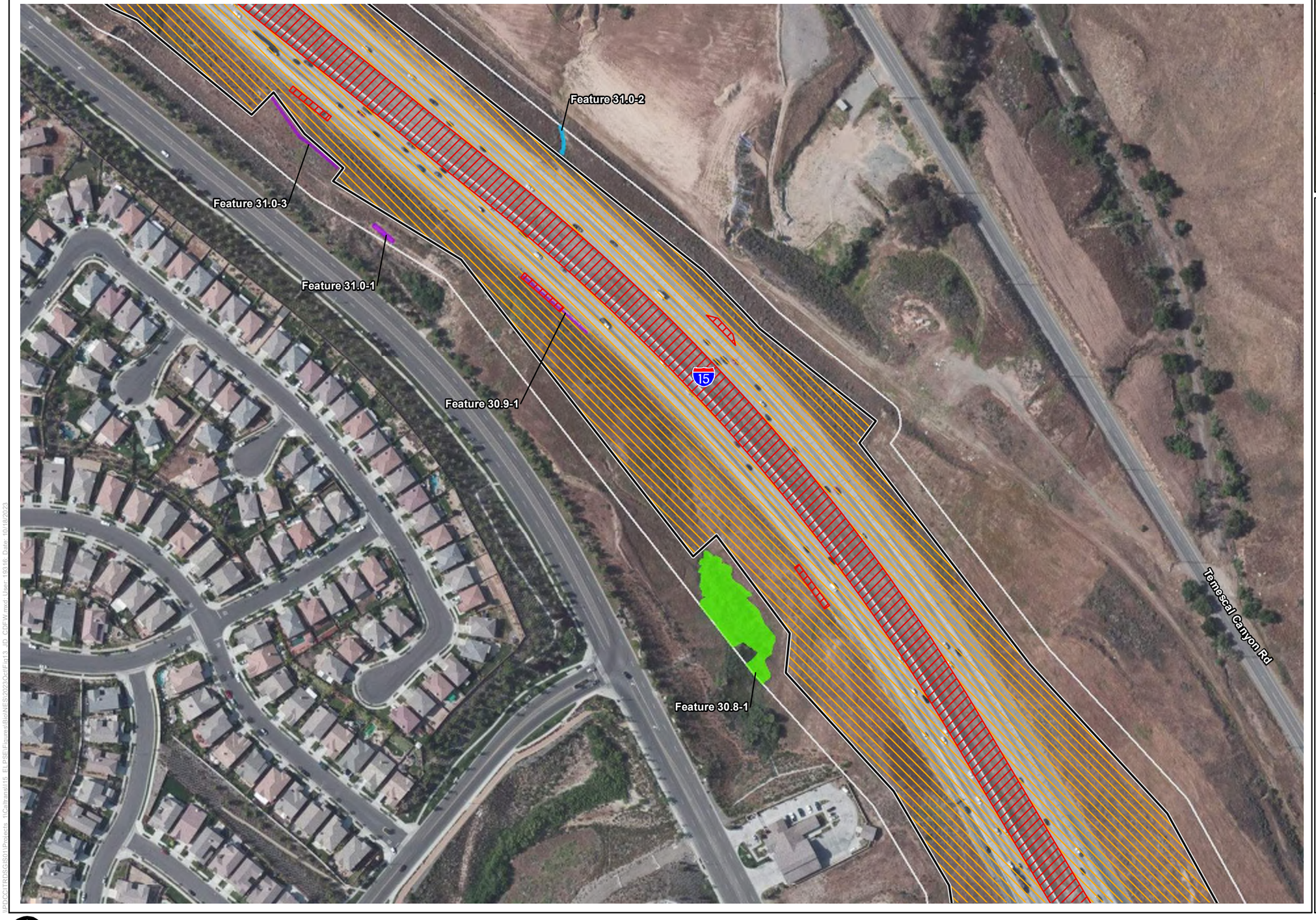
Figure 13 - Sheet 20
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Project Impacts

Permanent Impact

Permanent Ground Anchor Piles

Temporary Impact

Shading Impact

50-foot Study Area - Jurisdictional Delineation

NHD Flowline

CDFW Jurisdictional Features

Streambed

Streambed (Isolated)

Riparian

Other Aquatic Features

Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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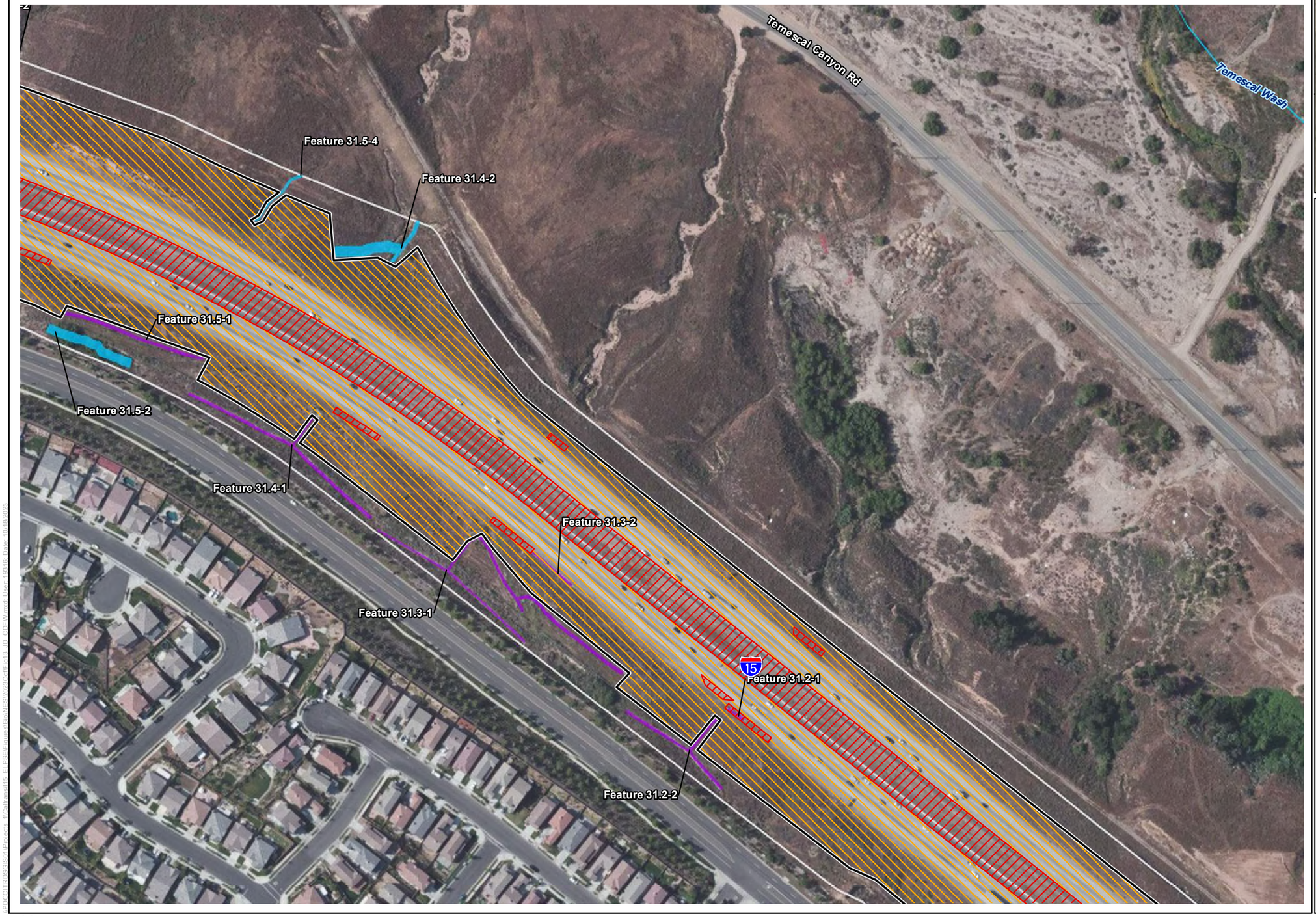
Figure 13 - Sheet 21
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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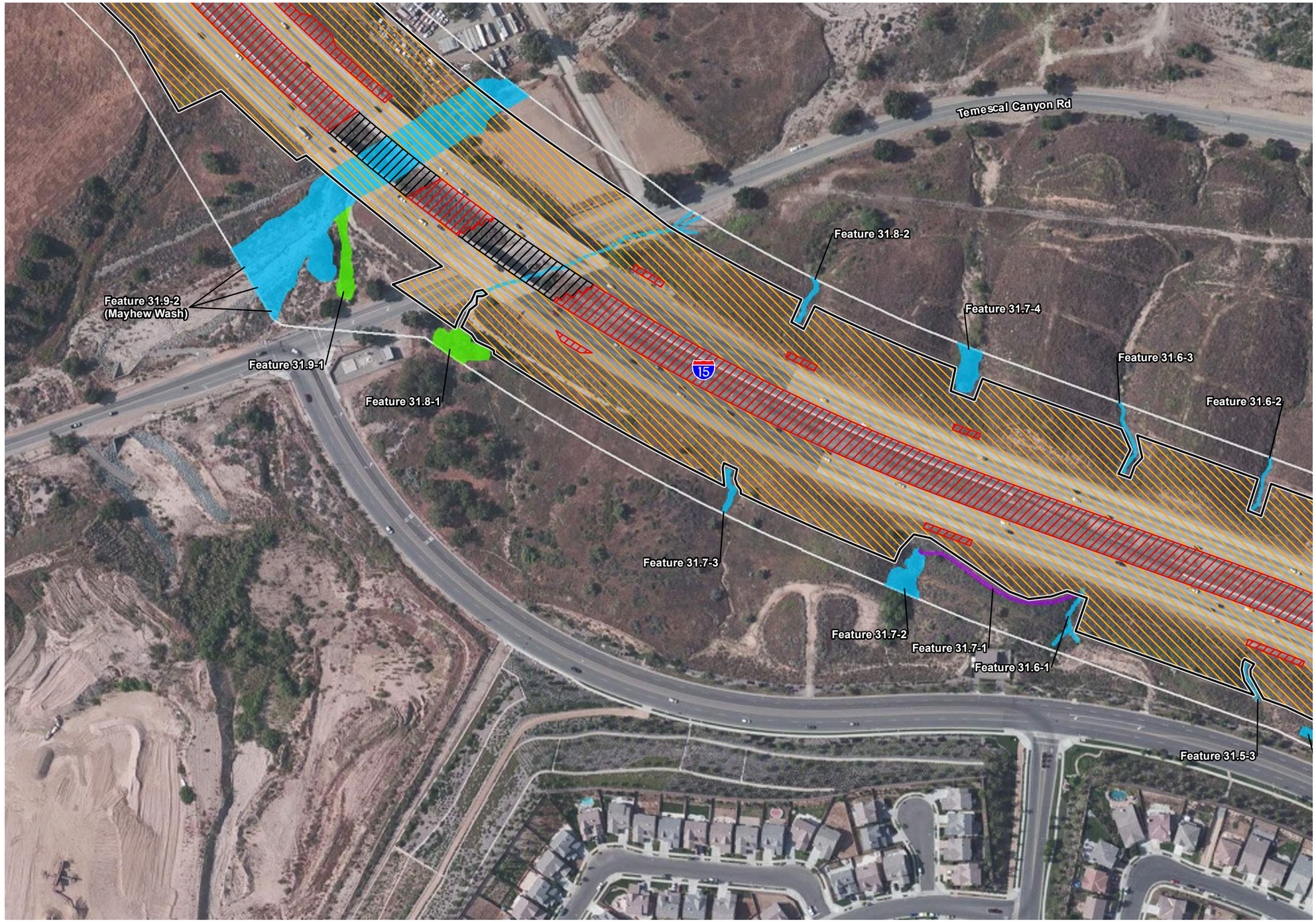
Figure 13 - Sheet 22
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

N

0 200 400 Feet

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Figure 13 - Sheet 23
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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0 200 400 Feet

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Figure 13 - Sheet 24
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 13 - Sheet 25
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
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- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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0 200 400 Feet

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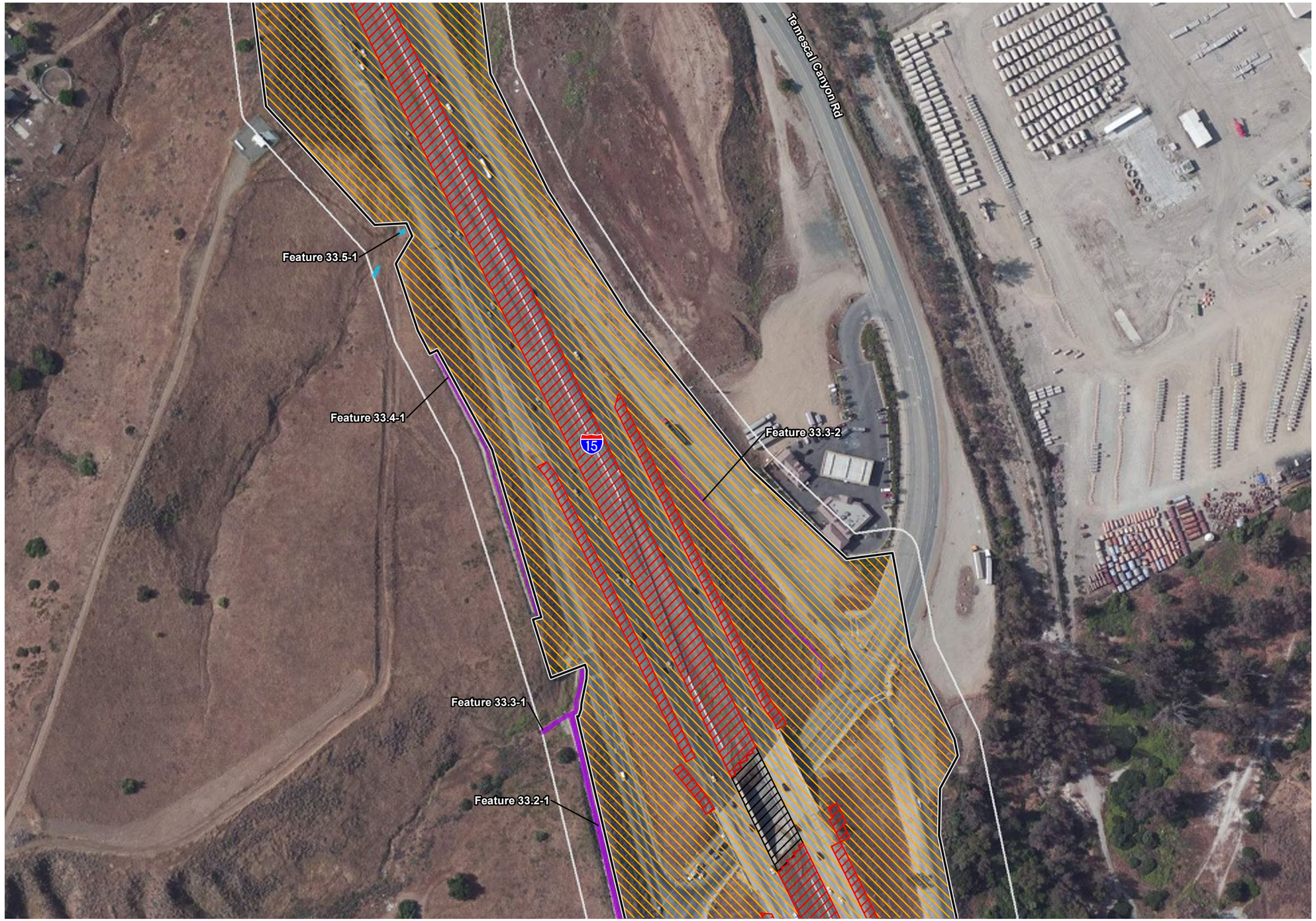
Figure 13 - Sheet 26
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
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- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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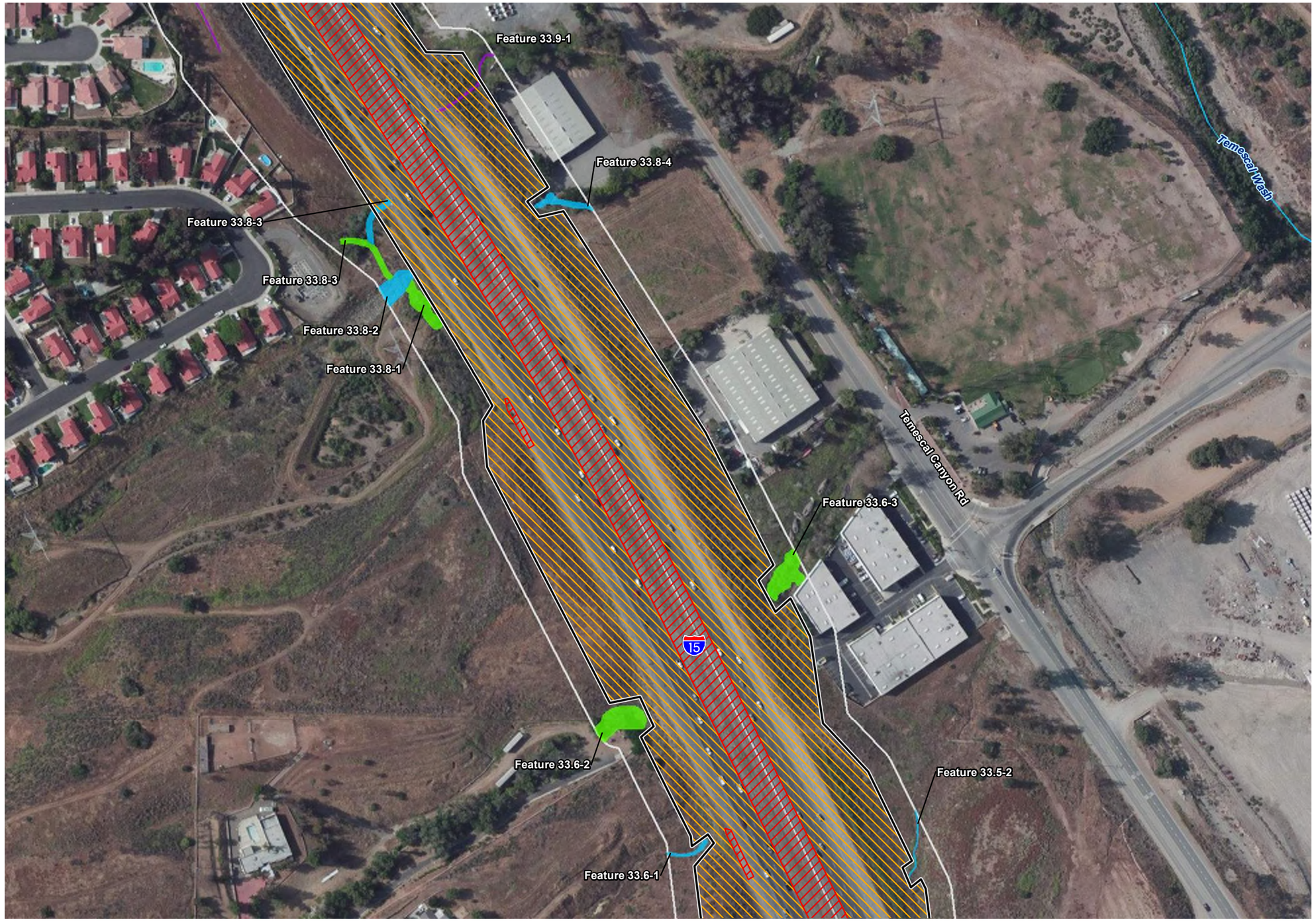
0 200 400 Feet

1:2,400

Figure 13 - Sheet 27
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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0 200 400 Feet

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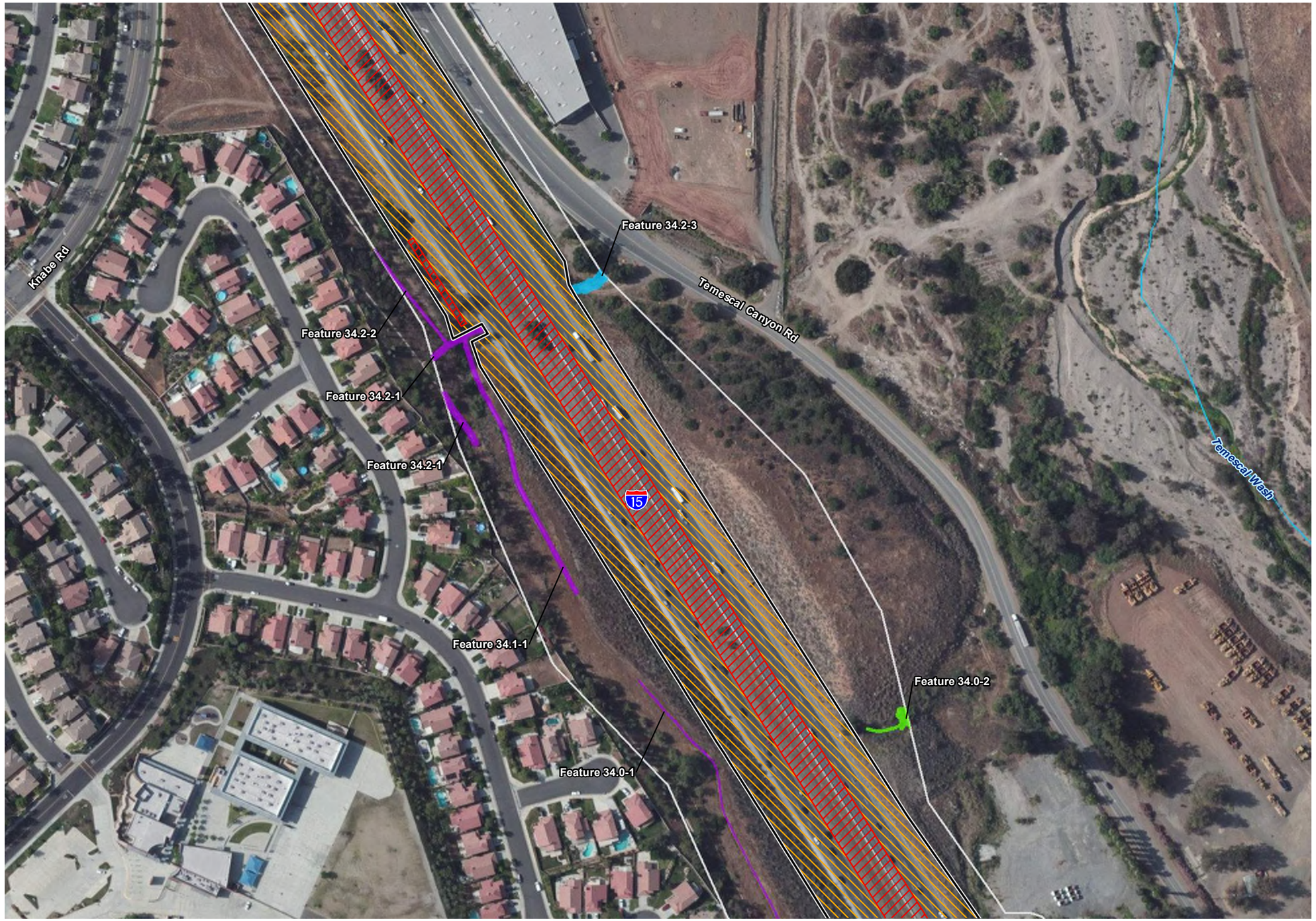
Figure 13 - Sheet 28
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
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- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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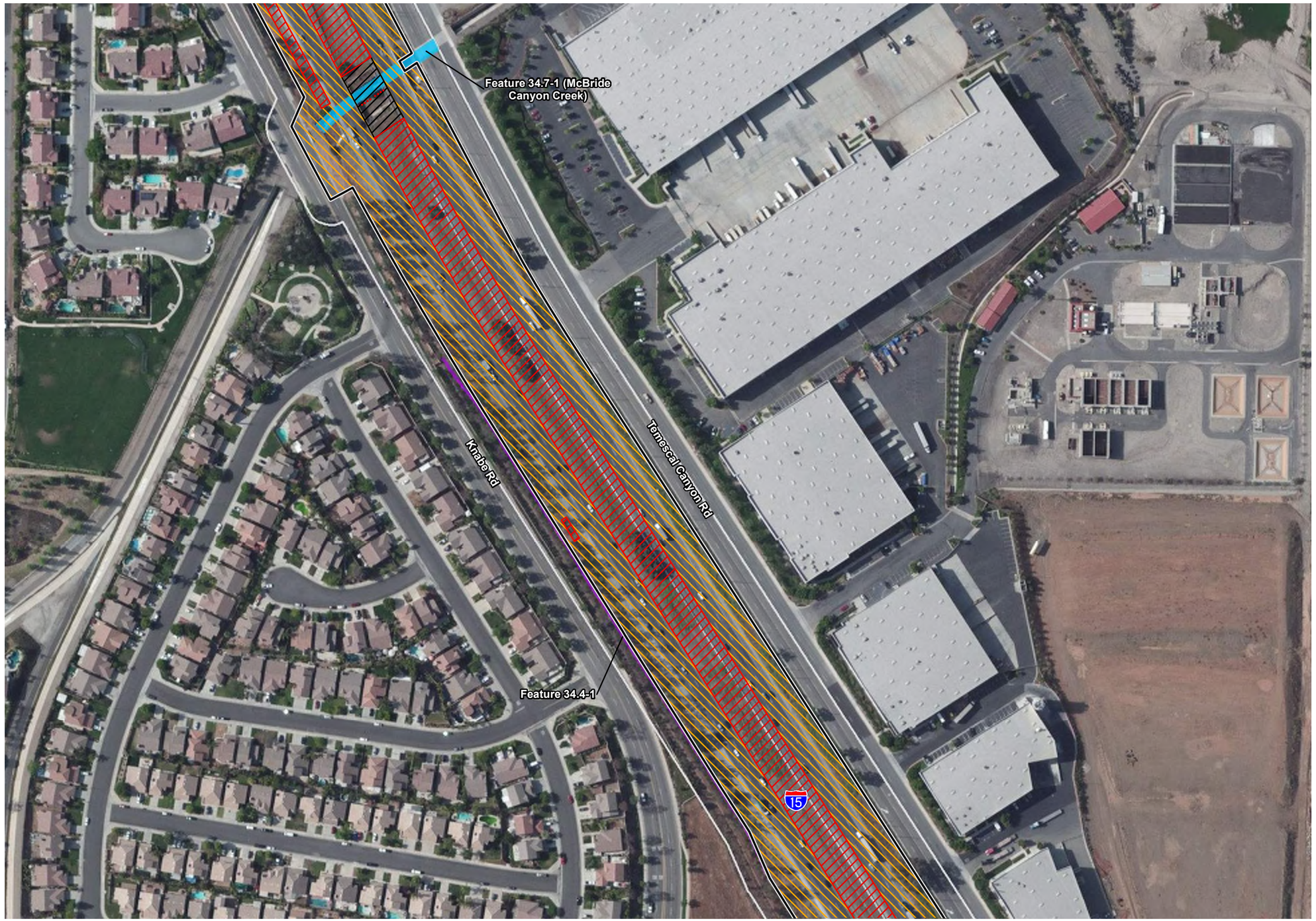
Figure 13 - Sheet 29
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
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CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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0 200 400 Feet

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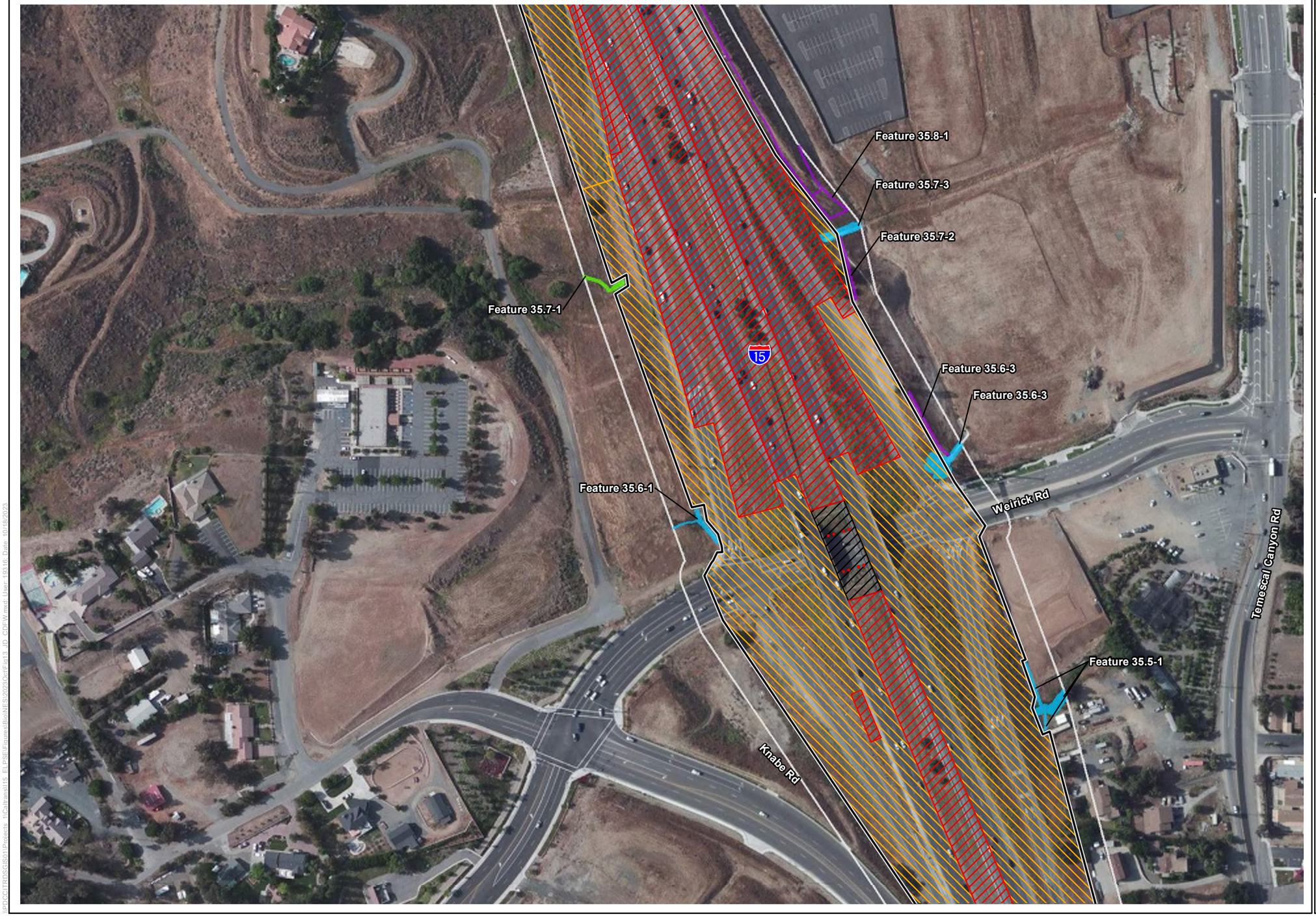
Figure 13 - Sheet 30
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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0 200 400 Feet

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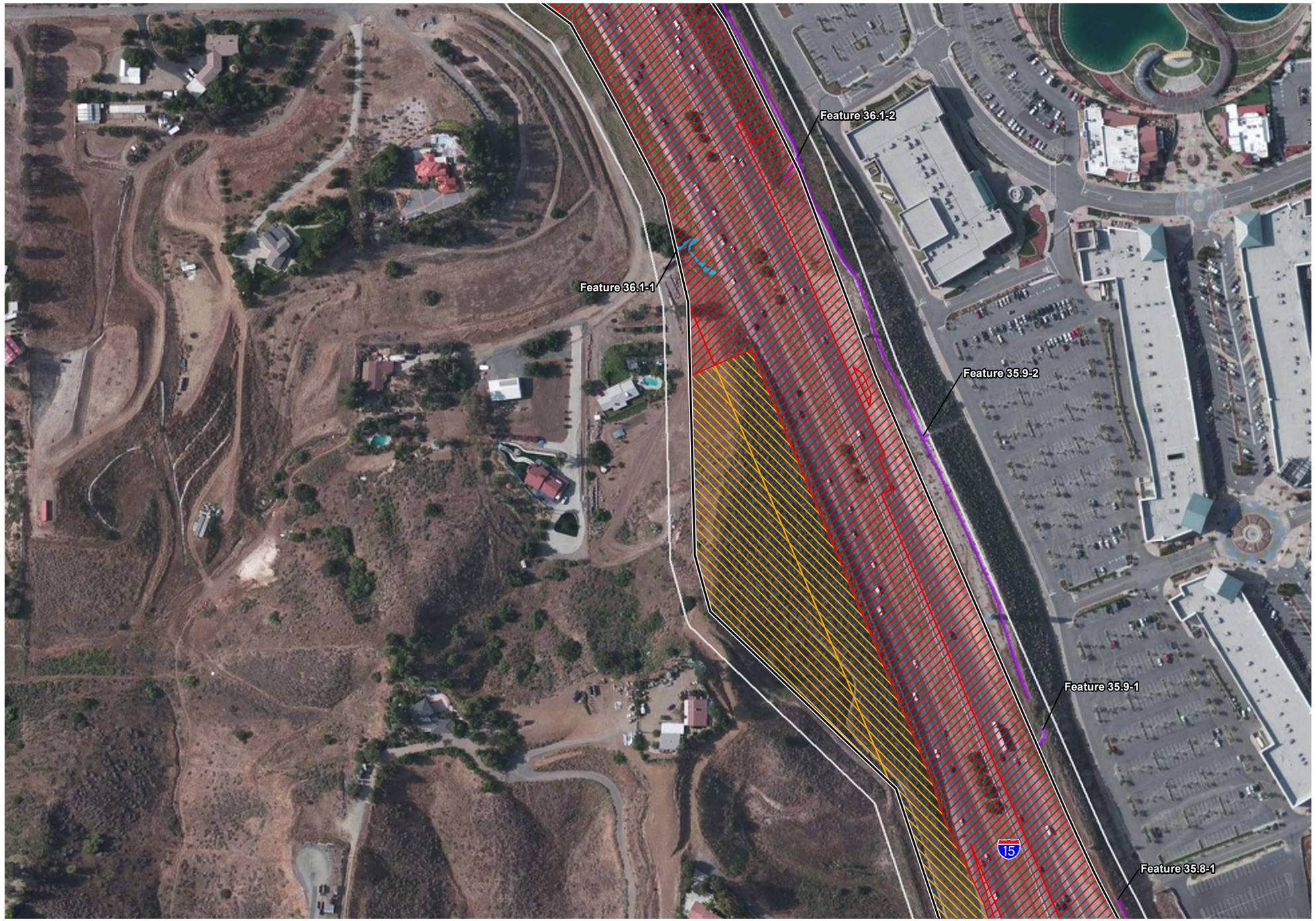
Figure 13 - Sheet 31
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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0 200 400 Feet

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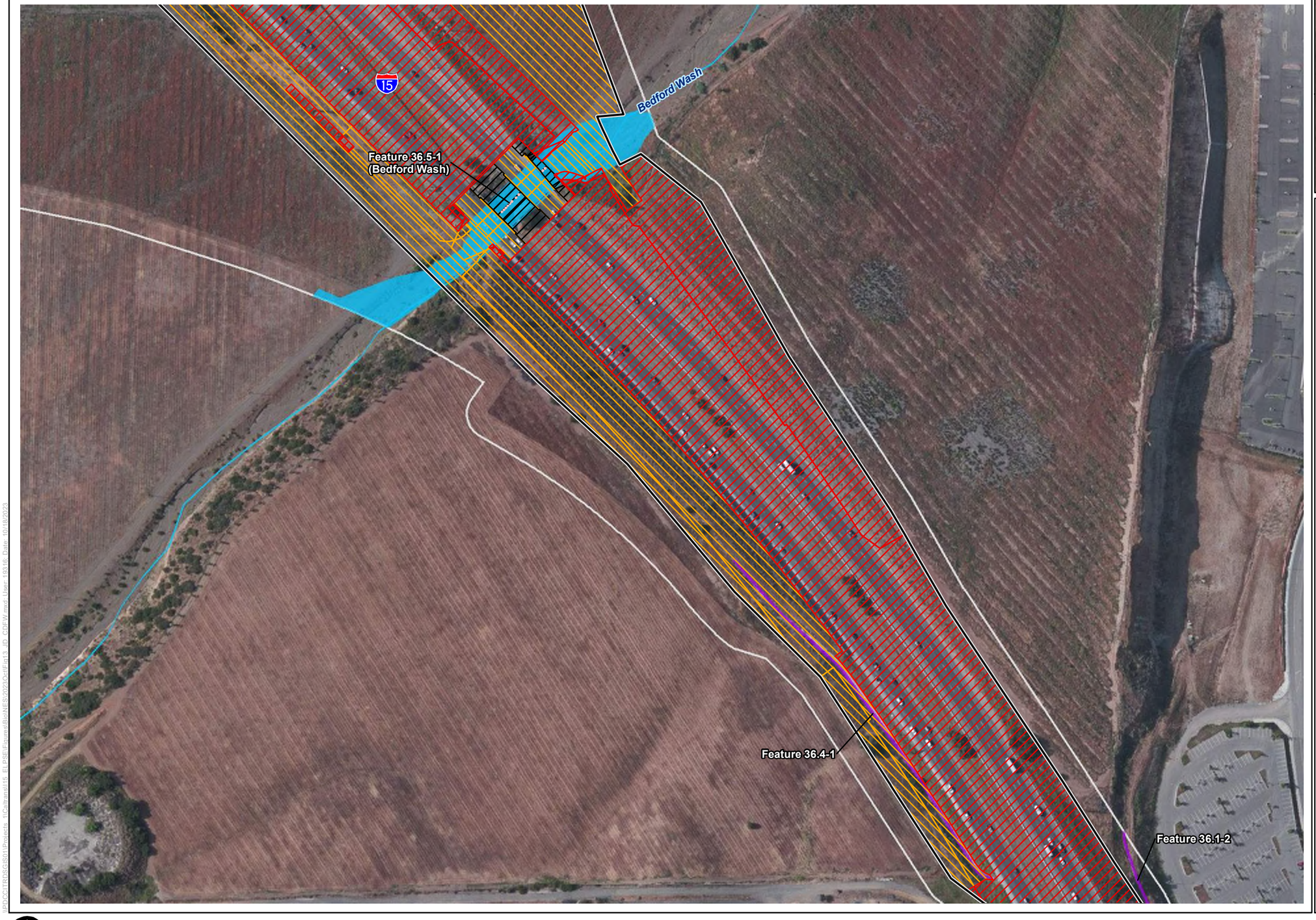
Figure 13 - Sheet 32
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
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CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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0 200 400 Feet

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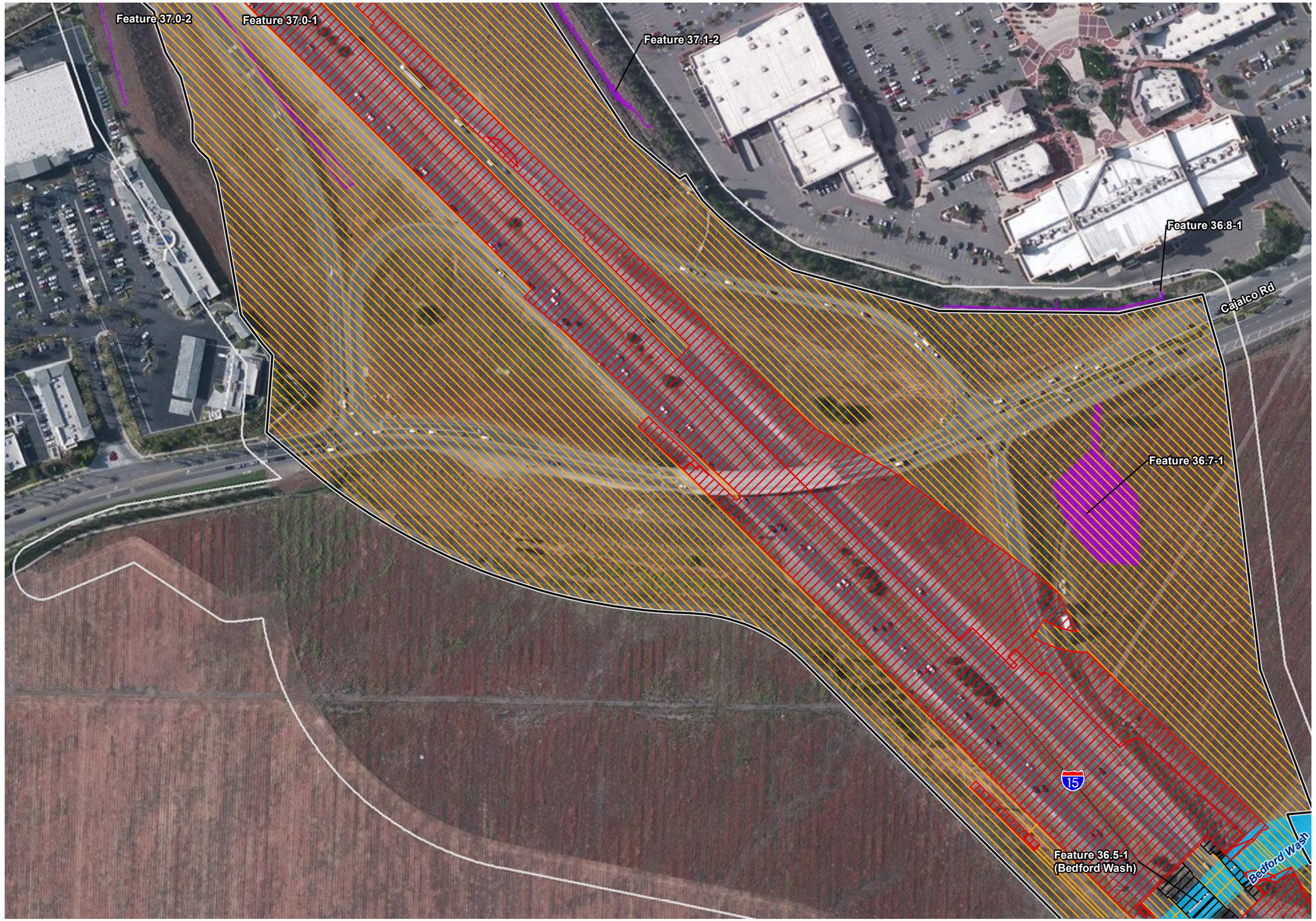
Figure 13 - Sheet 33
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension



Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
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CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

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Source: ESRI USA Imagery

0 200 400 Feet

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N

Figure 13 - Sheet 34
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
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CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

N

0 200 400 Feet

1:2,400

Figure 13 - Sheet 35
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Legend

Project Limits

- Advance Signage/Striping Areas (PM 20.3/40.1)
- Limits of Disturbance (PM 21.2/38.1)

Project Impacts

- Permanent Impact
- Permanent Ground Anchor Piles
- Temporary Impact
- Shading Impact
- 50-foot Study Area - Jurisdictional Delineation
- NHD Flowline

CDFW Jurisdictional Features

- Streambed
- Streambed (Isolated)
- Riparian

Other Aquatic Features

- Constructed in Uplands

*Proposed Impacts on CDFW Streambed and Associated Riparian Habitat are included for each feature in Appendix K of this document.

Source: ESRI USA Imagery

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0 200 400 Feet

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Figure 13 - Sheet 36
CDFW Jurisdictional Resources
Interstate 15 Express Lanes Project Southern Extension

Appendix B Regional Species and Habitats of Concern

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Special-status plant and animal species that were determined to have some potential to occur in the project vicinity (Table B-1), as well as sensitive natural communities (Table B-2), were evaluated to determine if the specific habitat requirements for these species or habitats were met in the Biological Study Area (BSA). Within Table B-1, species are divided based on whether habitat was determined to be present (HP); habitat was absent (HA, row is greyed out); the species was observed (P); and if U.S. Fish and Wildlife Service designated critical habitat overlaps with the limits of disturbance (CH).

Table B-1. Listed, Proposed, Special-Status Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
PLANTS					
Chaparral Sand-Verbena	*Abronia villosa* var. *aurita*	-/-/1B.1/-	Found in sandy soil within coastal scrub and mostly broad alluvial fans and benches. Known to occur in northern Orange County, western Riverside County, San Diego County, and southern Imperial County. It blooms from January to August at elevations from 262 feet (ft) to 5,248 ft. It is threatened by flood control activities.	HP	Suitable sandy coastal and broom scale scrub habitat is present in the rare plant study area. A focused rare plant survey was performed in 2020/2021, and this species was not detected within the survey area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Yucaipa Onion	*Allium marvinii*	-/-/1B.2/-	A perennial, bulbiferous herb that grows typically in chaparral habitats upon clay soils. Known only from the Yucaipa and Beaumont area of the southern San Bernardino Mtns. Threatened by non-native plants, urbanization and alteration of fire regimes. It blooms from April to May and is found at elevations from 2,495 ft to 3495 ft.	HA	This species is found at elevations outside of the range encountered throughout the project area. Yucaipa onion is not expected to occur.
Munz's Onion	*Allium munzii*	E/T/1B.1/ MSHCP (b)	Found on mesic exposures or seasonally moist microsites in grassy openings in coastal sage scrub, chaparral, juniper woodland, valley, and foothill grasslands in clay soils. Associated with a special "clay soil flora" found in southwestern Riverside County. At least one population (Bachelor Mountain) is reported to be associated with pyroxenite outcrops instead of clay.	HP	The project occurs in the Narrow Endemic Plant Species Survey Area (NEPSA) 1. Suitable habitat is present in the Biological Study Area (BSA) within coastal sage scrub with clay soils. This species was not detected in the rare plant study area during the focused rare plant surveys.
Alkali Marsh Aster	*Almutaster pauciflorus*	-/-/2B.2/-	A perennial herb found within meadows and seeps. Associated with alkaline soils. The species blooming period occurs between June and October.	HP	Suitable habitat in salt grass flats. This species was not detected in the rare plant study area during the focused rare plant surveys.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
San Diego Ambrosia	*Ambrosia pumila*	E/-/1B.1/ MSHCP (b)	Occurs in open floodplain terraces or in the watershed margins of vernal pools. This species occurs in a variety of associations that are dominated by sparse nonnative grasslands or ruderal habitat in association with river terraces, vernal pools, and alkali playas. San Diego ambrosia generally occurs at low elevations generally less than 1,600 ft in the Riverside populations and less than 600 ft in San Diego County.	HP, CH	Project occurs within the NEPSA 1 and 7 for this species. Suitable habitat is present in the BSA within habitats associated with floodplain terraces. This species was not detected in the rare plant study area during the focused rare plant surveys. Critical habitat for this species does occur within the BSA, with a small area occurring within the edge of the limits of disturbance (just over 0.3 acre) just north of Nichols Road, west of I-15.
Douglas' Fiddleneck	*Amsinckia douglasiana*	-/-/4.2/-	Occurs in cismontane woodlands, valley and foothill grasslands. Often found in Monterey shale in dry climates. Elevations range from sea level to 6,400 ft and blooms from March to May. Possibly threatened by agriculture.	HP	Limited and marginally suitable habitat is present in the rare plant study area within valley and foothill grasslands. This species was not detected in the rare plant study area during the focused rare plant surveys.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Rainbow Manzanita	*Arctostaphylos rainbowensis*	-/-/1B.1/MSHCP (e)	Found in chaparral at elevations ranging from 670 to 2,200 ft. Flowers emerge between December and March. Occurs in Riverside and San Diego Counties. Previously called *A. peninsularis* ssp. *peninsularis* or considered to be a hybrid between *A. glandulosa* and *A. glauca*. Threatened by development and agricultural conversion. Restricted to eastern slopes of the Santa Ana Mountains, northern slopes of the Agua Tibia Mountains. Found in the San Mateo Canyon Wilderness, Gavilan Mountain, Santa Margarita Ecological Reserve, Santa Rosa Plateau, and the Temecula, Margarita Peak, and Pechanga Area.	HP	Marginally suitable chaparral habitat is present in the rare plant study area. Gavilan Mountain is approximately 4.5 miles to the northwest, Santa Ana mountains to the south of the rare plant study area. This species was not detected in the rare plant study area during the focused rare plant surveys. This species will be considered a covered species under the MSHCP once 10 localities with more than 50 individuals each have been conserved within the MSHCP Conservation Area.
Marsh Sandwort	*Arenaria paludicola*	E/E/1B.1/-	Occurs in wetland and freshwater marshes and grows up through dense mats of *Typha* sp., *Juncus* sp. and *Scirpus* sp. within freshwater marshes. Elevation ranges from sea level to 558 ft. Was documented within the Santa Ana River in the late 1899 (USFWS 1998); however, the species is now believed to be extirpated from southern California (USFWS 2008).	HA	Suitable habitat is present in the rare plant study area within freshwater marshes; however, this species is considered extirpated from southern California, and is not expected to occur.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Western Spleenwort	*Asplenium vespertinum*	-/-/4.2/-	Occurs in rocky areas within chaparral, cismontane woodlands, and coastal scrubs. Blooming occurs from February to June at elevations of 590 to 3,280 ft.	HA	No suitable rocky habitat is present in the rare plant study area. This species is not expected to occur.
Braunton's Milk-vetch	*Astragalus brauntonii*	E/-/1B.1/-	Can be found within chaparral, coastal scrub, and valley and foothill grasslands. Often found within recently burned areas. Flowers emerge between January and August. Occurs at an elevation of 13 to 2,099 ft.	HA	Suitable habitat is present in the rare plant study area within coastal scrub and grassland, however the nearest known location is at Santiago Peak, Orange County, so this species is not expected to occur.
San Jacinto Valley Crownscale	*Atriplex coronata* var. *notatior*	E/- /1B.1/MSHCP (d)	Found in alkaline soils within playas, valley and foothill grasslands (mesic), and vernal pools. Elevations range from 455 to 1,640 ft and blooms between April and August. Threatened by flood control, agriculture, nonnative plants, urbanization, vehicles, road maintenance, and pipeline construction.	HP	Clay soils, foothill grasslands present in the rare plant study area. The project does not occur within the Criteria Area Survey Area for this species; it is fully covered under the Plan. This species was not detected in the rare plant study area during the focused rare plant surveys.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Coulter's Saltbush	*Atriplex coulteri*	-/-/1B.2/-	Known to occur in coastal dunes, coastal bluff scrub, coastal sage scrub, and grassland habitats. Often on ocean bluffs or ridgetops, but also known from low places with some alkalinity. Found in heavy, usually clay soils and often with some alkalinity. Tolerant of some disturbance (e.g., light grazing) but is restricted to intact, natural communities. Elevation ranges from 10 to 1,509 ft. Blooms from March to October. Occurrences within Riverside County are misidentified based on careful reexamination of specimens (Roberts et al. 2004).	HA	Suitable coastal scrub and grassland habitats are present in the rare plant study area; however, there are no confirmed observations of this species within Riverside County, with the nearest record in Orange County. This species does not occur in the geographical area; therefore, this species is not expected to occur.
Parish's Brittlescale	*Atriplex parishii*	-/-/1B.1/ MSHCP (d)	Habitats where species is found include chenopod scrub, alkaline vernal pools, and playas. Blooms from June to October and ranges from 82 to 6232 ft in elevation.	HA	A Criteria Area species (Area 1) for the proposed project. No Suitable chenopod scrub, alkaline vernal pools or playas are present in the rare plant study area. This species is not expected to occur within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Davidson's Saltscale	*Atriplex serenana* var. *davidsonii*	-/-/1B.2/ MSHCP (d)	Found in alkaline soils in scrubs and grasslands from 10 to 820 ft. Within Riverside County; uncommon on alkaline flats along the San Jacinto River, and west of Hemet (Roberts et al. 2004). Associated with Willows, Domino, and Traver soils. Populations known from Upper Salt Creek drainage west of Hemet and along the San Jacinto River floodplain from Mystic Lake south to the Ramona Expressway. May also occur in the vicinity of Nichols Road wetlands at Alberhill and Murrieta Hot Springs. Blooms from May to October.	HP	This species is a Criteria Area species (Area 1) for the proposed project. Suitable habitat is present in the rare plant study area within areas of clay soils that overlap with grassland and scrub habitats. This species was not detected in 2020 in the rare plant study area during the focused rare plant surveys.
California Ayenia	*Ayenia compacta*	-/-/2B.3/-	Found in rocky soils within Mojavean desert scrub and Sonoran Desert scrub. Grows at elevations within 490 and 3,595 ft and blooms between March and April. Occurs in Riverside, San Bernardino, and San Diego Counties.	HA	Suitable desert scrub habitat is not present in the rare plant study area, and the study area is outside the known geographic range for this species. This species in not expected to occur within the rare plant study area.
Malibu Baccharis	*Baccharis malibuensis*	-/-/1B.1/-	This shrub is known only from the Malibu Creek drainage area in the Santa Monica Mountains (Los Angeles County). Elevation range of 197 to 2,133 ft. Blooms in August and September.	HA	Suitable coastal sage habitat is present in the rare plant study area; however the study area is outside of the known geographic range for this species. This species is not expected to occur.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Nevin's Barberry	*Berberis nevinii*	E/E/1B.1/ MSHCP (d)	This evergreen shrub is very rare and local; found on steep north facing slopes or in low-grade sandy washes in chaparral, coastal sage scrub, riparian scrub, and cismontane woodland from 968 ft to 2700 ft. In western Riverside County; known only in the vicinity of Vail Lake (Roberts et al. 2004).	HA	The rare plant study area is not in the vicinity of Vail Lake so Nevin's barberry is not expected to occur. The project does not occur in the Criteria Area Species Survey Area; therefore this species is covered by the MSHCP. As such any potential impacts would be completely mitigated by the MSHCP. No survey is required, and no further action is necessary.
Thread-leaved Brodiaea	*Brodiaea filifolia*	T/E/1B.1/ MSHCP (d)	Found in heavy soils (e.g., clay) in coastal sage scrub, chaparral, cismontane woodland, and vernal pools from 1,575–4,000 ft. Within western Riverside County found in southern Santa Ana Mountains, Santa Rosa Plateau, and alkali flats of the San Jacinto River flood plain and west of Hemet (Roberts et al. 2004).	HP	This species is a Criteria Area species (Area 1) for the proposed project. Heavy clay soils in scrub, chaparral, and woodland habitats are mapped in the rare plant study area. This species was not observed during surveys.
Orcutt's brodiaea	*Brodiaea orcutti*	-/-/1B.1/MSHCP	Grows in mesic, clay soils within closed-cone coniferous forests, chaparral, cismontane woodlands, meadows and seeps, valley and foothill grasslands, and vernal pools. Occurs in elevations between 95 and 5,550 ft, and blooms from May to July.	HA	The rare plant study area is outside of the known geographic range for this species, and it is not expected to occur. This species is fully covered under the MSHCP, and as such any potential impacts would be completely mitigated by the MSHCP.
Santa Rosa Basalt Brodiaea	*Brodiaea santarosae*	-/-/1B.1/-	Known to occur on basaltic soils in valley and foothill grasslands. Grows between 1,850 and 3,430 ft from May to June. Plants were known as possible hybrids between *B. filifolia* and *B. orcuttii* but are now recognized as distinct.	HA	No suitable habitats with basaltic soil are present in the rare plant study area. This species is restricted to the Santa Rosa Plateau; thus, the rare plant study area is outside the known geographic range of this species.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Brewer's Calandrinia	*Calandrinia breweri*	-/-/4.2/-	Occurs in chaparral and coastal scrub in sandy or loamy soils and in disturbed sites and burned areas. Elevations range from 40 to 4,005 ft and flowers bloom as early as January but most often bloom between March to June. Plant appears to be widely scattered but uncommon everywhere.	HP	Suitable coastal scrub habitat and disturbed areas are present in the rare plant study area. This species was not detected in the rare plant study area during the focused rare plant surveys.
Round-leaved Filaree	*California macrophylla*	-/-/-/ MSHCP (d)	Restricted to open cismontane woodland and valley and foothill grassland habitats on very friable deep clay soils between about 50 and 6,560 ft. Within western Riverside County, two of the mapped localities occur on Bosanko clay soils. Records reviewed for this species indicate that this species tends to be associated primarily with Wild Oats (*Avena fatua*).	HP	This species is a Criteria Area species (Area 1) for the proposed project. Wild oat and annual brome grassland habitat and clay soils are present within the rare plant study area. This species was not detected in the rare plant study area during the focused rare plant surveys.
Slender Mariposa Lily	*Calochortus clavatus* var. *gracilis*	-/-/1B.2/-	This perennial herb occurs in shaded foothill canyons within chaparral, coastal scrub, valley and foothill grasslands. Occurs at elevations less than 3,281 ft. Occurs in the Western Transverse Ranges and San Gabriel Mountains. Blooms from March to June.	HA	Suitable coastal scrub habitat is present in the rare plant study area; however, the study area is located outside of the known geographic range of this species. Therefore, this species is not expected to occur.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Catalina Mariposa Lily	*Calochortus catalinae*	-/-/4.2/-	This perennial herb occurs in chaparral, cismontane woodlands, coastal scrub, and valley and foothill grasslands. Occurs at elevations between 45 and 2,295 ft and blooms as early as February, but typically blooms between March and June. This species is threatened by development.	HP	Suitable coastal scrub habitat is present in the rare plant study area. A focused rare plant survey was performed and the species was not detected within the rare plant study area
Plummer's Mariposa Lily	*Calochortus plummerae*	-/-/4.2/ MSHCP (e)	Found on rocky and sandy areas with granitic or alluvial material in coastal sage scrub, chaparral, and valley and foothill grasslands from 295 to 5,280 ft.	HP	Suitable coastal scrub habitat is present within the rare plant study area within coastal scrub with alluvial soils. A focused rare plant survey was performed and the species was not detected within the rare plant study area. This MSHCP covered species will be considered a Covered Species Adequately Conserved when six localities (not smaller than a quarter section with at least 500 individuals) within the MSHCP Conservation Area have been conserved.
Intermediate Mariposa Lily	*Calochortus weedii* var. *intermedius*	-/-/1B.2/ MSHCP	The typical blooming period extends from May to July, and the plant is a perennial. This species is known to occur in dry chaparral, valley grassland and coastal sage scrub. It is often on sandstone outcrops in areas from elevation 590 to 2,805 ft. Soil affinities include sandy or clay soils.	HP	Suitable habitat for this species exists in the chaparral and coastal sage scrub habitats. This species is fully covered under the MSHCP, and as such any potential impacts would be completely mitigated by the MSHCP. No survey is required, and no further action is necessary.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Lucky Morning-Glory	*Calystegia felix*	-/-/1B.1/-	Occurs in meadows and seeps (sometimes alkaline), riparian scrub (alluvial) and is historically associated with wetland and marshy habitats, but possibly can occur in drier situations as well as in silty loam and alkaline soils. Elevations range from 95 to 705 ft and bloom between March and September. All recent occurrences are in irrigated landscapes.	HP	Suitable riparian scrub, wetlands, and marsh habitats are present in the rare plant study area; however, known occurrences of this species are from lower elevations. A focused rare plant survey was performed and the species was not detected within the rare plant study area.
Lewis' Evening-primrose	*Camissonia lewisii*	-/-/3/-	Habitat includes coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grasslands within sandy or clay soils. Severely declining in San Diego County. No known reported sites occur within Riverside County. Blooming typically occurs between March and May but uncommonly extends into June. Occurs at elevations ranging from 0 to 984 ft.	HP	Coastal scrub habitat with clay soils are present in the rare plant study area; however, known occurrences of this species are generally from lower elevations. A focused rare plant survey was performed and the species was not detected within the rare plant study area.
Buxom's Sedge	*Carex buxbaumii*	-/-/4.2/-	Occurs in bogs and fens, meadows and seeps (in mesic climates), and marshes and swamps. Known to occur between elevations of 5 and 10,825 ft, and blooms between March and August. Predominantly threatened by foot traffic.	HA	Although marshes are present in the rare plant study area, this species has only been found in central California and is not known to occur within the region. Therefore, suitable habitat is absent, and the species is not expected to occur.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Payson's Jewelflower	*Caulanthus simulans*	-/-/4.2/MSHCP	Occurs in sandy, granitic soils within chaparral and coastal scrub. Grows between elevations of 295 and 7,220 ft and typically blooms between March and May but can also bloom between February and June. Confused with *C. heterophyllus* var. *pseudosimulans* (unpublished), which is more coastal.	HP	Suitable habitat is present in the rare plant study area within coastal scrub with sandy soils. This species is fully covered under the MSHCP; thus, no focused surveys are warranted.
Southern Tarplant	*Centromadia parryi* ssp. *australis*	-/-/1B.1/-	Found in the margins of marshes and swamps, vernally mesic valley and foothill grasslands, and vernal pools. Blooming typically occurs from April to September and between sea level and 2,100 ft. Many Orange County occurrences, as well as historical occurrences in general, have recently been extirpated.	HP	Suitable marsh habitat is present in the rare plant study area. A focused rare plant survey was performed and the species was not detected within the rare plant study area.
Smooth Tarplant	*Centromadia pungens* ssp. *laevis*	-/-/1B.1/ MSHCP (d)	Found in fine or alkaline soils of seasonally wet chenopod scrub, meadows and seeps, playas, riparian woodland, fallow fields, drainage ditches, and moist situations within valley and foothill grasslands below about 1,575 ft elevation. Tolerant of rural and agricultural land use. Found primarily in southwestern Riverside County, but also a few sites in the interior valleys of San Bernardino, Los Angeles, and San Diego Counties.	HP	Smooth tarplant is a Criteria Area species (Area 1) for the proposed project. Marginally suitable habitat is present in the rare plant study area, but generally lacks the combination of suitable mesic habitat and fine or alkaline soils. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Salt Marsh Bird's-beak	*Chloropyron maritimum* ssp. *maritimum*	E/E/1B.2/-	Occurs within coastal dunes, salt marshes, and coastal swamps, but has been documented inland in the San Bernardino Valley within alkaline meadows (CNDDB 2013). Elevations range from sea level to 99 ft.	HA	No suitable alkaline meadow habitat is present in the BSA, and the study area is outside of the known geographic and elevation range for this species. This species is not expected to occur within the rare plant study area.
Peninsular Spineflower	*Chorizanthe leptotheca*	-/-/4.2/MSHCP (e)	Found on alluvial fans and granitic soils within chaparral, coastal scrub, and lower montane coniferous forests. Elevations range from 980 to 6,235 ft and the species blooms between May and August. Much habitat already lost to development; also threatened by nonnative grasses. Closely related to and difficult to distinguish from *C. staticoides*.	HP	Suitable alluvial and coastal scrub habitat is present in the rare plant study area. A focused rare plant survey was performed, and the species was not detected within the rare plant study area. This MSHCP covered species will be considered a Covered Species Adequately Conserved when 10 localities (not smaller than a quarter section with at least 1,000 individuals) within the MSHCP Conservation Area have been conserved.
San Fernando Valley Spineflower	*Chorizanthe parryi* var. *fernandina*	FC/E/1B.1/-	An annual herb found in sandy areas within mixed grassland and chaparral communities. The species occurs at elevations ranging from 295–1,640 ft. Blooming period is from April to July. This species has a severely limited distribution and is only known in Los Angeles, Orange, and Ventura Counties.	HA	Suitable grasslands and chaparral habitats with sandy soils are present in the rare plant study area, but the rare plant study area is located outside of the known geographic range of this species. This species is not expected to occur within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Parry's Spineflower	*Chorizanthe parryi* var. *parryi*	-/-/1B.1/ MSHCP (e)	Found on dry sandy soils on slopes and flats, within coastal sage scrub and chaparral.	HP	Suitable coastal scrub habitat is present in the rare plant study area. A focused rare plant survey was performed and the species was not detected within the rare plant study area. This MSHCP covered species will be considered a Covered Species Adequately Conserved when 10 localities (not smaller than a quarter section with at least 1,000 individuals) within the MSHCP Conservation Area have been conserved.
Long-spined Spineflower	*Chorizanthe polygonoides* var. *longispina*	-/-/1B.2/MSHCP	Associated primarily with heavy, often rocky, clay soils in southern needlegrass grassland, and openings in coastal sage scrub and chaparral. The species has been described as occurring on sandy and gravelly soil, but this appears to be infrequently the case.	P	This species was observed within the rare plant study area, north of I-15, approximately 35 ft north of the limits of disturbance (LOD), in California Sagebrush – Black Sage, between Nichols Road and Lake Street. This species is fully covered by the MSHCP; thus, any potential impacts would be completely mitigated by the MSHCP. No further action is necessary.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
San Miguel Savory	*Clinopodium chandleri*	-/-/1B.2/ MSHCP(b)	Associated with rocky, gabbroic, and metavolcanic substrates in valley and foothill grassland, coastal sage scrub, chaparral, cismontane woodland, and riparian woodland. The majority of populations and individuals are associated with the Santa Rosa Plateau and the Santa Ana Mountains. Known from 3 miles south of De Luz Road in the Santa Ana Mountains and 3 miles southwest of Murrieta near Warner's Ranch. Expected within the vicinity of the Santa Rosa Plateau, the Hogbacks, and the Santa Ana Mountains. Elevation range for this species is 65–3,530 ft, and blooming period is from March to July.	HA	This is a NEPSA (Areas 1 and 7) for the proposed project. Suitable habitats with rocky, gabbroic or metavolcanic soils are not present in the BSA, and the study area may be too far north for this species. This species is not expected to occur within the rare plant study area.
Serpentine Collomia	*Collomia diversifolia*	-/-/4.3/-	Found in chaparral and cismontane woodlands between 655 and 1,970 ft. Blooming period typically occurs between May and June. Threatened by wind energy development and vehicles.	HA	Within Southern California, this species is only known within Santa Barbara, at one locality. This species is not expected to occur in Riverside County.
Summer Holly	*Comarostaphylis diversifolia* ssp. *diversifolia*	-/-/1B.2/-	Found in chaparral and cismontane woodlands between 95 and 2,590 ft. Blooming period typically occurs between April and June. Threatened by development, urbanization, and gravel mining.	HP	Marginally suitable chaparral habitat is present within the rare plant study area. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Small-flowered Morning-glory	*Convolvulus simulens*	-/-/4.2/-	Grows in clay and serpentinite seeps within chaparral openings, coastal scrub, and valley and foothill grasslands. Elevations range from 95 to 2,430 ft, and blooming period occurs between March and July. Rare in Southern California. Threatened by development and vehicles.	HP	Suitable coastal scrub habitat with clay soil is present in the rare plant study area. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Snake Cholla	*Cylindropuntia californica* var. *californica*	-/-/1B.1/-	Typically grows in chaparral and coastal scrub habitat at elevations ranging from 95 to 490 ft. Blooming takes place between April and May. Threatened by development and vehicles.	HP	Suitable coastal scrub habitat is present in the rare plant study area. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Paniculate Tarplant	*Deinandra paniculata*	-/-/4.2/-	This annual herb has a limited distribution, with the species known from Orange, western Riverside, southwestern San Bernardino, and southwestern San Diego Counties. It regularly grows in mesic conditions within sage scrub, valley and foothill grassland, and vernal pools but can also occur in dry nonnative grasslands. Blooming period is April through November.	HP	Suitable coastal scrub and grassland habitat is present in the rare plant study area.
Western Dichondra	*Dichondra occindentalis*	-/-/4.2/-	Found in chaparral, cismontane woodland, coastal scrub, and valley and foothill grasslands. Elevations range from 160 to 1,640 ft, and blooming occurs from March to July but can occur as early as January.	HA	Suitable coastal scrub habitat is present in the rare plant study area; however, the study area is outside of the known geographic range for this species.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Cleveland's Bush Monkeyflower	*Diplacus clevelandii*	-/-/4.2/-	Known to grow within gabbroic and rocky soils, often in openings and disturbed areas within chaparral, cismontane woodlands, and lower montane coniferous forests. Elevations range from 1,475 to 6,560 ft, and blooming typically occurs between April and July.	HA	No Suitable habitats with gabbroic or rocky soils are present in the rare plant study area. This species is not expected to occur within the rare plant study area.
Slender-horned Spineflower	*Dodecahema leptoceras*	E/E/1B.1/ MSHCP (b)	Found on flood deposited fine sand terraces and washes in Riversidian alluvial fan sage scrub from 656 to 2,493 ft. Also associated with cismontane woodland and chaparral having suitable hydrology and fine sands.	HP	This species is a NEPSA (Area 1) for the proposed project. Suitable Riversidian alluvial fan sage scrub and chaparral habitat is present in the rare plant study area. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Many-stemmed Dudleya	*Dudleya multicaulis*	-/-/1B.2/ MSHCP (b)	Found on the coastal slopes of southern California from Los Angeles and San Bernardino Counties south, from about 50 to 2,600 ft in elevation. It usually grows on poor soils, often on clay or at the margins of gabbroic rock outcrops in coastal sage scrub and grassland communities.	HP	This species is a NEPSA (Area 1) for the proposed project. Suitable coastal scrub habitat is present with clay soils. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Santa Monica Dudleya	*Dudleya cymosa* ssp. *ovatifolia*	T/-/1B.2/-	This perennial herb is found in chaparral and coastal sage scrub on volcanic and rocky sedimentary soils. Known to occur at elevations of 500 to 5,400 ft.	HA	No suitable habitats with rocky or volcanic soils are present in the rare plant study area. This species is typically found on the coastal slopes in Los Angeles and Orange Counties, and is not expected to occur with the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Sticky Dudleya	*Dudleya viscida*	-/-/1B.2/ MSHCP (f)	Grows on rocky soils within coastal bluff scrub, chaparral, cismontane woodlands, and coastal scrub. Elevations range from 30 to 1,805 ft, and blooming occurs between May and June. Threatened by development and road construction.	HA	Rocky soils are not present within the rare plant study area. Species is fully covered by the MSHCP; thus, any potential impacts on this species would be fully mitigated by the plan; no survey is required. No further action is necessary, as the project does not occur within Forest Service lands.
Santa Ana River Woollystar	*Eriastrum densifolium* ssp. *sanctorum*	E/E/1B.1/ MSHCP	A perennial herb known from a single extended but heavily fragmented population in Riverside and San Bernardino Counties; it formerly extended into Orange County. An inhabitant of alluvial fan sage scrub in sandy to gravelly soils and typically blooms during the period of June through August. Can be found from 450 to 2,000 ft.	HA	This species is not expected as the Santa Ana River is not within the rare plant study area. Species is fully covered by the MSHCP; thus, any potential impacts on this species would be fully mitigated by the plan; no survey is required. No further action is necessary.
San Diego Button-Celery	*Eryngium aristulatum* var. *parishii*	E/E/1B.1/ MSHCP	Found in mesic climates in coastal scrub, valley and foothill grasslands, and vernal pools on the Santa Rosa Plateau. Grows at an elevation between 65 and 2,035 ft and blooms between April and June. Threatened by agriculture, urbanization, road maintenance, grazing, vehicles, illegal dumping, nonnative plants, and foot traffic.	HA	The rare plant study area lacks suitable habitat for this species, as it is only found within the vernal pools of the Santa Rosa Plateau. This species is not expected to occur in the rare plant study area. This species is fully covered under the MSHCP and as such any potential impacts would be completely mitigated by the MSHCP.
Palomar Monkeyflower	*Erythranthe diffusa*	-/-/4.3/-	Occurs in sandy or gravelly soils within chaparral and lower montane coniferous forests. Grows between 4,000 and 6,005 ft and blooms between April and June. Threatened by recreational activities and development.	HA	The rare plant study area is outside the elevation range for this species. No lower montane coniferous forests are present in the rare plant study area, and the study area occurs well outside the species' geographic and elevation range. This species is not expected to occur in the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Campbell's Liverwort	*Giothallus tuberosus*	-/-/1B.1/-	Occurs within coastal scrub (mesic climates) and vernal pools between f 30 and 1,970 ft. Most suitable historic habitat has been lost to urbanization.	HP	Marginally suitable coastal scrub habitat is present in the rare plant study area. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Palmer's Grapplinghook	*Harpagonella palmeri*	-/-/4.2/MSHCP	Found within chaparral, coastal scrub, and valley and foothill grasslands. Often associated with clay soils. Occurs at elevations of 65 to just over 3,130 ft. Blooming period begins in March and ends in May.	HP	Suitable habitat including chaparral, and coastal scrub habitat with clay soils is present in the rare plant study area. Species is fully covered by the MSHCP; thus, any potential impacts on this species would be fully mitigated by the plan; no survey is required. No further action is necessary.
Tecate Cypress	*Hesperocyparis forbesii*	-/-/1B.1/-	A perennial evergreen tree found within closed-cone coniferous forest and chaparral. Elevation range of 427–4,921 ft.	HA	No suitable closed-cone coniferous forest or chaparral with suitable soils are present in the rare plant study area. This species is not expected to occur in the rare plant study area.
Gowen Cypress	*Hesperocyparis goveniana*	-/-/1B.2/-	A perennial evergreen tree found within closed-cone coniferous forest and maritime chaparral. Elevation range of 100 to 985 ft.	HA	No suitable closed-cone coniferous forest or maritime chaparral with suitable soils are present in the rare plant study area. This species is not expected to occur in the rare plant study area.
Graceful Tarplant	*Holocarpha virgata* ssp. *elongata*	-/-/4.2/MSHCP (e)	Occurs in chaparral, cismontane woodlands, coastal scrub, and valley and foothill grasslands. Elevations range from 15 to 3,280 ft, and flowers bloom from May to November. Known only in Riverside County from the Santa Rosa Plateau. Potentially threatened by development.	HP	Suitable habitat is present in the rare plant study area within coastal scrub and grasslands. A focused rare plant survey was performed, and the species was not detected within the rare plant study area. This MSHCP covered species will be considered a Covered Species Adequately Conserved when 10 localities (not smaller than a quarter section with 1,000 individuals each) within the MSHCP Conservation Area have been conserved.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Vernal Barley	*Hordeum intercedens*	-/-/3.2/MSHCP	Associated with mesic grasslands, vernal pools, and large saline flats or depressions. In Riverside County, found in the Domino, Willows, and Traver soils series and is associated with alkali flats and flood plains within the alkali vernal plains community. Within this community vernal barley is primarily associated with alkali annual grasslands and vernal pools and to a lesser extent alkali scrub and alkali playa.	HA	No vernal pools are present within the rare plant study area. Species is fully covered by the MSHCP; thus, any potential impacts on this species would be fully mitigated by the plan; no survey is required. No further action is necessary.
Mesa Horkelia	*Horkelia cuneata* ssp. *puberula*	-/-/1B.1/-	This perennial herb blooms from February until September. It grows in sandy and gravelly soils in chaparral, cismontane woodland, or coastal scrub at elevations from 230 to 2,657 ft.	HP	Suitable habitat is present in the rare plant study area within coastal scrub. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
California Satintail	*Imperata brevifolia*	-/-/2B.1/-	Found in mesic climates within chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkali), and riparian scrub. Can occur up to 3,985 ft and bloom between September and May. Threatened by development and agriculture.	HP	Suitable habitat is present in the rare plant study area within coastal and riparian scrub. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Southern California Black Walnut	*Juglans californica*	-/-/4.2/-	Found in alluvial areas within chaparral, cismontane woodlands, coastal scrub, and riparian woodlands. Known to occur between 160 and 2,955 ft, and bloom from September to May. Walnut forest is a much fragmented, rare, and declining vegetation community. Threatened by urbanization, grazing, nonnative plants, and possibly by lack of natural reproduction.	HP	Suitable habitat is present in the rare plant study area within coastal scrub and riparian woodlands. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Southwestern Spiny Rush	*Juncus acutus* ssp. *leopoldii*	-/-/4.2/-	Occurs in coastal dunes (in mesic climates), meadows and seeps (alkaline seeps), and marshes and swamps (coastal salt). Can grow from 5 to 2,955 ft and bloom as early as March, but typically blooms from May to June.	HP	Marginally Suitable habitat is present in the rare plant study area within marsh habitat. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Santa Lucia Dwarf Rush	*Juncus luciensis*	-/-/1B.2/-	Occurs in wetlands and wetland-riparian areas. Found in wet areas such as vernal pools, seeps, streambanks, and meadows, in chaparral, Great Basin scrub, and lower montane coniferous forests. Grows between 980 and 6,695 ft, and blooms from April to July.	HP	Chaparral habitat with wet areas present in the rare plant study area. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Coulter's Goldfields	*Lasthenia glabrata* ssp. *coulteri*	-/-/1B.1/ MSHCP (d)	Wide-ranging herb in southern California, with known occurrences including Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties, among others. This is an annual herb, blooming from February through June. Floodplains (seasonal wetlands) dominated by alkali scrub, alkali plays, vernal pools, and alkali grasslands provide potential habitat for this species. Found on clay and alkaline, silty-clay soils. In Riverside County, primarily restricted to alkali floodplains of the San Jacinto River, Mystic Lake, and Salt Creek in association with Willows, Domino, and Traver Soils. Also known in the alkali flats between Alberhill and Lake Elsinore. Found in grasslands, playas, and vernal pools in these areas, below about 4,002 feet.	HP	This species is a Criteria Area species (Area 1) for the proposed project. Suitable habitat is present within the rare plant study area. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Heart-leaved Pitcher Sage	*Lepechinia cardiophylla*	-/-/1B.2/MSHCP (d)	Species is a perennial shrub and occurs in closed-cone coniferous forest, chaparral, and cismontane woodland. Species occurs at elevations ranging from 1,280–4,199 ft and blooms from April to July. Within Riverside County, restricted to the Santa Ana Mountains (Sierra Peak, Indian Truck Trail, Bald Peak, Trabuco Peak, Horsethief Trail, Pleasants Peak, and between Ladd Canyon and East Fork Canyon) and primarily within U.S. Forest Service Lands.	HA	Not within the required MSHCP survey area for this species and also not within the current known range for this species. This species is not expected to occur within the rare plant study area. While this is a Criteria Area species, surveys for this species are not required within the rare plant study area.
Robinson's Pepper-Grass	*Lepidium virginicum* var. *robinsonii*	-/-/1B.2/-	Found in dry soils in chaparral and coastal sage scrub openings up to 3,100 ft.	HP	Suitable habitat is present in the rare plant study area within coastal sage scrub. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Ocellated Humbolt Lily	*Lilium humboltii* ssp. *ocellatum*	-/-/4.2/ MSHCP (f)	This perennial herb occurs in openings in riparian corridors in coniferous forests, oak woodlands and chaparral from 95 to 5,905 ft. Typically occurs on lower stream benches, but can occur on shaded, dry slopes, beneath a dense coniferous canopy and cismontane oak woodland. Most populations are in the Santa Ana Mountains or the north slope of the Palomar Mountains, but the species is known from Cleveland and San Bernardino Forest in low-elevation riparian areas and seeps of chaparral canyons. Blooming occurs between March and July or as late as August.	HP	Suitable habitat is present in the rare plant study area within chaparral and coastal sage scrub. Historic occurrences in Horse Thief Canyon. Surveys for this species are only necessary within Forest Service lands; therefore, this species is fully covered in the rare plant study area, and no surveys are warranted.
Lemon Lily	*Lilium parryi*	-/-/1B.2/ MSHCP (f)	This perennial herb occurs in mesic climates within lower montane coniferous forests, meadows and seeps, riparian forests, and upper montane coniferous forests. Flowers bloom from July to August at elevations of 4,000 to 9,005 ft.	HA	No suitable habitat is present within the rare plant study area, and the study area occurs well outside the species geographic and elevation range. This species is not expected to occur within the rare plant study area. Surveys for this species are only necessary within Forest Service lands; therefore, this species is fully covered in the study area, and no surveys are warranted.
Parish's Meadowfoam	*Limnanthes alba* ssp. *parishii*	-/E/1B.2/ MSHCP	This annual herb grows in vernally mesic climates within lower montane coniferous forests, meadows and seeps, and vernal pools. Flowers bloom from April to June between elevations of 1,965 and 6.560 ft.	HA	This species is fully covered under the MSHCP, and as such any potential impacts would be completely mitigated by the MSHCP. No suitable habitat is present within the rare plant study area, and the study area occurs well outside the species geographic and elevation range. This species is not expected to occur within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Small-Flowered Microseris	*Microseris douglasii* ssp. *platycarpha*	-/-/4.2/ MSHCP (e)	This annual herb is found in clay soils in cismontane woodlands, coastal scrub, valley and foothill grasslands, and vernal pools. Elevations range from 45 to 3,510 ft, and flowers bloom from March through May.	HP	Suitable habitat is present in the rare plant study area within coastal scrub and grasslands. A focused rare plant survey was performed, and the species was not detected within the rare plant study area. This species is considered Covered Species Adequately Conserved under the MSHCP, therefore is afforded full coverage under the Plan.
Jokerst's Monardella	*Monardella australis* ssp. *jokerstii*	-/-/1B.1/-	This perennial herb occurs on steep scree or talus slopes between breccia and in secondary alluvial benches along drainages and washes. Habitats include chaparral and lower montane coniferous forests. Flowers bloom between July and September at elevations of 4,425 and 5,740 ft.	HA	No suitable habitat is present within the rare plant study area (not at a suitable elevation), and the study area occurs well outside the species geographic and elevation range. This species is not expected to occur within the rare plant study area.
Intermediate Monardella	*Monardella hypoleuca* ssp. *intermedia*	-/-/1B.3/-	This perennial herb can be found within the understory of chaparral, cismontane woodland, and less frequently in lower montane coniferous forests. It occurs at elevations ranging from 984 – 3,510 ft. The species is in bloom from June to August.	HP	Marginally suitable chaparral is present in the rare plant study area. Known observations of this species in Riverside County are rare and generally within the Santa Ana Mountains and Santa Rosa Plateau, with one observation at the base of Palomar Mountain. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Felt-leaved Monardella	*Monardella hypoleuca* ssp. *lanata*	-/-/1B.2/-	This perennial herb blooms from June to August. It occurs in chaparral, cismontane woodland, and on rocky, granitic slopes or hilltops, from 984 to 4,921 ft.	HP	Marginally suitable chaparral is present in the rare plant study area. Known observations of this species in Riverside County are rare and generally within the Santa Ana Mountains and Santa Rosa Plateau, with one observation at the base of Palomar Mountain. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Hall's Monardella	*Monardella macrantha* ssp. *hallii*	-/-/1B.3/ MSHCP	This perennial herb blooms from June through August and is found in chaparral, cismontane woodland, lower montane conifer forest, broadleaved upland forest, and valley/foothill grassland, from about 2,394 to 7,200 ft. Within Riverside County, the species is uncommon on north-facing slopes in chaparral or conifer forest; found in the Santa Ana and Agua Tibia Mountains.	HA	The project occurs outside of the species elevation range. In addition, this is a fully covered species under the MSHCP and as such any potential impacts on the species are fully mitigated by the plan; no survey is required. No further action is required.
Little Mousetail	*Myosurus minimus* ssp. *apus*	-/-/3.1/ MSHCP (d)	Occurs in association with vernal pools and within the alkali vernal pools and alkali annual grassland components of alkali vernal plains. Little Mousetail is found in areas that have semiregular inundation. Within Riverside County the species is locally common in the alkaline vernal pools near Hemet; otherwise, scarce and local in Perris Basin and Santa Rosa Plateau (Roberts et al. 2004).	HA	This species is a Criteria Area species (Area 1) for the proposed project. No suitable alkaline soils or vernal pools are present in the rare plant study area. Seasonal ponds identified within the study area do not provide the alkaline conditions suitable for this species. This species is not expected to occur.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Mud Nama	*Nama stenocarpum*	-/-/2.2/ MSHCP (d)	This herb blooms from January to July. It inhabits marshes and swamps, such as at lake margins and riverbanks, and grows at elevations ranging from 16 to 1,640 ft. Within Riverside County only known from the northern shores of Mystic Lake (Roberts et al. 2004).	HA	Known only from Mystic Lake, so not expected in rare plant study area. The project study area lies outside the MSHCP survey area for this species; thus, there is no survey requirement. Any potential impacts on this species would be fully mitigated by the MSHCP. No further action is necessary.
Spreading Navarretia	*Navarretia fossalis*	T/-/1B.1/ MSHCP (b)	Associated with vernal pools and depressions and ditches in areas that once supported vernal pools. In western Riverside County, Spreading Navarretia has been found in relatively undisturbed and moderately disturbed vernal pools, within larger vernal floodplains dominated by annual alkali grassland or alkali playa. The alkali vernal playa/pool habitat found in the Hemet area is based primarily on silty clay soils in the Willows and Travers series. These soils are usually saline-alkaline in nature and reliably pond water for long durations.	HA	This is a NEPSA (Area 1) for the proposed project. No suitable alkaline soils or vernal pools are present in the rare plant study area. This species is not expected to occur within the rare plant study area. Seasonal ponds identified within the study area do not provide the alkaline conditions suitable for this species.
Prostrate Vernal Pool Navarretia	*Navarretia prostrata*	-/-/1B.1/ MSHCP (d)	This annual herb is found in mesic environments such as vernal pools, meadows, seeps, and alkaline grasslands. Within Riverside County local to Santa Rosa Plateau (Roberts et al. 2004)	HA	The project site lacks alkaline soils or vernal pools in which this species is endemic. The project lies outside the MSHCP survey area for the species; therefore, there is no survey requirement. Any potential impacts on the species would be fully mitigated by the MSHCP. No further action is necessary.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Peninsular Nolina	*Nolina cismontana*	-/-/1B.2/-	Inhabits sandstone or gabbro soils in chaparral and coastal scrub at elevations of 459 to 4,182 ft. It is found in mountainous areas along the coast such as Ventura, Matilija, Thousand Oaks, Calabasas, San Juan Capistrano, Santiago Peak, Pala, Sitton Peak, Pechanga, and Viejas Mountains.	HA	No suitable habitats with sandstone or gabbro soils are present in the rare plant study area, and the project occurs outside of the known geographic range for this species. This species is not expected to occur.
California Orcutt Grass	*Orcuttia californica*	E/E/1B.1/ MSHCP (b)	Restricted to the deeper portions of undisturbed vernal pools. In Riverside County, this species is found in southern basaltic claypan vernal pools at the Santa Rosa Plateau and alkaline vernal pools as at Skunk Hollow and at Salt Creek west of Hemet.	HA	This is a NEPSA (Area 1) for the proposed project. Vernal pools are not present in the study area. Although seasonal ponds were identified, the project lacks deep vernal pools. This species is not expected to occur within the rare plant study area.
California Beardtongue	*Penstemon californicus*	-/-/1B.2/-	Found in sandy soils within chaparral, lower montane coniferous forests, and pinyon and juniper woodlands between 3,835 and 7,545 ft. Typically flowers between May and June, though can flower as late as August.	HA	The rare plant study area is located outside of the known geographic and elevation range of this species. This species is not expected to occur.
Allen's pentachaeta	*Pentachaeta aurea ssp. allenii*	-/-/1B.1/-	An annual herb occurring at elevations ranging from 164-1,640 ft. Occurs in openings within coastal scrub, southern oak woodland, and valley and foothill grassland. The blooming period occurs from March to June.	HA	This species is not expected to occur as the rare plant study area is outside the known geographic range of this species.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Hubby's Phacelia	*Phacelia hubbyi*	-/-/4.2/-	Annual herb that occurs within chapparal, coastal scrub, and valley and foothill grasslands. Elevation ranges from 0 to 3,280 ft and typically blooms from April to July.	HA	This species is not expected to occur as the rare plant study area is outside the known geographic range of this species. This species is known to occur mainly in coastal areas in Santa Barbara, Ventura, Los Angeles, and Orange Counties, with some observed in Kern County.
Santiago Peak Phacelia	*Phacelia keckii*	-/-/1B.3/-	Annual herb the occurs within closed-cone coniferous forests and chaparral. Flowers bloom between May and June and grow from 1,785 to 5,250 ft. Known only from the Santa Ana and Agua Tibia Mountains.	HA	This species is only known to occur on Santiago Peak, and the study area is at a lower elevation, so this species is not expected to occur in the rare plant study area.
Brand's Phacelia	*Phacelia stellaris*	-/-/1B.1/ MSHCP (b)	This species occurs within coastal dunes and coastal scrub habitats at elevations ranging between 3 and 131 ft. Blooms from March through June. Local documentation along the Santa Ana River (CNPS 2006). Suitable habitat for Brand's phacelia includes coastal dunes and/or coastal scrub in sandy openings, sandy benches, dunes, sandy washes, or flood plains of rivers and is restricted to clay soils at elevations between 0 and 1,350 ft. (Dudek 2003).	HP	This is a NEPSA (Area 7) for the proposed project. Suitable sandy wash habitat is present within the rare plant study area. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Woolly Chaparral-Pea	*Pickeringia montana* ssp. *tomentosa*	-/-/4.3/-	Evergreen shrub found in gabbroic, granitic, and clay soils within chaparral habitat. Can occur up to 5,575 ft and blooms from May to August.	HP	Chaparral habitat with clay soils present in the rare plant study area. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Chaparral Rein Orchid	*Piperia cooperi*	-/-/4.2/-	Perennial herb found in generally dry sites in shrubland, chaparral, cismontane woodlands, and valley and foothill grasslands. Can occur from 45 to 5,200 ft and is known to bloom between March and June.	HP	Suitable chaparral and grassland habitat is present in the rare plant study area. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Narrow-Petaled Rein Orchid	*Piperia leptopetala*	-/-/4.3/-	Perennial herb occurring in generally dry sites in shrublands, cismontane woodlands, lower montane coniferous forests, and upper montane coniferous forests. Occur at elevations from 1,245 and 7,300 ft and bloom from May to July.	HA	No suitable habitat is present within the rare plant study area. The project is located outside of the known geographic range of the species. This species is not expected to occur within the rare plant study area.
Fish's Milkwort	*Polygala cornuta* var. *fishiae*	-/-/4.3/ MSHCP (e)	This deciduous shrub blooms from May to August in oak woodland, chaparral, cismontane woodland, and riparian woodland habitats from about 328 to 3,608 ft. It is known from occurrences in Los Angeles, Orange, Riverside, Santa Barbara, San Diego, and Ventura Counties and from Baja California, Mexico.	HP	Suitable habitat is present in the rare plant study area within oak woodland, chaparral, and riparian woodlands. This MSHCP covered species will be considered a Covered Species Adequately Conserved when 10 localities (at least 50 individuals) within the MSHCP Conservation Area have been conserved. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
White Rabbit-tobacco	*Pseudognaphalium leucocephalum*	-/-/2B.2/-	This perennial herb is found in dry, sandy creek bottoms within chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats; often on sandy or gravelly soils; in San Timoteo Canyon and Santa Ana Mountains; appears restricted to the sandy margins of washes or with debris cones feeding from steep canyons and natural, seasonal hydrology.	HP	Suitable habitat is present in the rare plant study area in sandy washes within coastal scrub, riparian, and broom scale scrub habitats. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Nuttall's Scrub Oak	*Quercus dumosa*	-/-/1B.1/-	Grows in sandy, clay soils within closed-cone coniferous forests, chaparral, and coastal scrub from 45 to 1,310 ft. Typically blooms from February to April but can bloom as late as May.	HP	Suitable habitat is present in the rare plant study area within coastal scrub and chaparral habitat with clay soils. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Engelmann Oak	*Quercus engelmannii*	-/-/4.2/-	Found in chaparral, cismontane woodlands, riparian woodlands, and valley and foothill grasslands. Elevations range from 160 to 4,265 ft, and flowers bloom from March to April. Protected in part of the Santa Rosa Plateau Reserve in Riverside County.	HP	Suitable habitat is present within the rare plant study area within the woodlands, chaparral, and grassland habitat. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Coulter's Matilija Poppy	*Romneya coulteri*	-/-/4.2/ MSHCP (e)	Often found in burn areas within chaparral and coastal scrub at 65 to 3,935 ft. Flowers typically bloom from March to July but can bloom as late as August.	HP	Suitable habitat occurs within coastal scrub and disturbed habitats. This MSHCP covered species will be considered a Covered Species Adequately Conserved when 30 localities (not smaller than a quarter section) within the MSHCP Conservation Area have been conserved.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Southern Mountains Skullcap	*Scutellaria bolanderi* ssp. *austromontana*	-/-/1B.2/-	Found in mesic climates within chaparral, cismontane woodlands, and lower montane coniferous forests. Occurs at elevations of 1,390 and 6,560 ft, and flowers bloom between June and August.	HA	Marginally suitable chaparral habitat is present within the rare plant study area; however, the study area is outside of the known geographic range for this species.
Chaparral Ragwort	*Senecio aphanactis*	-/-/2.2/-	Found in chaparral, cismontane woodland, and coastal scrub habitats from 49 to 2,625 ft. Also associated with alkaline soils.	HP	Suitable habitat is present in the rare plant study area within coastal scrub and chaparral habitats. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Hammitt's Clay-cress	*Sibaropsis hammittii*	-/-/1B.2/ MSHCP (b)	This species occurs in openings in chaparral and valley and foothill grassland habitat from 2,365 to 3,495 ft in elevation. This species is associated with clay soils. The blooming period is from March to April.	HA	This is a NEPSA (Area 1) for the proposed project. The rare plant survey area is outside of the known geographic and elevation range for this species. This species is not expected to occur within the rare plant study area.
Salt Spring Checkerbloom	*Sidalcea neomexicana*	-/-/2.2/-	Found thinly scattered throughout Southern California, including Los Angeles, Ventura, Orange, and Riverside Counties as well as Baja California. The documented elevation range in California is 49 to 5,018 ft. This species is associated with alkaline meadows and is typically found associated with Salt Grass (*Distichlis spicata*). Within Riverside County, the species is scarce and tied to alkaline seeps and springs; perhaps extirpated (Roberts et al. 2004).	HA	No suitable alkaline meadows or seeps are present within the rare plant survey area. This species is not expected to occur.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Bottle Liverwort	*Sphaerocarpos drewei*	-/-/1B.1/-	Ephemeral liverwort that grows in openings within chaparral and coastal scrub at elevations of 295 to 1,970 ft. Much of the suitable historic habitat has been lost to urbanization.	HP	Suitable habitat is present within the rare plant study area within coastal scrub and chaparral. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
San Bernardino Aster	*Symphyotrichum defoliatum*	-/-/1B.2/-	Found in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and valley and foothill grassland. Also, near ditches and stream springs. Blooms from July to November at elevations from 6 to 6,700 ft.	HP	Suitable habitat is present in the rare plant study area within coastal scrub, marshes and grasslands. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Parry's Tetracoccus	*Tetracoccus dioicus*	-/-/1B.2/-	Found in chaparral and coastal sage scrub. Grows at elevations of 540 to 3,280 ft and blooms between April to May.	HP	Suitable habitat is present in the rare plant study area within coastal scrub and chaparral. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.
Woven-Spored Lichen	*Texosporium sancti-jacobi*	-/-/3/-	Found in openings within chaparral on soil, small mammal pellets, dead twigs, and on *Selaginella* spp. Added to CRPR 3 based on prior inclusion in CNDDB; CALS Conservation Committee sponsorship is pending.	HP	Suitable habitat is present in the rare plant study area within chaparral. A focused rare plant survey was performed, within suitable habitat and the species was not detected within the rare plant study area.
California Screw Moss	*Tortula californica*	-/-/1B.2/-	This moss occurs in sandy soil in chenopod scrub and valley and foothill grassland. Elevation range of 33 to 4,790 ft.	HP	Grassland and sandy soils present in the rare plant study area. A focused rare plant survey was performed, and the species was not detected within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Wright's Trichocoronis	*Trichocoronis wrightii* var. *wrightii*	-/-/2.1 MSHCP(b)	In western Riverside County, found in the alkali vernal plains and associated with alkali playa, alkali annual grassland, and alkali vernal pool habitats. This species occupies the more mesic portions of these habitats.	HA	This is a NEPSA (Area 1) for the proposed project. There are vernal pools in the rare plant study area, and this species is not expected to occur within the rare plant study area.
San Diego County Viguiera	*Viguiera laciniata*	-/-/4.3/-	A perennial shrub that is found within chaparral and coastal scrub habitats. This grows between 195 and 2,460 ft and typically blooms between February and June. This is locally common in San Diego County, and occurrences outside of this area are typically introduced.	HA	No suitable coastal bluffs and chaparral are present within the rare plant study area. This species is not expected to occur within the rare plant study area.
La Purisima Viguiera	*Viguiera purisime*	-/-/2B.3/	Found in coastal bluff scrub and chaparral. Grows from 1,195 to 1,395 ft and blooms between April and September. Known in California from a single disjunct population on Camp Pendleton. Possibly threatened by military activities.	HA	No suitable coastal bluffs and chaparral are present within the rare plant study area. This species is known to be restricted to habitats on Camp Pendleton. This species is not expected to occur within the rare plant study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
INVERTEBRATES					
Crotch Bumble Bee	*Bombus crotchii*	-/SC/-/-	Nests underground. Coastal California east to the Sierra–Cascade crest and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia*, and *Eriogonum*. In California, this species inhabits open grassland and scrub habitats. Nests in the ground, using abandoned rodent burrows or similar cavities, or above ground in logs or similar structures.	HP	Open grassland and scrub habitats are present in the BSA. This species is unlikely to occur in the LOD due to the disturbed nature of the LOD, but could occur in the BSA. Indirect effects to this species are therefore possible.
Vernal Pool Fairy Shrimp	*Branchinecta lynchi*	T/-/-/MSHCP (a)	Restricted to seasonal vernal pools. The vernal pool fairy shrimp prefers cool water pools that have low to moderate dissolved solids, are unpredictable, and often short-lived.	HP	Wet and dry season focused surveys were performed. The species was not detected within the study area during focused surveys.
San Diego Fairy Shrimp	*Branchinecta sandiegonensis*	E/-/-/-	A commonly found fairy shrimp on coastal mesas of San Diego County. Also documented within Orange and Riverside Counties but not as frequently. Occurs within shallow (< 30 centimeters deep), unpredictable, and seasonally astatic pools (Erikson & Belk 1999). Soils where species has been found are often associated with chaparral, coastal sage scrub, and annual grasslands.	HP	Wet and dry season focused surveys were performed. The species was not detected within the study area during focused surveys.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Monarch (California overwintering population)	*Danaus plexippus* pop. 1	FC/-/-/-	Overwintering groves trees include Monterey pine (*Pinus radiata*) Monterey cypress (*Cupressus macrocarpa*), Coast redwood (*Sequoia sempervirens*), coast live oak (*Quercus agrifolia*), Douglas fir (*Pseudotsuga menzesii*), Torrey pine (*Pinus torreyana*), western sycamore (*Platanus racemosa*), bishop pine (*Pinus radiata*) and others. Monarchs are reliant on milkweeds (*Asclepias* spp.) as host plants for caterpillars and adults require a diverse range of flowers for nectar as fuel during breeding.		Suitable potential habitat for overwintering monarchs is present in the BSA. Overwintering groves tree species are present in the BSA, including coast live oak and western sycamore. The BSA does not overlap with any known mapped overwintering groves for monarch (https://www.westernmonarchcount.org/find-an-overwintering-site-near-you/) Flowering plant species within grasslands and shrublands in the BSA provide nectar sources for adult monarchs. Milkweeds are required for host plants for caterpillars. There are no *Asclepias* spp. noted in the BSA.
Quino Checkerspot Butterfly	*Euphydryas editha quino*	E/-/-/MSHCP	Habitat associations seem to be tied to both host plant species and topography. Larvae feed on *Plantago erecta*, *Plantago patagonia*, *Antirrhinum coulterianum*, *Cordylanthus rigidus* (and possibly other *Plantago* species), and *Collinsia concolor* and *Castilleja exserta*. Adults nectar mostly on small annuals; often occur on open or sparsely vegetated rounded hilltops, ridgelines, and occasionally rocky outcrops. Habitat components have been found in association with, but not restricted to, vernal pools, sage scrub, chaparral, native and nonnative grassland, and open oak and juniper woodland communities. The key component seems to be open-canopied habitats.	HP	Suitable habitat is present throughout the study area. *Plantago erecta* is present in the study area, but the majority of the study area is flat, with few hilltops or ridgelines and no rocky outcrops. Thus, there is low potential for Quino checkerspot butterfly to occur within the study area. Because this species is fully covered by the MSHCP, there is no survey requirement.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Santa Rosa Plateau Fairy Shrimp	*Linderiella santarosae*	-/-/-/MSHCP (a)	Restricted to cool water vernal pools that are formed on Southern basalt flows. This species is known to occur only on the Santa Rosa Plateau.	HA	The study area is not within the Santa Rosa Plateau. Santa Rosa Plateau fairy shrimp are not expected to occur.
Delhi Sands Flower-loving Fly	*Rhaphiomidas terminatus abdominalis*	E/-/-/MSHCP	Found within 12 disjunct locations within the cities of Colton, Rialto, and Fontana. Only found in areas with Delhi sands and is typically associated with the following native plants: California Buckwheat (*Eriogonum fasciculatum*), Telegraph Plant *(Heterotheca grandiflora*), and California Croton (*Croton californica*). Low tolerance to disturbances.	HA	No Delhi sands habitats occur within the BSA. Additionally, the BSA is outside the known range of the species. Thus, there is no potential for the Delhi sands flower-loving fly to occur within the BSA.
Riverside Fairy Shrimp	*Streptocephalus woottoni*	E/-/-/MSHCP (a)	Restricted to deep seasonal vernal pools, vernal pool-like ephemeral ponds, and stock ponds and other human-modified depressions. Species prefers warm water pools that have low to moderate dissolved solids, are less predictable, and remain filled for extended periods of time. Basins that support Riverside fairy shrimp are typically dry a portion of the year, but usually are filled by late fall, winter, or spring rains, and may persist through. All known habitat lies within annual grasslands, which may be interspersed through chaparral or coastal sage scrub vegetation. In Riverside County, found in pools formed over the following soils: Murrieta stony clay loams, Las	HP	Wet and dry season focused surveys were performed. The species was not detected within the study area during focused surveys.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
			Posas series, Wyman clay loam, and Willows soils.		
FISH					
Arroyo Chub	*Gila orcuttii*	**-/**CSC**/**-/MSHCP	Occur within warm, fluctuating streams and found within slow moving sections of streams containing sandy or muddy bottoms. In Riverside County, occurs within the Santa Ana and Santa Margarita River watersheds.	HP	Suitable habitat occurs within Temescal Wash, and the species was previously known to occur in lower Temescal Wash (also known as Temescal Creek), though surveys in the late 1990s found few fish (RCIP. 2003). This species is fully covered under the MSHCP; no focused survey is required.
Santa Ana Sucker	*Catostomus santaanae*	T/CSC/-/MSHCP	Previously, has been found in the Los Angeles, San Gabriel, and Santa Ana River systems of Southern California. Most streams are fairly small and shallow, with currents ranging from swift to sluggish. Streams are subject to periodic severe flooding. Species is abundant where waters are cool and unpolluted, though they can occur where waters are fairly turbid. Often occurs where boulders, rubble, and sand are the main bottom materials and they are associated with growths of filamentous algae and Chara; the species feeds mostly on algae, and detritus; small numbers of aquatic insect larvae are also taken, mostly by the larger individuals (Greenfield et al. 1970).	HA	Santa Ana sucker may have occurred historically in Temescal Wash but has been extirpated (USFWS 2017b). There is currently no suitable habitat for Santa Ana sucker within Temescal Wash and its tributaries (RCRCD 2015). Therefore, the species has no potential to occur within the BSA

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Southern Steelhead-southern California Distinct Population Segment	*Oncorhynchus mykiss*	E/CSC/-/-	An anadromous fish that has physiological tolerances to warm water and changing conditions. Historically occurred throughout coastal drainages of Southern California. South of Los Angeles, the species is now restricted to the San Juan Creek and San Mateo Creek, San Luis Rey River watersheds,	HA	The BSA occurs outside of the species' known extant range. Therefore, this species is not expected to occur in the BSA.
Santa Ana Speckled Dace	*Rhinichthys osculus* ssp. 3	-/CSC/-/-	Formerly widespread in mountain portions of the Santa Ana, San Gabriel, and Los Angeles watersheds. Populations were scattered in foothill areas and rare in lowlands. This subspecies of speckled dace is assumed extirpated from most of the Santa Ana River below Seven Oaks Dam (CDFG 1995, Moyle 2002). They were last seen in the Santa Ana River near Rialto in 2001 (G. Abbas, pers. comm., 2008).	HA	The BSA occurs outside of the current range of this species. Therefore, there is no potential for Santa Ana speckled dace to occur within the BSA.
AMPHIBIANS					

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Coast Range California Newt	*Taricha torosa torosa*	-/CSC/- /MSHCP	Species frequent terrestrial habitats, but breed in ponds, reservoirs, and slow-moving streams. Limited information on movement between wetland sites hampers characterization of requirements at this potentially critical period in the life cycle. Loss of wetland habitats and introduction of nonnative predators, including crayfishes, appear to be the main causes of declines.	HP	Potentially suitable habitat occurs within the BSA near and within wetland and aquatic habitats, as well as in riparian and adjacent upland habitats (chaparral, oak woodland, and grasslands). The BSA is within the species' range; however, regionally, the species is mostly known to occur within the coastal slope and upper elevations of the Santa Ana Mountains (Dudek & Associates, Inc. 2003). Therefore, coast range California newt has a low potential to occur within the BSA. This species is fully covered under the MHSCP; there is no survey requirement.
Western Spadefoot	*Scaphiopus hammondii*	-/CSC/- /MSHCP	Found primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools and seasonal ponds are essential for breeding and egg laying. It is found at sea level to 4,500 ft. in elevation.	HP	Marginally suitable habitat occurs within the BSA in grasslands and woodlands in seasonal ponds, such as along Temescal Wash. This species is fully covered under the MHSCP; there is no survey requirement.
Arroyo Toad	*Anaxyrus californicus*	E/CSC/- /MSHCP (c)	Found in rivers with willows, cottonwoods, and sycamores. This species prefers sandy/gravelly areas in drier parts of its range near washes or intermittent streams with clear standing water that is required for egg deposition.	HP	Potential suitable to marginal habitat may occur within the BSA at Temescal Wash and tributary washes. However, within western Riverside County, arroyo toads are currently only known to occur in the Santa Ana Mountains (in Santiago Creek on the west slope) and south of Lake Elsinore (Nefis 2020, Dudek & Associates, Inc. 2003, USFWS 2009). Therefore, there is only a low potential for the species to occur within the BSA. Project occurs outside of MSHCP survey area for species; no focused survey is required.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
California Red-legged Frog	*Rana draytonii*	T/CSC/-/MSHCP (c)	This large frog inhabits the quiet pools of streams, marshes, and ponds up to about 4,920 feet in elevation. Adults feed on aquatic and terrestrial insects, snails, and a wide variety of other aquatic prey, and will also move up to a mile through riparian communities under wet conditions, such as rainfall. It prefers shorelines with extensive vegetation, and is very vulnerable to the introduction of exotic competitors such as bullfrogs (*Rana catesbeiana*), crayfishes, and a variety of nonnative fishes. Requires pools at least 2 ft deep that stay wetted for 4 to 7 months for reproduction.	HA	No suitable habitat for the species may occur at intermittent wetland and stream habitats within the BSA, such as along Temescal Wash or its tributaries. Pools that are at least 2 ft deep that stay wetted most of the year were not present within the BSA. Historically, California red-legged frog may have occurred in the vicinity of the BSA, such as near Temescal Valley. Currently, the species is only known within western Riverside County at Cole Creek on the Santa Rosa Plateau (Dudek & Associates, Inc. 2003, USFWS 2010). Therefore, considering the restricted known range of the species and lack of suitable habitat within the BSA, California red-legged frog is not expected to occur within the BSA. Project occurs outside of the MSHCP survey area for species; no focused survey is required. If this species is present, it would be covered under the MSHCP.
REPTILES					
Southern California Legless Lizard	*Anniella stebbinsi*	-/CSC/-/-	Habitat is primarily areas with sandy or loose loamy soils under the sparse vegetation of beaches, chaparral, or pine-oak woodland, and open, well-shaded terraces in mature riparian natural communities. Leaf litter is commonly present. Soil disturbances such as agriculture and mining, as well as requirements for soil moisture and relatively cool microclimates limit distribution, and account in part for local declines and extirpations (Jennings and Hayes 1994).	HP	Suitable habitat is present within chaparral, oak woodland, and riparian areas. This species is relatively common throughout western Riverside County, and the number of individuals directly affected is expected to be low (if present). This species was not observed during surveys.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
California Glossy Snake	*Arizona elegans occidentalis*	-/CSC/-/-	Inhabits arid scrub, rocky washes, grasslands, and chaparral habitats.	HP	Suitable habitat is present in grassland and chaparral. This species was not observed during surveys.
Coastal Whiptail	*Aspidoscelis tigris stejnegeri*	-/CSC/-/-	Found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage including chaparral, woodland, and riparian areas.	HP	Suitable habitat is present in chaparral, woodlands, and riparian areas. This species was not observed during surveys.
Southwestern Pond Turtle	*Clemmys marmorata pallida*	-/CSC/-/MSHCP	Found in association with permanent or nearly permanent water in a fairly wide variety of habitat types. Western pond turtles inhabit slow moving permanent or intermittent streams, small ponds, small lakes, reservoirs, abandoned gravel pits, permanent and ephemeral shallow wetlands, stock ponds and sewage treatment lagoons, with pools being the preferred habitat within streams, with a water depth greater than 2 meters required. It is omnivorous, taking a wide variety of plant and animal food. The pond turtle requires basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks.	HA	Deep, slow moving permanent or intermittent water areas are not present in the BSA. This species is fully covered under the MSHCP.
Belding's Orange-throated Whiptail	*Aspidocelis hyperythrus beldingi*	-/WL/-/MSHCP	Most California populations occur on or adjacent to floodplains or the terraces of streams, in or by open sage scrub and chaparral communities. The presence of perennial shrubs appears to be important, with the most strongly associated species being	P	Suitable habitat occurs within sage scrub and chaparral habitats. This species was observed during surveys. This species is fully covered under the MSHCP.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
			California buckwheat (*Eriogonum fasciculatum*), chamise (*Adenostoma fasciculatum*), white sage (*Salvia apiana*), and black sage (*S. mellifera*). Termites are reported to constitute 57 - 95% of the diet, and foraging microsites are primarily under shrubs in leaf litter (Brattstrom 2000).		
San Diego Banded Gecko	*Coleonyx variegatus abbotti*	-/CSC/- /MSHCP	Prefers rocky areas in coastal sage chaparral. Found in burrows or under surface objects during daylight.	HA	Rocky areas are not present in the BSA. This species is fully covered under the MSHCP.
Red-Diamond Rattlesnake	*Crotalus ruber*	-/CSC/- /MSHCP	As far north as Puente Hills in Yorba Linda and southwest San Bernardino County, and occurs south to Loreto, Baja California, Mexico; known elevation range is sea level to just under15,000 ft, but apparently rare above about 3,940 ft; greatest frequency in areas of heavy brush, such as chamise chaparral, but also in open areas at lower densities; boulders and rocky outcrops.	HP	Suitable habitat occurs within the study area within chamise chaparral. This species was not observed during surveys. This species is fully covered under the MSHCP.
Coronado Skink	*Eumeces skiltonianus interparietalis*	-/CSC/-/-	Found in a variety of habitats (incl. sage scrub, chaparral, grassland) but is most common in early successional stages or open areas within habitats in which they occur. Heavy brush and densely forested areas are generally avoided. Cover for this secretive lizard is provided by rotting logs, surface litter, large flat stones, and sometimes trash or other human debris.	HP	Suitable habitat is present within sage scrub, chaparral, grassland, and early succession riparian vegetation communities. This species was not observed during surveys. This species is relatively common throughout western Riverside County, and the number of individuals directly affected is expected to be low (if present).

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
California Mountain Kingsnake (San Bernardino population)	*Lampropeltis zonata* (*parvirubra*	-/CSC/MSHCP (f)	Mountain riparian with an abundance of downed wood and snags. Generally above 4,000 ft. Rare at lower elevation in riparian corridors tied to montane areas.	HA	The project site occurs well outside of the species known range and this species occurs at higher elevations. This species is not expected to occur.
San Diego Coast Horned Lizard	*Phrynosoma coronatum blainvillei*	-/CSC /- /MSHCP	Found in arid and semi-arid climate conditions in chaparral, coastal sage scrub, primarily below 2,000 ft in elevation. Critical factors are the presence of loose soils with a high sand fraction; an abundance of native ants or other insects, especially harvester ants (*Pogonomyrmex* spp.); and the availability of both sunny basking spots and dense cover for refuge.	HP	Suitable habitat occurs within coastal sage scrub and chaparral habitats. This species was not observed during surveys. This species is fully covered under the MSHCP.
Coast Patch-nosed Snake	*Salvadora hexalepis virgultea*	-/CSC/-/-	Mostly restricted to habitats with a strong but broken shrub component, especially somewhat open chaparral and black sage (*Salvia mellifera*) or relatively mature, dense coastal sage scrub (personal communication, W. E. Haas, Varanus Biological Services), and may require ground burrows of unknown characteristics for overwintering and refuge.	HP	Suitable habitat is present within chaparral, sage scrub, oak woodland, and riparian scrub habitat. This species was not observed during surveys. The number of individuals directly affected is expected to be low (if present).

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Two-striped Garter Snake	*Thamnophis hammondii*	-/CSC/-/-	It is often in water and rarely found far from it, though it is also known to inhabit intermittent streams having rocky beds bordered by willow thickets or other dense vegetation. They will also inhabit large riverbeds if riparian vegetation is available, and even occur in artificial impoundments if both aquatic vegetation and suitable prey items (small amphibians and fish) are present (Jennings and Hayes 1994).	HA	Not expected as rocky soils absent from the BSA. Nearest CNDDB observation of this species is up Cole Canyon from Murrieta Creek in 2001 (CNDDB 2021)
BIRDS					
Swainson's Hawk	*Buteo swainsoni*	-/T/-/-	Only occurs as a migrant in southern California and can occur in a group, foraging over recently disked agricultural fields. The species breeds on the western plains of North America and southwest Canada from Texas to the Yukon. Preferred foraging habitats include prairies, plains, and other wide-open ranges with minimal tree cover.	Nesting: HA Foraging: HA	Swainson's hawks would only occur within the BSA as migrants. There are known nesting populations in the Antelope Valley (approximately 10 breeding pairs), Owens Valley, Shasta Valley, the Mojave Desert, the Central Valley, and the Great Basin area of northeastern California. This species is not expected.
White-tailed Kite	*Elanus leucurus*	-/CFP/-/MSHCP	Species hunts in open country. This is a strongly lowland species, apparently rare anywhere in California above 2,000 ft. Nests are flimsy and are located low in trees and large shrubs near foraging areas in savannahs and at edges between open habitat and woodland or forest areas. Its diet is largely restricted to small mammals such as voles and mice.	Nesting: HP Foraging: HP	This species would potentially nest and forage within the study area. This species was not observed during surveys. The removal of foraging habitat of this species is fully covered under the MSHCP, but this is also a fully protected species.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Northern Harrier	*Circus hudsonius*	-/CSC/- /MSHCP	Species hunts low to the ground mostly in open country, nesting on the ground. Prey diversity is high, though small mammals are most commonly taken. It was formerly a fairly common breeder in much of coastal southern California, but now is nearly extirpated in this role due to loss of native open habitats, especially marshes. It remains fairly common in open country with low human disturbance during migration and in winter.	Nesting: HA Foraging: HP	This species no longer breeds within the region and it would only occur in the winter or as a migrant. There is a potential for this species to forage within open habitats and marsh areas. This species was not observed during surveys. This species is covered under the MSHCP.
Golden Eagle	*Aquila chrysaetos*	-/CFP /- /MSHCP	Forages in grassland and open savannah of many types. It tolerates considerable variation in topography and elevation. It prefers to hunt moderate-sized prey, especially California Ground Squirrels (*Spermophilus beecheyi*) and rabbits, but will occasionally take larger prey, such as Mule Deer (*Odocoileus hemionus*) fawns. It is very sensitive to human disturbance, especially near nest sites.	Nesting: HA Foraging: HP	Species would forage within the BSA. May nest in cliff ledges in the Santa Ana Mountains to the west and evidence of nesting in Double Butte to east near Winchester (approximately 11 miles away). Potential foraging habitat is present in the study area. however no nesting would occur. This species was not observed during surveys. This species is covered under the MSHCP but has additional protection under the Bald and Golden Eagle Protection Act (BGEPA).
Bald Eagle	*Haliaeetus leucocephalus*	D/E,CFP/- /MSHCP	Occurs primarily at or near seacoasts, rivers, swamps, and large lakes (large bodies of open water with an abundant supply of fish). Requires suitable perching structures consisting of large trees or snags with heavy limbs. Old growth and mature stands of coniferous and hardwood trees are needed for perching, roosting, and nesting and these large trees surrounding the body of water are	Nesting: HA Foraging: HP	Bald eagles are present at Lake Skinner, approximately 14 miles east of the BSA. No suitable nesting habitat (large trees or snags with heavy limbs in old growth and mature stands of coniferous and hardwood trees) present in the BSA. Bald eagle nest (CNDDB 2021) known 15 miles to the southeast that was discovered in 1994 and successful, unoccupied in 1995, occupied and unsuccessful in 1996 and 1997 on Municipal Water District Land.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
			an essential component of suitable habitat. Bald eagles are sensitive to human disturbance while nesting and nests are at least 0.75 mile from low-density human disturbance and over 1 mile from medium- to high-density human disturbance. Wintering bald eagles may be found closer to human disturbance and may spend more time in upland habitats, sometimes quite far away from large water bodies. Bald eagles subsist mainly on fish, but also consume birds (often water birds), mammals and other prey. This species is a localized winter resident and rare migrant, with only very rare breeding efforts in coastal southern California (e.g., Lake Skinner, Riverside County).		This species was not observed during surveys. Species would be present for foraging or as a migrant. This species is covered under the MSHCP but has additional protection under the BGEPA.
American Peregrine Falcon	*Falco peregrinus anatum*	D/D,CFP/- /MSHCP	More common along the coasts and feed on birds, especially shorebirds and ducks. Breed in open landscapes with cliffs (or skyscrapers, high bridges) for nest sites. Found along rivers and coastlines or in cities; often feed on rock pigeons. Nest sites are cliffs and structures with very low levels of presence at the nest site.	Nesting: HA Foraging: HP	No suitable nesting habitat is present within the study area. Species would potentially forage within open water portions of the study area. This species was not observed during surveys. This species is covered under the MSHCP, but is also a fully protected species.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Western Snowy Plover	*Charadrius alexandrinus nivosus*	T/CSC/-/-	Requires open, relatively flat areas with little or no vegetation, including undisturbed beaches, salt flats, playas, dredge spoils, levees, and river bars. Winter distribution is more coastal, and may include sewage treatment ponds and agricultural wastewater sites.	HA	No suitable habitat is present in the study area. Human presence and disturbances and lack of suitable unvegetated areas within the study area preclude this species presence; thus, it is not expected to occur.
Mountain Plover	*Charadrius montanus*	-/CSC (wintering)/-/-	Small numbers are present in winter in the valleys of coastal southern California. The most commonly used winter habitat in California is freshly cultivated croplands, but based on habitat studies (Knopf and Rupert 1995), heavily grazed native rangelands and, especially, natural alkali flats are the preferred habitats. Through most of the species' wintering range in California, natural alkali flats have been drastically reduced through conversion to human uses. In Western Riverside County this species only winters in the San Jacinto Valley.	HA	The species' distribution is limited to the San Jacinto Valley and there are no records for Mountain Plover along I-15 in the study area. The wintering range for this species does not overlap the study area.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Western Yellow-billed Cuckoo	*Coccyzus americanus occidentalis*	T/E/-/MSHCP (a)	Only a handful of tiny populations remaining in all of California today. Losses are tied to obvious loss of nearly all suitable habitat, but other factors may also be involved. Relatively broad, well-shaded riparian forests are utilized, although it tolerates some disturbance. A specialist to some degree on tent caterpillars, with a remarkably fast development of young covering only 18 - 21 days from incubation to fledging.	HA	Riparian forest in Temescal Wash does not provide the dense structure necessary for this species. This species is not expected to occur.
Yellow Rail	*Coturnicops noveboracensis*	-/CSC/-/-	Found in shallow marshes and wet meadows. During the winter, they are found in drier fresh-water and brackish marshes and deep grass and rice fields.	HA	There is no marsh habitat within the BSA suitable for breeding or foraging. This species is not expected to occur.
California Black Rail	*Laterallus jamaicensis coturniculus*	-/T, CFP/-/-	Nests in wet meadows, shallow freshwater marshes and shallow upland portions of saltmarshes.	HA	There is no marsh habitat within the BSA suitable for breeding or foraging. This species is not expected to occur.
Burrowing Owl	*Athene cunicularia*	-/ CSC /- /MSHCP (c)	Inhabits open, dry, nearly or quite level, grassland; prairie; desert floor; shrubland should be considered potential habitat if shrub cover is below 30% (CBOC 1997). In coastal southern California, a substantial fraction of birds are found in microhabitats highly altered by man, including flood control and irrigation basins, dikes, and banks, abandoned fields surrounded by agriculture, and road cuts and margins. Strong association between Burrowing Owls and burrowing mammals, especially ground squirrels	HP	Suitable burrowing owl habitat was found within the MSCHP burrowing owl survey area throughout the BSA. Burrowing owls were not observed during focused surveys.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
			(*Spermophilus* spp.); however they will also occupy man-made niches such as banks and ditches, piles of broken concrete, and even abandoned structures (Haug et al. 1993).		
Long-eared Owl	*Asio otus*	-/CSC/-/-	In southern California, the species breeds and roosts in riparian and oak forests, and hunts small mammals at night in adjacent open habitats; known to breed at several dozen locales in San Diego and Orange Counties (Bloom 1994; personal communication, W. E. Haas), and probably do so in smaller numbers in other coastal Southern California counties as well. Species is relatively intolerant to man-made disturbances and in particular night lighting. Foraging lands need to be rodent rich and relatively close to roosting and/or nesting habitat.	HP	The BSA contains suitable nesting habitat within the riparian forest (California sycamore woodland, Fremont cottonwood forest and woodland, and coast live oak woodland and forest). Potential foraging habitat for this species occurs within open lands. This species was not observed incidentally during biological surveys.
California Spotted Owl	*Strix occidentalis occidentalis*	-/CSC/-/ MSHCP (f)	Found in the mountains in coniferous and oak-deciduous woodlands and forests. In Riverside County, found in the Santa Ana Mountains, the San Bernardino Mountains, and the San Jacinto Mountains.	HA	There is no suitable habitat available as the BSA is not within montane regions.
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	E/E/-/MSHCP (a)	Highly restricted distribution in southern California as a breeder. It occupies extensive riparian forests, wet meadows, and lower montane riparian habitats primarily below 4,000 ft. Occurs in riparian habitats along rivers, streams, or	HP	Suitable southwestern willow flycatcher habitat typically consists of a dense mid-story and understory and can also include a dense canopy (USFWS 1995). The riparian habitat within the BSA only provides sufficient structure within portions of Temescal Wash west of the I-15. As such,

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
			other wetlands, where dense growths of willows (*Salix* spp.), *Baccharis* spp., Arrowweed (*Pluchea* spp.), buttonbush (*Cephalanthus* spp.), tamarisk (*Tamarix* spp.) Russian olive (*Eleagnus* spp.) or other plants are present, often with a scattered overstory of cottonwood (*Populus* spp.).		the riparian corridor provides low to moderate suitable foraging and nesting habitat for flycatchers at the BSA. This species was not observed during surveys. Compliance with 6.1.2 Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools of the MSHCP is required for this species.
Loggerhead Shrike	*Lanius ludovicianus*	-/CSC /-/MSHCP	Found as a common resident and winter visitor throughout California in lowland and foothill habitats, where it frequents open areas with sparse shrubs and trees.	HP	Suitable nesting and foraging habitat is present within the study area. This species is fully covered under the MSHCP, and no further action is warranted. This species was not observed during surveys.
Least Bell's Vireo	*Vireo bellii pusillus*	E/E/-/MSHCP (a)	Found as a summer resident of southern California where it inhabits low riparian growth in the vicinity of water or in dry river bottoms below 2,000 ft. Species selects dense vegetation low in riparian zones for nesting; most frequently located in riparian stands between 5 and 10 years old; when mature riparian woodland is selected, vireos nest in areas with a substantial robust understory of willows as well as other plant species (Goldwasser 1981).	HP	Least Bell's vireo was observed in the BSA. Eleven use areas for LBV were found within Temescal Wash and its tributaries during surveys. Compliance with 6.1.2 Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools of the MSHCP is required for this species.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Coastal Cactus Wren	*Campylorhynchus brunneicapillus sandiegensis*	-/CSC/- /MSHCP	Non-migratory, obligate resident within a subset of coastal sage scrub habitats; require the presence of, but are not entirely restricted within, relatively arborescent (over 3 ft tall) stands of several species of cactus (*Opuntia* spp.)	HP	This species is fully covered by the MSHCP with no survey requirement. Suitable habitat is present within the BSA and project site within coastal sage scrub where *Opuntia* species are present.
Coastal California Gnatcatcher	*Polioptila californica californica*	T/CSC/- /MSHCP	Year-round obligate, permanent resident of sage scrub habitat.	P	Species was documented within the project site. This species is considered fully covered species by the MSHCP. Suitable habitat occurs within coastal sage scrub. Critical habitat for this species occurs within the BSA, but not within the limits of disturbance.
Grasshopper Sparrow	*Ammodramus savannarum*	-/CSC/- /MSHCP(e)	Widespread distribution throughout California. The grasshopper sparrow uses predominantly open grassland with use of some other habitats including alluvial, playa, and sparse coastal sage scrub when sufficient amounts of intermittent grass or grassland habitat are available (Garrett and Dunn 1981).	HP	Suitable habitat is present; the species was not detected during field studies.
Yellow Warbler	*Setophaga petechia* (formerly *Dendroica petechia brewsteri)*	-/CSC/- /MSHCP	Inhabits riparian vegetation close to water along streams and wet meadows, but favors second growth and edges, so not as vulnerable to habitat loss as some warblers. In the west, breeds in streamside thickets. Found in bushes, swamp edges, streams, and gardens. Common trees include willows, alders, and cottonwoods. Nests in the upper story of riparian habitats in	P	Species was documented within the project site and study area within riparian habitat. This species is fully covered under the MSHCP and no further actions are required.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
			southern California. It is also a common, widespread migrant in spring and fall, occupying a wide variety of habitats at that time.		
Yellow-breasted Chat	*Icteria virens*	-/CSC /-/MSHCP	Nests in low thickets in dense riparian habitats. It eats a variety of invertebrates. It is a local and uncommon breeder and rare migrant across southern California.	P	Species was documented within the project site and study area within riparian habitat. This species is fully covered under the MSHCP and no further actions are required.
Tricolored Blackbird	*Agelaius tricolor*	-/T, CSC/-/MSHCP	Nests in dense colonies in marshes and occasionally in moist thickets, agricultural fields, or sewage treatment plants.	HP	Suitable habitat is present within freshwater marsh and agricultural fields. This species is fully covered under the MSHCP and no further action is required.
MAMMALS					
Pallid Bat	*Antrozous pallidus*	-/CSC/-/-	Throughout southern California most often in grasslands, also in mixed conifer forest; shrublands, woodlands, & forest; most common in open, dry habitats with rocky areas for roosting; yearlong resident in most of range. The species is not thought to migrate so maternity colonies and winter roosts are expected to occur in vicinity of each other; roost and maternity sites are rock crevices, old buildings, bridges, caves, mines, and hollow trees. Gregarious, often roosting in colonies, but disbanding between August and October and relatively inactive during winter. Low, slow flyers. Forages on invertebrates on the ground such as grasshoppers,	HP	Both foraging (grassland, shrublands, woodlands and forests) and roosting habitat (bridges, trees) are present. Not detected during bat emergence surveys. .

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
			crickets, beetles, scorpions, centipedes, etc.		
Townsend's Big-eared Bat	*Corynorhinus townsendii*	-/CSC/-/-	Found throughout California in coastal areas, valleys, deserts, foothills, and mid-elevation montane forest. The occurrence of the species is highly correlated with availability of caves and cave-like roosting habitat (such as cavity forming rock, abandoned mines, buildings, bridges, water diversion tunnels, tree cavities) (USDA 2006, CDFW 2013). Temperature and humidity are very important factors in occupation of potentially suitable habitat. Often observed in rocky situations where caves or abandoned mine tunnels are available. May occasionally inhabit old buildings ("artificial" caves). Roosts in the open, hanging from walls & ceilings. May roost under bridges if bridge designs include cavities that resemble caves. Extremely sensitive to human disturbance. Open water is an important for both drinking and feeding for this species, so a perennial water source is important. Females form maternity groups in the spring in caves and shelters. Maternal roosts form between March and June with pups born between May and July.	HA	No suitable habitat for Townsend's big-eared bat in the BSA. Roosting potential for this species is restricted to the Santa Ana River (approximately 6 miles north of the BSA) where humidity, temperature, and bridge substrate appears suitable, but it may forage at the river and adjacent lands.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Western Mastiff Bat	*Eumops perotis californicus*	-/CSC/-/-	Found throughout the coastal lowlands up to drier mid-elevation mountains, but avoids the Mojave and Colorado deserts. Habitats include dry woodlands, shrublands, grasslands, and occasionally even developed areas. This big bat forages in flight, primarily taking insects in the order Hymenoptera (bees, wasps, and ants). Most prey species are relatively small, low to the ground, and weak-flying. This species has been known to travel more than 25 miles from roost sites to forage in a variety of habitats. For roosting, appears to favor rocky, rugged areas in lowlands where abundant suitable crevices are available for day roosts. There appears to be little use of night roosts. This species is primarily cliff-roosting but also roosts in large boulders or in human constructions such as buildings and bridges and has also been documented roosting in palm trees. It is also found in high buildings, trees, and tunnels. Roost sites may be in natural rock or in tall buildings, large trees or elsewhere, but must be at least 2 inches wide and 12 inches deep, and narrow to at most 1 inch at the upper end. Nursery roosts must be deeper yet.	HP	This species forages in broad, open areas, and may forage miles from a roost. Foraging habitat includes mountain meadows, dry desert washes, floodplains, chaparral, oak woodland, grassland, and agricultural areas, where primarily moths are consumed. This species has a low potential to use bridges and buildings as roosting sites, as it prefers to roost in high structures such as cliffs and high buildings, but possibly tall palm trees. Suitable roosting and foraging habitat occurs within the study area, but no suitable roosts were found in the study area during survey work. Not detected during bat emergence surveys.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
			This species prefers deep crevices that are at least 16 to 20 ft above the ground, and roosting sites that have unobstructed moderately large openings that can be entered from below as this species cannot take flight from a flat surface and must free-fall to achieve lift for successful flight. Roosts may be communal (up to 100 individuals) or solitary, and commonly include other species of bats. This species appears to not migrate but performs seasonal movements.		
Western Red Bat	*Lasiurus blossevillii*	-/CSC/-/-	Solitary, migratory bat that is linked to mature and intact sycamore and cottonwood riparian vegetation. However, individuals are now being detected in urban areas with ornamental trees in Orange and San Diego Counties with evidence of breeding in Southern California. Western red bats roost in the foliage of broad-leaved trees with dense foliage and require a range of trees for roosting as the bats often move their roost spot from tree to tree. Trees can also include orchard trees such as avocado, apricots and citrus.	HP	Suitable foraging and roosting habitat is present in the BSA. Suitable roosts in California sycamore woodland and Fremont cottonwood forest and woodland habitat present in the BSA. Orchard trees in agricultural areas provide additional roost sites. Not detected during bat emergence surveys.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Western Yellow Bat	*Lasiurus xanthinus*	-/CSC/-/	This non-colonial bat species is often associated with water features such as stock tanks, ponds, streams, and rivers in open grassy areas and scrub, as well as in canyon and riparian habitats. Western yellow bats are often associated with palm oases, but may be expanding their range to include palms in landscaping. Occurs from southern California and western Arizona south into Mexico. Roosts primarily in the untrimmed, dead fronds of fan palms (native and nonnative) but will also use other trees including cottonwoods. Possible for both seasonal movement and year-round residence. Feeds on varied insects. Threats include cosmetic trimming of dead fronds on ornamentally planted palms, domestic predators, and loss of habitat.	HP	Roost sites present in woodland and shrubland areas containing palms (coast live oak woodland and forest, Fremont cottonwood forest and woodland, mulefat thickets, Eucalyptus – tree of heaven – black locust groves, and nonnative woodland). Temescal Creek and associated tributaries and seasonal depressions are water features within the study area. Not detected during bat emergence surveys.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Pocketed Free-tailed Bat	*Nyctinomops (=Tadarida) femorosaccus*	-/CSC/-/-	Pocketed free-tailed bats occur in a variety of habitats in California including desert scrub, desert riparian, chaparral, and pine-oak forests. Species roosts in high rock crevices, bridges, roofs, buildings, and cliffs, and forage primarily on large moths, especially over water. Little is known about the ecology of this species, other than it is a far-ranging species. It may roost in foothills and forage over larger areas, with water sources funneling bat activity into canyons. It is probable that bats follow canyons and drainages for foraging and to seek out water sources and roost in crevices within foothills.	HP	Potential foraging habitat is present within the Temescal Wash and associated tributaries. Species probably roosts in canyons in the Santa Ana Mountains, but may roost in bridges. Not detected during bat emergence surveys.
Big Free-tailed Bat	*Nyctinomops macrotis*	-/CSC/-/-	Occurs within low-lying arid areas of southern California (CNDDB 2008). Requires high crevices in cliffs/rock outcrops for roosting, but also roosts in buildings, caves and holes in trees. This species is found associated with desert scrub, arroyo, and woodland habitats. Species feeds on large insects such as moths and grasshoppers. This species is rare, with a scattered distribution throughout much of California. Because of this distribution, big free-tailed bats could be expected almost anywhere. This is a far-ranging species that may roost in the	HP	Potential foraging habitat associated with forest habitats in the BSA. Expected to roost in cliff/rock outcrops and high crevices associated with the foothills which would be associated with the Santa Ana Mountains, Estelle Mountain or the Sedco Hills. May also roost in holes in trees, so roosting habitat also present in the BSA. Not detected during bat emergence surveys.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
			foothills but may forage over much larger areas. This species is expected to be foraging high above the forest canopy.		
San Diego Black-tailed Jackrabbit	*Lepus californicus bennettii*	-/CSC/- /MSHCP	This subspecies of the black-tailed jackrabbit is known from a narrow strip along the southern coast of California and southward about 200 miles along the Baja peninsula (west coast). Commonly feeds in open pastures and rangelands or in commercial crops. Mainly nocturnal and during the day will seek shade, lying under bushes or other cover in a shallow scrape. Home ranges are between 25 to 50 acres. Common throughout state except at high elevations in herbaceous and desert shrub areas, sage scrub, grasslands, open chaparral and woodland/forest areas; relatively disturbance tolerant.	HP	Suitable habitat for this species occurs within the BSA. This species is fully covered under the MSHCP and no further analysis is required. Not detected during surveys.
Northwestern San Diego Pocket Mouse	*Chaetodipus fallax fallax*	-/CSC/- /MSHCP	Sandy herbaceous areas, usually in association with rocks and course gravel in southwest California; coastal and desert border areas in San Bernardino, Riverside, and San Diego Counties. Elevation ranges from sea level to 6,000 ft. Vegetation community preferences include sage scrub, chamise-redshank chaparral, mixed chaparral, sage brush, desert wash, desert scrub, desert succulent scrub, pinyon-juniper, annual grassland.	HP	Suitable habitat for this species occurs within sage scrub and chaparral habitats in the study area. This species is fully covered under the MSHCP and no further analysis is required.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Dulzura Pocket Mouse	*Chaetodipus californicus femoralis*	-/CSC/-/-	Occupies a wide variety of habitats year-round within its range. Found in sandy herbaceous areas, usually associated with rocks or course gravel. Habitats include coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent scrub, pinyon-juniper, and annual grassland. This species occurs in greatest abundance in habitats where grassland and chaparral are in close proximity. Rocky/gravelly areas with a yucca overstory, and desert scrub near or in pine-juniper belts also have high densities. Found primarily at moderate elevations.	HP	Suitable habitat (coastal scrub, chaparral, grassland) is present within the study area and project site. Project would potentially impact few individuals as areas with rocky soil or course gravel and pinyon juniper areas are not present.
San Bernardino Kangaroo Rat	*Dipodomys merriami parvus*	E/SC, CSC/-/MSHCP (c)	Prefers soils of sandy loam, occasionally to sandy gravel, in open to moderately shrubby habitats, especially intermediate seral stages of alluvial fan sage scrub up to 1,970 ft from active channels.	HP	Suitable habitat is present for this species in the BSA. Project occurs outside the MSHCP survey area for this species; thus, there is no survey requirement.
Stephens' Kangaroo Rat	*Dipodomys stephensi*	E/T/-/MSHCP	The Stephens' kangaroo rat is found almost exclusively in open grasslands or sparse shrublands with cover of less than 50 % during the summer. Species avoids dense grasses (for example, nonnative bromes [*Bromus* spp.]) and are more likely to inhabit areas where the annual forbs disarticulate in the summer and leave more open areas.	HP	Suitable habitat is present for this species, including open grasslands and sparse shrublands. This species is fully covered by the MSHCP and SKR HCP with no survey requirement.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
			Soil type also is an important habitat factor. As a fossorial (burrowing) animal, the species typically is found in sandy and sandy loam soils with a low clay to gravel content, although there are exceptions where they can utilize the burrows of Botta's Pocket Gopher (*Thomomys bottae*) and California Ground Squirrel (*Spermophilus beecheyi*). Tends to avoid rocky soils. Slope is a factor in occupation; tends to use flatter slopes (i.e., < 30 %), but may be found on steeper slopes in trace densities (i.e., < 1 individual per hectare). Furthermore, the species may use steeper slopes for foraging, but not for burrows. In general, the highest abundances of species occur on gentle slopes less than 15 percent.		

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
Los Angeles Pocket Mouse	*Perognathus longimembris brevinasus*	-/CSC/- /MSHCP (c)	Habitat requirements for this subspecies are poorly known; it inhabits areas of open ground, prefers fine sandy soils (for burrowing), but is also found commonly on gravel washes and on stony soils, within brush and woodland habitats. It is rarely found on sites with a high cover of rocks.	HP	Suitable habitat is present within the BSA, including open areas with soils suitable for burrowing, including sandy washes. Proposed project occurs outside MSHCP survey area for this species. No survey is required.
San Diego Desert Woodrat	*Neotoma lepida intermedia*	-/CSC/- /MSHCP	Dry and/or sunny shrublands, especially (but not requiring) areas with cacti and abundant rocks and crevices. Does not require a source of drinking water. Sage scrub communities are frequently occupied.	HP	Suitable habitat for this species occurs within the study area. This species is fully covered under the MSHCP and no further analysis is required.
Southern Grasshopper Mouse	*Onychomys torridus ramona*	-/CSC/-/-	Wide variety of dry to moderately dry scrub, grassland and woodland habitats across southern California, exclusive of the more mesic coastal areas from Ventura County north. Grasshopper mice have large home ranges and occur in low densities. Little is known about the habitat requirements of this species and it is believed to occur on flat, sandy, valley floors. Known to occur in the San Jacinto Valley in Riverside County among scattered brush on a gravelly valley floor. Probably found in a variety of low, open, and semi-open scrub areas including coastal sage scrub, mixed chaparral, sagebrush, riparian scrub, and annual grasslands with shrubs. Recent records for this species on	HA	Suitable habitat is present within the BSA, however there are no recent records of this species in southwestern Riverside County. This species has low population density and a low fecundity, making it extremely susceptible to local extirpations due to small- and large- scale habitat loss and fragmentation. It is unlikely that this species continues to exist in southwestern Riverside County and is not expected to occur.

Common Name	Scientific Name	Status[a] (Federal/State/ CNPS/ MSHCP)	General Habitat Description	Habitat[b] Present /Absent	Rationale
			the desert slopes of the San Gabriel Mountains and the Peninsular Ranges, near Sage (2004) and Aguanga (2015) in Riverside County. There are no recent records from southwestern Riverside County (records from 1908, 1923, 1932).		
American Badger	*Taxidea taxus*	-/CSC/-/-	Associated with large grassland and sparse sage scrub habitats. Occupies large dens/burrows and forages on small mammals (e.g., ground squirrels, rabbits), snakes, birds, and insects.	HP	Suitable habitat for this species occurs within the BSA, however no burrows or dens large enough to support species were found. Badgers are somewhat tolerant to human disturbance, but roads are a source of mortality for the species. The trapping of large predators such as badgers and poisoning of rodents are risks to this species and it is expected that badger populations in the BSA would be reduced to low numbers, but this species could occur.
Mountain Lion (Southern California/Central Coast ESU)	*Puma concolor*	-/SC/-/MSHCP	Found from sea level to alpine meadows in nearly all habitats, except xeric regions of the Mojave and Colorado deserts that do not support mule deer populations as well as agricultural lands of the Central Valley. Most abundant in riparian areas, and brushy stages of most habitats.	HP	This species is covered under the MSHCP. Mountain lions are known to occur in the Santa Ana Mountains and surrounding foothills, and have also been observed in "lowland" areas such as Lake Mathews-Estelle Mountain (Dudek & Associates, Inc. 2003). Thus, there is potential for mountain lion to occur within the BSA, particularly along washes.

[a] Status Codes

Federal

E = Federally listed; Endangered
PE = Proposed Endangered
T = Federally listed; Threatened
FC = Federal Candidate for Listing
D = Delisted

State

T = State listed; Endangered
E = State listed; Threatened
FC = Federal Candidate for Listing
SC = State Candidate for Listing
R = Rare (Native Plant Protection Act)
CSC = California Species of Special Concern
CNPS = California Native Plant Society
CRPR = California Rare Plant Rank
1B – plants rare or endangered in California or elsewhere
2B – plants rare or endangered in California
3 – plants about which more information is needed
4 – plants of limited distribution
.1 – plants seriously endangered in California
.2 – plants common elsewhere, fairly endangered in California
.3 – plants not very threatened in California
CFP = California Fully Protected Species
CNDDB = Sensitive natural community mapped in the California Natural Diversity Database (CNDDB) in the vicinity of the project
G1 through G5 = Global sensitivity rank for sensitive natural communities, rank ranging from 1 (very rare and threatened) to 5 (demonstrably secure)
S1 through S5 = State sensitivity rank for sensitive natural communities, rank ranging from 1 (very rare and threatened) to 5 (demonstrably secure)

MSHCP

MSHCP = No additional action necessary
MSHCP(a) = Surveys may be required as part of wetlands mapping
MSHCP(b) = Surveys may be required within the NEPSA
MSHCP(c) = Surveys may be required within locations shown on survey maps
MSHCP(d) = Surveys may be required within Criteria Area
MSHCP(e) = Conservation requirements identified in species-specific conservation objectives need to be met before classified as a covered Species
MSHCP(f) = Covered species when a Memorandum of Understanding is executed with the Forest Service Land

[b] Habitat Present/Habitat Absent

HP = Habitat is, or may be present. The species may be present
HA = Habitat absent and no further work needed. These areas are shaded out grey in the table
CH = the limits of disturbance are located within a designated critical habitat unit, but this does not necessarily mean that appropriate habitat is present
P = the species is present

Table B-2. Regional Sensitive Natural Vegetation Communities

Community (Holland [CNDDB] or MSHCP)	Observed Community (Manual of California Vegetation)	Status	General Habitat Description	Habitat Present/ Absent[a]	Rationale
SENSITIVE NATURAL VEGETATION COMMUNITIES					
California Walnut Woodland	n/a	CNDDB	n/a	HA	This community does not occur within the study area.
Canyon Live Oak Ravine Forest	n/a	CNDDB	n/a	HA	This community does not occur within the study area.
Coastal and Valley Freshwater Marsh	Hardstem and California Bulrush Marshes Herbaceous Alliance	CNDDB -/-/-/S3, GNR	n/a	HP	Hardstem and California Bulrush Marshes Herbaceous Alliance is present in the BSA. Hardstem and California Bulrush Marshes are found at several locations throughout the BSA, but primarily occurs within the riparian corridor located on the western side of Interstate 15 south of Lake Street. Hardstem and California Bulrush Marshes Herbaceous Alliance is considered a CDFW sensitive vegetation community with a state rarity of S3 and a global rarity of GNR. rank of G3. This is an MSHCP riparian-riverine resource and require compliance with Section 6.1.2 of the MSHCP.
Riversidian Alluvial Fan Sage Scrub	Scale Broom Scrub Shrubland Alliance	CNDDB -/-/-/S3, G3	n/a	HP	Scale Broom Scrub Shrubland Alliance is present in the BSA. This community occurs within several large drainages traversing Interstate 15. Scale Broom Scrub Shrubland Alliance is considered a CDFW sensitive vegetation community with a state rank of S3 and a global rank of G3. This is an MSHCP riparian-riverine resource and require compliance with Section 6.1.2 of the MSHCP.

Community (Holland [CNDDB] or MSHCP)	Observed Community (Manual of California Vegetation)	Status	General Habitat Description	Habitat Present/ Absent[a]	Rationale
Southern California Arroyo Chub/Santa Ana Sucker Stream		CNDDB	n/a	HA	This community does not occur within the study area.
Southern Coast Live Oak Riparian Forest	Coast Live Oak Woodland and Forest Alliance	CNDDB -/-/-/S4, G5	n/a	HP	Coast live oak woodland and forest alliance is not considered sensitive by CDFW with a global rank of 5 and a state rank of 4. Coast Live Oak Woodland and Forest Alliance occurs both as an upland habitat type and within riparian areas. Within riparian areas, this is an MSHCP riparian-riverine resource and require compliance with Section 6.1.2 of the MSHCP.
Southern Cottonwood Willow Riparian Forest	Fremont Cottonwood Forest and Woodland Alliance	CNDDB -/-/-/S3, G4	n/a	HP	Freemont Cottonwood Forest and Woodland Alliance is present in the BSA. This community occurs in several locations throughout the BSA but primarily occurs within the riparian corridor on the western side of Interstate 15 south of Lake Street. Fremont Cottonwood Forest and Woodland alliance is considered a CDFW sensitive vegetation community with a state rarity of S3 and a global rarity of G4. This is an MSHCP riparian-riverine resource and require compliance with Section 6.1.2 of the MSHCP.
Southern Interior Basalt Flow Vernal Pool		CNDDB	n/a	HA	This community does not occur within the study area.
Southern Interior Cypress Forest		CNDDB	n/a	HA	This community does not occur within the study area.
Southern Riparian Scrub	Arrow Weed Thicket Shrubland Alliance	CNDDB -/-/-/S3, G4	n/a	HP	Arrow Weed Thickets Shrubland Alliance is present within the BSA. This community occurs in several large patches within the riparian corridor located on the western side of

Community (Holland [CNDDB] or MSHCP)	Observed Community (Manual of California Vegetation)	Status	General Habitat Description	Habitat Present/ Absent[a]	Rationale
					Interstate 15 between Lake Street and Nichols Road. Arrow Weed Thickets Shrubland Alliance is a sensitive natural community (G4, S3). Seasonally flooded Arrow Weed Thickets shrubland alliance are also considered to be sensitive. An MSHCP riparian-riverine resource and would be protected through the implementation of 6.1.2 of the MSHCP.
Southern Sycamore Alder Riparian Woodland	California Sycamore Woodlands Alliance	CNDDB -/-/-/S3, G3	n/a	HP	Within the BSA, the California Sycamore Woodlands Alliance community is strongly dominated by California sycamore, but coast live oak is also present at low cover. The sub-canopy lacks smaller willows and shrubs, and the understory is heavily composed of nonnative grass and forbs. California Sycamore Woodland occur at a single location just south of Temescal Canyon Road within the BSA. This community has a state rarity rank of S3 and a global rarity rank of G3.
Southern Willow Scrub	Goodding's Willow – Red Willow Riparian Woodland and Forest Alliance	CNDDB -/-/-/S3, G4	n/a	HP	Goodding's Willow – Red Willow Riparian Woodland and Forest Alliance is present in the BSA. Goodding's Willow–Red Willow Riparian Woodland occurs at several locations throughout the BSA. Goodding's Willow–Red Willow Riparian Woodland alliance is considered a CDFW sensitive vegetation community, with a state rarity of S3 and a global rarity of G4. An MSHCP riparian-riverine resource and would be protected through the implementation of 6.1.2 of the MSHCP.
Valley Needlegrass Grassland	Needle Grass – Melic Grass Grasslands Herbaceous Alliance	CNDDB -/-/-/S3, G3	n/a	HP	This community is present within the BSA, Needle Grass – Melic Grass Grasslands Herbaceous Alliance is found in two small

Community (Holland [CNDDB] or MSHCP)	Observed Community (Manual of California Vegetation)	Status	General Habitat Description	Habitat Present/ Absent[a]	Rationale
					patches, one just south of Indian Truck Trail and the other just south of Nichols Road. Foothill needle grass is considered to be a sensitive association by CDFW within the needle grass-melic grass grassland alliance with a provisional global rank of G3 and a state rank of S3.
Riversidian Sage Scrub	Brittle Bush Scrub Shrubland California Buckwheat Scrub Shrubland Alliance California Sagebrush – Black Sage Brush Shrubland Alliance Deer Weed Scrub Shrubland Alliance	CNDDB -/-/-/S4, G5 -/-/-/S5, G5 -/-/-/S4, G4	n/a	HP	None of the Riversidian Sage Scrub communities observed in the BSA would be considered sensitive by CDFW, with state ranks of S4 and global ranks of G4 and G5. Brittle Bush Scrub Shrubland Alliance is typically found on hillsides and slopes throughout the BSA. Brittle Bush Scrub Shrubland Alliance is not considered a CDFW sensitive vegetation community with a state rank of S4 and a global rank of G5. California Buckwheat Scrub Shrubland Alliance occurs throughout the BSA. This community forms dense monotypic stands of California buckwheat in some areas within the BSA; however, the shrub cover is typically open to intermittent, dominated by California buckwheat with associated species such as brittle bush, California sage, and deer weed are commonly present. The understory when present, is intermittent to closed and primarily composed of nonnative grasses and mustards. California Buckwheat Scrub Shrubland Alliance is not considered a CDFW sensitive vegetation community with a state rank of S5 and a global rank of G5. California Sagebrush–Black Sage Scrub occurs on hillsides throughout the BSA. California Sagebrush – Black Sage Scrub Shrubland Alliance is not considered a CDFW

Community (Holland [CNDDB] or MSHCP)	Observed Community (Manual of California Vegetation)	Status	General Habitat Description	Habitat Present/ Absent[a]	Rationale
					sensitive vegetation community with a state rank of S4 and a global rank of G4.
Vernal Pool		MSHCP	n/a	HA	This community does not occur within the study area. Seasonal depressions were observed in the BSA, but none were considered vernal pools given their lack of vernal pool associated vegetation.
Wildflower Field	Clustered Tarweed Fields Herbaceous Alliance	California Natural Community List -/-/-/S2, G2	n/a	HP	Clustered Tarweed Fields Herbaceous Alliance is present within the BSA and this herbaceous wildflower community is dominated by Kellogg's tarweed (*Deinandra kelloggii*) and was typically associated with a diverse mix of native and nonnative forbs and grasses. Tarweed fields occur mainly in the northern portion of the BSA. This community is considered a sensitive alliance with a state rarity of S2 and a global rarity of G2.
Coastal Sage-Chaparral Scrub	Bush Penstemon Scrub Shrubland Alliance	California Natural Community List -/-/-/S2, G2	n/a		Bush Penstemon Scrub Shrubland Alliance is present in the BSA. This community is limited to a few locations within the central portion of the BSA between Horse Thief Canyon Road and Hostettier Road. Bush Penstemon Scrub Shrubland Alliance is considered a CDFW sensitive vegetation community with a state rank of S3 and a global rank of G3.
Southern North Slope Chaparral	Holly Leaf Cherry – Toyon – Greenbark Ceanothus Chaparral Shrubland Alliance	California Natural Community List -/-/-/S3, G3	n/a		Holly Leaf Cherry – Toyon – Greenbark Ceanothus Chaparral Shrubland Alliance occurs in several large patches within the southern-central portion of the BSA between Lake Street and Nichols Road. This community is considered a CDFW sensitive vegetation community with a state rarity rank of S3 and a global rarity rank of G3.

Community (Holland [CNDDB] or MSHCP)	Observed Community (Manual of California Vegetation)	Status	General Habitat Description	Habitat Present/ Absent[a]	Rationale
Alkali Meadow	Salt Grass – Alkali Heath – Marsh Jameau Association within the Salt Grass Flats Alliance	California Natural Community List -/-/-/S2.2, G3	n/a		Salt Grass – Alkali Heath – Marsh Jameau Association occurs at one location in the BSA on the north side of Temescal Canyon Road and south of I-15, north of Temescal Wash, between Lake Street and Horse Thief Canyon Road and covers approximately 0.08 acre of land. This community is considered a CDFW sensitive vegetation community with a state rarity rank of S2.2 and a global rarity rank of G3.

CNDDB = Sensitive natural community mapped in the California Natural Diversity Database (CNDDB) in the vicinity of the project
G1 through G5 = Global sensitivity rank for sensitive natural communities, rank ranging from 1 (very rare and threatened) to 5 (demonstrably secure)
S1 through S5 = State sensitivity rank for sensitive natural communities, rank ranging from 1 (very rare and threatened) to 5 (demonstrably secure)
[a] Habitat Present/Habitat Absent
HP = Habitat is, or may be present. The vegetation community may be present
HA = Habitat absent and no further work needed. These areas are shaded out grey in the table

Appendix C California Natural Diversity Database and California Native Plant Society Query Results

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Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Lake Elsinore (3311763) OR Wildomar (3311753) OR Alberhill (3311764) OR Sitton Peak (3311754) OR Murrieta (3311752) OR Romoland (3311762) OR Steele Peak (3311773) OR Lake Mathews (3311774) OR Perris (3311772) OR Corona South (3311775) OR Corona North (3311785) OR Santiago Peak (3311765) OR Prado Dam (3311786) OR Riverside East (3311783) OR Riverside West (3311784) OR Black Star Canyon (3311776))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Abronia villosa var. aurita chaparral sand-verbena	G5T2? S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	350 1,600	98 S:8	0	2	1	1	1	3	3	5	7	0	1
Accipiter cooperii Cooper's hawk	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	680 2,000	118 S:8	4	0	1	0	0	3	6	2	8	0	0
Agelaius tricolor tricolored blackbird	G1G2 S2	None Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered USFWS_BCC-Birds of Conservation Concern	542 1,586	955 S:10	0	0	0	0	1	9	7	3	9	1	0
Aimophila ruficeps canescens southern California rufous-crowned sparrow	G5T3 S3	None None	CDFW_WL-Watch List	700 2,415	235 S:44	1	11	5	0	0	27	34	10	44	0	0
Allium marvinii Yucaipa onion	G1 S1	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	2,200 3,330	47 S:6	0	0	0	0	1	5	3	3	5	0	1
Allium munzii Munz's onion	G1 S1	Endangered Threatened	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,200 3,500	21 S:16	4	5	2	0	1	4	4	12	15	1	0
Almutaster pauciflorus alkali marsh aster	G4 S1S2	None None	Rare Plant Rank - 2B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden		7 S:1	0	0	0	0	0	1	1	0	1	0	0

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Ambrosia pumila San Diego ambrosia	G1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,250 1,900	61 S:5	0	2	1	0	1	1	1	4	4	0	1
Ammodramus savannarum grasshopper sparrow	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,500 1,500	27 S:1	0	1	0	0	0	0	1	0	1	0	0
Anaxyrus californicus arroyo toad	G2G3 S2	Endangered None	CDFW_SSC-Species of Special Concern IUCN_EN-Endangered	730 2,400	139 S:5	2	1	0	0	0	2	3	2	5	0	0
Anniella stebbinsi Southern California legless lizard	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	739 2,247	426 S:29	0	17	7	1	0	4	8	21	29	0	0
Antrozous pallidus pallid bat	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	700 900	420 S:2	0	1	0	0	0	1	2	0	2	0	0
Aquila chrysaetos golden eagle	G5 S3	None None	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL-Watch List IUCN_LC-Least Concern	750 1,970	325 S:5	2	2	0	0	0	1	4	1	5	0	0
Arctostaphylos rainbowensis Rainbow manzanita	G2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CRES-San Diego Zoo CRES Native Gene Seed Bank USFS_S-Sensitive	1,400 2,685	89 S:17	2	2	1	0	0	12	4	13	17	0	0
Arenaria paludicola marsh sandwort	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_SBBG-Santa Barbara Botanic Garden	1,000 1,000	19 S:1	0	0	0	0	1	0	1	0	0	0	1
Arizona elegans occidentalis California glossy snake	G5T2 S2	None None	CDFW_SSC-Species of Special Concern	767 1,642	260 S:14	0	0	0	0	0	14	11	3	14	0	0
Artemisiospiza belli belli Bell's sparrow	G5T2T3 S3	None None	CDFW_WL-Watch List	1,200 1,900	61 S:18	1	2	0	0	0	15	18	0	18	0	0

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Asio otus long-eared owl	G5 S3?	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	700 2,030	56 S:5	0	0	0	0	0	5	5	0	5	0	0
Aspidoscelis hyperythra orange-throated whiptail	G5 S2S3	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFS_S-Sensitive	600 2,400	369 S:81	8	12	9	4	2	46	68	13	79	2	0
Aspidoscelis tigris stejnegeri coastal whiptail	G5T5 S3	None None	CDFW_SSC-Species of Special Concern	700 1,900	148 S:12	0	2	0	0	0	10	9	3	12	0	0
Astragalus brauntonii Braunton's milk-vetch	G2 S2	Endangered None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	400 1,450	57 S:6	0	2	1	0	0	3	0	6	6	0	0
Athene cunicularia burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	470 2,190	2011 S:82	4	19	11	7	3	38	17	65	79	1	2
Atriplex coronata var. notatior San Jacinto Valley crownscale	G4T1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	130 1,415	16 S:5	0	4	0	0	0	1	1	4	5	0	0
Atriplex coulteri Coulter's saltbush	G3 S1S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	500 500	121 S:1	0	0	0	0	1	0	1	0	0	1	0

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Atriplex parishii Parish's brittlescale	G1G2 S1	None None	Rare Plant Rank - 1B.1 SB_CRES-San Diego Zoo CRES Native Gene Seed Bank USFS_S-Sensitive	1,420 1,420	15 S:2	0	0	0	0	1	1	2	0	1	1	0
Atriplex serenana var. davidsonii Davidson's saltscale	G5T1 S1	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,420 1,420	26 S:2	0	1	0	0	0	1	2	0	2	0	0
Ayenia compacta California ayenia	G4 S3	None None	Rare Plant Rank - 2B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	3,400 3,400	74 S:1	0	0	0	0	0	1	1	0	1	0	0
Baccharis malibuensis Malibu baccharis	G1 S1	None None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,500 2,165	13 S:3	0	0	0	0	0	3	0	3	3	0	0
Berberis nevinii Nevin's barberry	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	1,020 1,020	32 S:1	0	0	0	0	0	1	1	0	1	0	0
Bombus crotchii Crotch bumble bee	G2 S2	None Candidate Endangered	IUCN_EN-Endangered	700 2,200	437 S:16	0	0	0	0	0	16	9	7	16	0	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	2,000 2,060	796 S:2	0	0	0	0	0	2	0	2	2	0	0
Branchinecta sandiegonensis San Diego fairy shrimp	G2 S1	Endangered None	IUCN_EN-Endangered	1,200 1,510	122 S:2	1	0	0	0	0	1	0	2	2	0	0

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Brodiaea filifolia thread-leaved brodiaea	G2 S2	Threatened Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,240 3,370	141 S:12	2	1	3	1	1	4	2	10	11	1	0
Brodiaea santarosae Santa Rosa Basalt brodiaea	G1 S1	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	1,850 3,400	12 S:9	2	0	1	0	0	6	4	5	9	0	0
Buteo regalis ferruginous hawk	G4 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	1,440 1,500	107 S:2	0	2	0	0	0	0	0	2	2	0	0
Buteo swainsoni Swainson's hawk	G5 S4	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	510 1,000	2561 S:3	0	0	0	0	3	0	3	0	0	3	0
California Walnut Woodland California Walnut Woodland	G2 S2.1	None None		680 1,400	76 S:10	0	0	0	0	0	10	10	0	10	0	0
Calochortus plummerae Plummer's mariposa-lily	G4 S4	None None	Rare Plant Rank - 4.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,200 3,485	230 S:7	0	0	0	0	0	7	4	3	7	0	0
Calochortus weedii var. intermedius intermediate mariposa-lily	G3G4T3 S3	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	600 5,236	197 S:85	4	9	8	0	1	63	15	70	84	1	0
Calystegia felix lucky morning-glory	G1Q S1	None None	Rare Plant Rank - 1B.1	500 675	10 S:6	0	0	0	0	1	5	1	5	5	1	0
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren	G5T3Q S2	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	500 1,500	157 S:11	2	4	2	0	0	3	8	3	11	0	0
Canyon Live Oak Ravine Forest Canyon Live Oak Ravine Forest	G3 S3.3	None None		2,500 2,960	50 S:2	0	0	0	0	0	2	2	0	2	0	0
Catostomus santaanae Santa Ana sucker	G1 S1	Threatened None	AFS_TH-Threatened IUCN_EN-Endangered	370 780	28 S:8	0	1	2	1	0	4	5	3	8	0	0

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Caulanthus simulans Payson's jewelflower	G4 S4	None None	Rare Plant Rank - 4.2 SB_CRES-San Diego Zoo CRES Native Gene Seed Bank USFS_S-Sensitive	2,300 2,300	31 S:1	0	0	0	0	0	1	1	0	1	0	0
Centromadia pungens ssp. laevis smooth tarplant	G3G4T2 S2	None None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	600 1,970	137 S:58	1	7	16	4	4	26	22	36	54	3	1
Ceratochrysis longimala Desert cuckoo wasp	G1 S1	None None		900 900	2 S:1	0	0	0	0	1	0	1	0	0	1	0
Chaetodipus californicus femoralis Dulzura pocket mouse	G5T3 S3	None None	CDFW_SSC-Species of Special Concern	1,150 1,480	54 S:2	1	0	0	1	0	0	1	1	2	0	0
Chaetodipus fallax fallax northwestern San Diego pocket mouse	G5T3T4 S3S4	None None	CDFW_SSC-Species of Special Concern	1,200 2,160	101 S:21	0	6	2	4	0	9	18	3	21	0	0
Charadrius nivosus nivosus western snowy plover	G3T3 S3	Threatened None	CDFW_SSC-Species of Special Concern	1,240 1,240	138 S:1	0	0	0	0	0	1	1	0	1	0	0
Chloropyron maritimum ssp. maritimum salt marsh bird's-beak	G4?T1 S1	Endangered Endangered	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank SB_SBBG-Santa Barbara Botanic Garden	1,000 1,000	26 S:1	0	0	0	0	1	0	1	0	0	1	0
Chorizanthe parryi var. fernandina San Fernando Valley spineflower	G2T1 S1	None Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive		21 S:1	0	0	0	0	1	0	1	0	0	1	0

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Chorizanthe parryi var. parryi Parry's spineflower	G3T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	1,000 2,450	150 S:38	0	3	2	1	4	28	13	25	34	1	3
Chorizanthe polygonoides var. longispina long-spined spineflower	G5T3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	500 3,400	166 S:58	2	17	1	0	1	37	13	45	57	0	1
Cicindela senilis frosti senile tiger beetle	G2G3T1T3 S1	None None		1,350 1,350	9 S:1	0	0	0	0	0	1	1	0	1	0	0
Circus hudsonius northern harrier	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	1,080 1,080	54 S:1	0	0	0	0	0	1	1	0	1	0	0
Clinopodium chandleri San Miguel savory	G2G3 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CRES-San Diego Zoo CRES Native Gene Seed Bank USFS_S-Sensitive	1,052 3,200	37 S:19	1	3	0	0	0	15	8	11	19	0	0
Coccyzus americanus occidentalis western yellow-billed cuckoo	G5T2T3 S1	Threatened Endangered	BLM_S-Sensitive USFS_S-Sensitive	500 1,690	165 S:7	0	1	0	0	5	1	7	0	2	4	1
Coleonyx variegatus abbotti San Diego banded gecko	G5T5 S1S2	None None	CDFW_SSC-Species of Special Concern	920 920	8 S:1	0	0	1	0	0	0	0	1	1	0	0

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Comarostaphylis diversifolia ssp. diversifolia summer holly	G3T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,236 2,400	117 S:2	0	0	1	0	0	1	0	2	2	0	0
Coturnicops noveboracensis yellow rail	G4 S1S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	674 674	45 S:1	0	0	0	0	0	1	1	0	1	0	0
Crotalus ruber red-diamond rattlesnake	G4 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	750 2,335	192 S:67	0	8	3	0	1	55	40	27	66	1	0
Diadophis punctatus modestus San Bernardino ringneck snake	G5T2T3 S2?	None None	USFS_S-Sensitive	1,600 1,600	14 S:1	0	0	0	0	0	1	1	0	1	0	0
Dipodomys merriami parvus San Bernardino kangaroo rat	G5T1 S1	Endangered Candidate Endangered	CDFW_SSC-Species of Special Concern	892 1,756	81 S:6	0	0	0	0	3	3	6	0	3	3	0
Dipodomys stephensi Stephens' kangaroo rat	G2 S2	Threatened Threatened	IUCN_VU-Vulnerable	1 2,300	226 S:123	7	15	38	24	13	26	115	8	110	3	10
Dodecahema leptoceras slender-horned spineflower	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,200 1,200	42 S:2	0	0	1	0	1	0	1	1	1	0	1
Dudleya multicaulis many-stemmed dudleya	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	600 2,975	154 S:45	2	7	0	1	3	32	27	18	42	0	3

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Dudleya viscida sticky dudleya	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CRES-San Diego Zoo CRES Native Gene Seed Bank USFS_S-Sensitive	800 2,850	31 S:6	2	1	0	0	0	3	1	5	6	0	0
Elanus leucurus white-tailed kite	G5 S3S4	None None	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	515 2,100	184 S:13	5	1	0	0	0	7	6	7	13	0	0
Empidonax traillii extimus southwestern willow flycatcher	G5T2 S3	Endangered Endangered		487 500	70 S:3	2	0	0	0	0	1	2	1	3	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	555 3,300	1424 S:17	2	4	1	0	6	4	15	2	11	6	0
Eremophila alpestris actia California horned lark	G5T4Q S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	1,200 1,700	94 S:15	1	2	4	0	0	8	14	1	15	0	0
Eriastrum densifolium ssp. sanctorum Santa Ana River woollystar	G4T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	600 790	31 S:3	0	0	1	1	1	0	1	2	2	1	0
Eryngium aristulatum var. parishii San Diego button-celery	G5T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,950 2,072	83 S:3	1	1	0	0	0	1	0	3	3	0	0
Eugnosta busckana Busck's gallmoth	G1G3 S2S3	None None		767 1,815	15 S:3	0	2	0	0	0	1	1	2	3	0	0
Eumops perotis californicus western mastiff bat	G4G5T4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern	530 1,570	296 S:14	0	1	0	0	0	13	14	0	14	0	0
Euphydryas editha quino quino checkerspot butterfly	G5T1T2 S1S2	Endangered None		680 2,200	186 S:19	3	1	0	0	8	7	19	0	11	6	2

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Geothallus tuberosus Campbell's liverwort	G2 S2	None None	Rare Plant Rank - 1B.1 IUCN_CR-Critically Endangered	2,000 2,000	12 S:1	0	0	0	0	0	1	1	0	1	0	0
Gila orcuttii arroyo chub	G2 S2	None None	AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	525 1,500	49 S:6	0	4	1	0	0	1	6	0	6	0	0
Haliaeetus leucocephalus bald eagle	G5 S3	Delisted Endangered	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern USFS_S-Sensitive	1,055 1,440	332 S:6	0	0	0	0	0	6	5	1	6	0	0
Harpagonella palmeri Palmer's grapplinghook	G4 S3	None None	Rare Plant Rank - 4.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,200 2,100	57 S:9	1	2	1	0	1	4	9	0	8	1	0
Hesperocyparis forbesii Tecate cypress	G2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank SB_UCSC-UC Santa Cruz SB_USDA-US Dept of Agriculture USFS_S-Sensitive	1,600 5,400	27 S:10	0	2	0	0	0	8	4	6	10	0	0
Horkelia cuneata var. puberula mesa horkelia	G4T1 S1	None None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	1,330 2,840	103 S:6	0	0	0	0	0	6	2	4	6	0	0

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Icteria virens yellow-breasted chat	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	580 1,690	101 S:6	1	2	0	0	0	3	4	2	6	0	0
Juncus luciensis Santa Lucia dwarf rush	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	2,000 2,000	37 S:2	0	0	0	0	0	2	2	0	2	0	0
Lanius ludovicianus loggerhead shrike	G4 S4	None None	CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	1,408 1,700	110 S:3	0	0	1	1	0	1	2	1	3	0	0
Lasiurus xanthinus western yellow bat	G4G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	630 1,660	58 S:6	0	0	0	0	0	6	6	0	6	0	0
Lasthenia glabrata ssp. coulteri Coulter's goldfields	G4T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	1,000 1,440	111 S:16	4	1	0	1	0	10	7	9	16	0	0
Laterallus jamaicensis coturniculus California black rail	G3T1 S2	None Threatened	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_EN-Endangered	736 900	303 S:2	0	0	0	0	0	2	2	0	2	0	0
Lepechinia cardiophylla heart-leaved pitcher sage	G3 S2S3	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank USFS_S-Sensitive	750 4,400	25 S:19	2	1	1	0	0	15	7	12	19	0	0
Lepidium virginicum var. robinsonii Robinson's pepper-grass	G5T3 S3	None None	Rare Plant Rank - 4.3	525 2,000	142 S:16	0	0	1	0	0	15	10	6	16	0	0
Lepus californicus bennettii San Diego black-tailed jackrabbit	G5T3T4 S3S4	None None		1,050 1,900	103 S:22	1	6	5	1	0	9	16	6	22	0	0

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Lilium parryi lemon lily	G3 S3	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank USFS_S-Sensitive		160 S:1	0	0	0	0	0	1	1	0	1	0	0
Limnanthes alba ssp. parishii Parish's meadowfoam	G4T2 S2	None Endangered	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture USFS_S-Sensitive	2,000 2,000	33 S:1	1	0	0	0	0	0	0	1	1	0	0
Linderiella occidentalis California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	1,983 2,059	508 S:2	0	0	0	0	0	2	2	0	2	0	0
Linderiella santarosae Santa Rosa Plateau fairy shrimp	G1G2 S1	None None		1,960 2,200	2 S:2	0	0	0	0	0	2	0	2	2	0	0
Monardella australis ssp. jokerstii Jokerst's monardella	G4T1? S1?	None None	Rare Plant Rank - 1B.1 USFS_S-Sensitive	700 700	3 S:1	0	0	0	0	0	1	1	0	1	0	0
Monardella hypoleuca ssp. intermedia intermediate monardella	G4T2? S2?	None None	Rare Plant Rank - 1B.3	1,000 5,480	38 S:25	0	1	0	0	0	24	19	6	25	0	0
Monardella macrantha ssp. hallii Hall's monardella	G5T3 S3	None None	Rare Plant Rank - 1B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	3,000 5,687	41 S:7	1	1	0	0	0	5	5	2	7	0	0
Myosurus minimus ssp. apus little mousetail	G5T2Q S2	None None	Rare Plant Rank - 3.1 SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	2,000 2,100	24 S:4	1	0	0	0	0	3	4	0	4	0	0
Myotis yumanensis Yuma myotis	G5 S4	None None	BLM_S-Sensitive IUCN_LC-Least Concern	1,240 1,240	265 S:1	0	0	0	0	0	1	1	0	1	0	0

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Navarretia fossalis spreading navarretia	G2 S2	Threatened None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,200 2,000	82 S:19	1	6	2	0	1	9	5	14	18	0	1
Navarretia prostrata prostrate vernal pool navarretia	G2 S2	None None	Rare Plant Rank - 1B.2	1,975 2,075	61 S:3	0	0	0	0	0	3	0	3	3	0	0
Neolarra alba white cuckoo bee	GH SH	None None		900 1,700	8 S:2	0	0	0	0	1	1	2	0	1	1	0
Neotoma lepida intermedia San Diego desert woodrat	G5T3T4 S3S4	None None	CDFW_SSC-Species of Special Concern	1,341 1,500	132 S:2	0	2	0	0	0	0	1	1	2	0	0
Nolina cismontana chaparral nolina	G3 S3	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden USFS_S-Sensitive	735 2,300	68 S:30	0	5	0	0	0	25	9	21	30	0	0
Nyctinomops femorosaccus pocketed free-tailed bat	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	780 1,600	90 S:4	0	0	0	0	0	4	4	0	4	0	0
Oncorhynchus mykiss irideus pop. 10 steelhead - southern California DPS	G5T1Q S1	Endangered Candidate Endangered	AFS_EN-Endangered	71 500	19 S:3	0	0	0	0	2	1	2	1	1	1	1
Onychomys torridus ramona southern grasshopper mouse	G5T3 S3	None None	CDFW_SSC-Species of Special Concern	1,450 1,580	28 S:3	0	0	0	0	0	3	3	0	3	0	0
Orcuttia californica California Orcutt grass	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,140 2,030	39 S:9	0	4	0	0	2	3	6	3	7	1	1

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Pandion haliaetus osprey	G5 S4	None None	CDF_S-Sensitive CDFW_WL-Watch List IUCN_LC-Least Concern	1,155 1,155	504 S:1	0	1	0	0	0	0	0	1	1	0	0
Penstemon californicus California beardtongue	G3 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture USFS_S-Sensitive	800 800	13 S:1	0	0	0	0	0	1	1	0	1	0	0
Pentachaeta aurea ssp. allenii Allen's pentachaeta	G4T1 S1	None None	Rare Plant Rank - 1B.1	1,700 1,700	8 S:2	0	0	0	0	0	2	2	0	2	0	0
Perognathus longimembris brevinasus Los Angeles pocket mouse	G5T2 S1S2	None None	CDFW_SSC-Species of Special Concern	1,200 1,640	70 S:8	0	3	2	1	0	2	7	1	8	0	0
Phacelia keckii Santiago Peak phacelia	G1 S1	None None	Rare Plant Rank - 1B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	3,860 5,400	7 S:5	0	1	0	0	0	4	2	3	5	0	0
Phacelia stellaris Brand's star phacelia	G1 S1	None None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	750 750	15 S:1	0	0	0	0	0	1	1	0	1	0	0
Phrynosoma blainvillii coast horned lizard	G4 S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	700 3,500	784 S:63	6	18	6	1	3	29	49	14	60	1	2
Plegadis chihi white-faced ibis	G5 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	1,240 1,240	20 S:1	0	0	0	0	1	0	1	0	0	1	0
Polioptila californica californica coastal California gnatcatcher	G4G5T3Q S2	Threatened None	CDFW_SSC-Species of Special Concern	342 2,775	1087 S:206	20	55	21	5	3	102	127	79	203	2	1
Pseudognaphalium leucocephalum white rabbit-tobacco	G4 S2	None None	Rare Plant Rank - 2B.2	500 1,345	62 S:9	0	0	0	0	0	9	4	5	9	0	0

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Rana draytonii California red-legged frog	G2G3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	1,600 1,600	1685 S:1	0	0	0	1	0	0	1	0	1	0	0
Rhinichthys osculus ssp. 8 Santa Ana speckled dace	G5T1 S1	None None	AFS_TH-Threatened CDFW_SSC-Species of Special Concern USFS_S-Sensitive	680 1,400	13 S:2	1	0	1	0	0	0	2	0	2	0	0
Riversidian Alluvial Fan Sage Scrub Riversidian Alluvial Fan Sage Scrub	G1 S1.1	None None		800 800	30 S:1	0	0	1	0	0	0	1	0	1	0	0
Salvadora hexalepis virgultea coast patch-nosed snake	G5T4 S3	None None	CDFW_SSC-Species of Special Concern	875 1,600	34 S:3	0	0	1	0	0	2	2	1	3	0	0
Scutellaria bolanderi ssp. austromontana southern mountains skullcap	G4T3 S3	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	1,400 1,775	43 S:2	0	0	0	0	0	2	1	1	2	0	0
Senecio aphanactis chaparral ragwort	G3 S2	None None	Rare Plant Rank - 2B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	2,300 2,300	98 S:1	0	0	0	0	0	1	0	1	1	0	0
Setophaga petechia yellow warbler	G5 S3S4	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	523 680	78 S:2	1	0	0	0	0	1	0	2	2	0	0
Sibaropsis hammittii Hammitt's clay-cress	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	3,280 3,400	7 S:2	0	1	0	0	0	1	1	1	2	0	0
Sidalcea neomexicana salt spring checkerbloom	G4 S2	None None	Rare Plant Rank - 2B.2 USFS_S-Sensitive	500 500	30 S:2	0	0	0	0	0	2	2	0	2	0	0
Southern California Arroyo Chub/Santa Ana Sucker Stream Southern California Arroyo Chub/Santa Ana Sucker Stream	GNR SNR	None None		570 570	4 S:1	0	0	0	0	0	1	1	0	1	0	0

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Southern Coast Live Oak Riparian Forest Southern Coast Live Oak Riparian Forest	G4 S4	None None		500 2,360	246 S:33	0	0	0	0	5	28	33	0	28	0	5
Southern Cottonwood Willow Riparian Forest Southern Cottonwood Willow Riparian Forest	G3 S3.2	None None		375 1,840	111 S:15	0	0	1	0	2	12	15	0	13	0	2
Southern Interior Basalt Flow Vernal Pool Southern Interior Basalt Flow Vernal Pool	G1 S1.2	None None		1,850 2,050	9 S:9	0	0	0	0	0	9	9	0	9	0	0
Southern Interior Cypress Forest Southern Interior Cypress Forest	G2 S2.1	None None		2,000 2,500	24 S:3	1	0	0	0	0	2	3	0	3	0	0
Southern Riparian Forest Southern Riparian Forest	G4 S4	None None		1,190 1,780	20 S:2	0	0	0	0	0	2	2	0	2	0	0
Southern Riparian Scrub Southern Riparian Scrub	G3 S3.2	None None		1,070 1,070	56 S:1	0	0	0	0	0	1	1	0	1	0	0
Southern Sycamore Alder Riparian Woodland Southern Sycamore Alder Riparian Woodland	G4 S4	None None		260 2,820	230 S:52	0	0	0	0	0	52	52	0	52	0	0
Southern Willow Scrub Southern Willow Scrub	G3 S2.1	None None		370 1,120	45 S:5	0	0	0	0	0	5	5	0	5	0	0
Spea hammondii western spadefoot	G2G3 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	450 3,333	1428 S:98	5	22	10	15	3	43	30	68	95	3	0
Sphaerocarpos drewiae bottle liverwort	G1 S1	None None	Rare Plant Rank - 1B.1 IUCN_EN-Endangered	1,850 2,000	23 S:3	0	0	0	0	0	3	3	0	3	0	0
Spinus lawrencei Lawrence's goldfinch	G3G4 S4	None None	IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	710 1,690	4 S:2	0	1	0	0	0	1	1	1	2	0	0
Streptocephalus woottoni Riverside fairy shrimp	G1G2 S2	Endangered None	IUCN_EN-Endangered	900 2,100	83 S:16	1	1	1	2	6	5	6	10	10	2	4

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Symphyotrichum defoliatum San Bernardino aster	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank USFS_S-Sensitive	1,100 3,300	102 S:5	0	0	0	0	1	4	4	1	4	1	0
Taricha torosa Coast Range newt	G4 S4	None None	CDFW_SSC-Species of Special Concern	1,000 2,040	88 S:8	1	3	0	0	0	4	6	2	8	0	0
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,440 1,600	594 S:2	0	0	0	0	0	2	2	0	2	0	0
Tetracoccus dioicus Parry's tetracoccus	G2G3 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank USFS_S-Sensitive		49 S:1	0	0	0	0	1	0	1	0	0	1	0
Texosporium sancti-jacobi woven-spored lichen	G3 S2	None None	Rare Plant Rank - 3	2,320 2,320	19 S:1	0	0	0	0	0	1	1	0	1	0	0
Thamnophis hammondii two-striped gartersnake	G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	400 1,480	184 S:5	1	4	0	0	0	0	4	1	5	0	0
Tortula californica California screw moss	G2G3 S2?	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	1,625 2,130	15 S:2	0	0	0	0	0	2	1	1	2	0	0
Trichocoronis wrightii var. wrightii Wright's trichocoronis	G4T3 S1	None None	Rare Plant Rank - 2B.1	1,420 1,429	12 S:3	0	1	0	0	0	2	2	1	3	0	0
Valley Needlegrass Grassland Valley Needlegrass Grassland	G3 S3.1	None None		950 1,950	45 S:2	0	1	0	0	0	1	2	0	2	0	0

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Viguiera purisimae	G4	None	Rare Plant Rank - 2B.3	1,300	1	0	0	0	0	0	1	1	0	1	0	0
La Purisima viguiera	S1	None		1,300	S:1											
Vireo bellii pusillus	G5T2	Endangered		375	505	4	21	20	3	0	40	4	84	88	0	0
least Bell's vireo	S3	Endangered		1,700	S:88											

Search Results

97 matches found. Click on scientific name for details

Search Criteria: Quad is one of
[3311763:3311753:3311764:3311754:3311752:3311762:3311773:3311774:3311772:3311775:3311785:3311765:3311786:3311783:3311784:3311776]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK
Abronia villosa var. *aurita*	chaparral sand-verbena	Nyctaginaceae	annual herb	(Jan)Mar-Sep	None	None	G5T2?	S2	1B.1
Allium marvinii	Yucaipa onion	Alliaceae	perennial bulbiferous herb	Apr-May	None	None	G1	S1	1B.2
Allium munzii	Munz's onion	Alliaceae	perennial bulbiferous herb	Mar-May	FE	CT	G1	S1	1B.1
Almutaster pauciflorus	alkali marsh aster	Asteraceae	perennial herb	Jun-Oct	None	None	G4	S1S2	2B.2
Ambrosia pumila	San Diego ambrosia	Asteraceae	perennial rhizomatous herb	Apr-Oct	FE	None	G1	S1	1B.1
Amsinckia douglasiana	Douglas' fiddleneck	Boraginaceae	annual herb	Mar-May	None	None	G4	S4	4.2
Arctostaphylos rainbowensis	Rainbow manzanita	Ericaceae	perennial evergreen shrub	Dec-Mar	None	None	G2	S2	1B.1
Arenaria paludicola	marsh sandwort	Caryophyllaceae	perennial stoloniferous herb	May-Aug	FE	CE	G1	S1	1B.1
Asplenium vespertinum	western spleenwort	Aspleniaceae	perennial rhizomatous herb	Feb-Jun	None	None	G3?	S4	4.2
Astragalus brauntonii	Braunton's milk-vetch	Fabaceae	perennial herb	Jan-Aug	FE	None	G2	S2	1B.1
Atriplex coronata var. *notatior*	San Jacinto Valley crownscale	Chenopodiaceae	annual herb	Apr-Aug	FE	None	G4T1	S1	1B.1
Atriplex coulteri	Coulter's saltbush	Chenopodiaceae	perennial herb	Mar-Oct	None	None	G3	S1S2	1B.2
Atriplex parishii	Parish's brittlescale	Chenopodiaceae	annual herb	Jun-Oct	None	None	G1G2	S1	1B.1
Atriplex serenana var. *davidsonii*	Davidson's saltscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G5T1	S1	1B.2
Ayenia compacta	California ayenia	Malvaceae	perennial herb	Mar-Apr	None	None	G4	S3	2B.3
Baccharis malibuensis	Malibu baccharis	Asteraceae	perennial deciduous shrub	Aug	None	None	G1	S1	1B.1
Berberis nevinii	Nevin's barberry	Berberidaceae	perennial evergreen shrub	(Feb)Mar-Jun	FE	CE	G1	S1	1B.1
Brodiaea filifolia	thread-leaved brodiaea	Themidaceae	perennial bulbiferous herb	Mar-Jun	FT	CE	G2	S2	1B.1

Brodiaea santarosae	Santa Rosa Basalt brodiaea	Themidaceae	perennial bulbiferous herb	May-Jun	None	None	G1	S1	1B.2
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	(Jan)Mar-Jun	None	None	G4	S4	4.2
Calochortus catalinae	Catalina mariposa lily	Liliaceae	perennial bulbiferous herb	(Feb)Mar-Jun	None	None	G3G4	S3S4	4.2
Calochortus plummerae	Plummer's mariposa-lily	Liliaceae	perennial bulbiferous herb	May-Jul	None	None	G4	S4	4.2
Calochortus weedii var. *intermedius*	intermediate mariposa-lily	Liliaceae	perennial bulbiferous herb	May-Jul	None	None	G3G4T3	S3	1B.2
Calystegia felix	lucky morning-glory	Convolvulaceae	annual rhizomatous herb	Mar-Sep	None	None	G1Q	S1	1B.1
Calystegia sepium ssp. *binghamiae*	Santa Barbara morning-glory	Convolvulaceae	perennial rhizomatous herb	Aug	None	None	G5TXQ	SX	1A
Camissoniopsis lewisii	Lewis' evening-primrose	Onagraceae	annual herb	Mar-May(Jun)	None	None	G4	S4	3
Carex buxbaumii	Buxbaum's sedge	Cyperaceae	perennial rhizomatous herb	Mar-Aug	None	None	G5	S3	4.2
Caulanthus simulans	Payson's jewelflower	Brassicaceae	annual herb	(Feb)Mar-May(Jun)	None	None	G4	S4	4.2
Centromadia pungens ssp. *laevis*	smooth tarplant	Asteraceae	annual herb	Apr-Sep	None	None	G3G4T2	S2	1B.1
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct(Nov)	FE	CE	G4?T1	S1	1B.2
Chorizanthe leptotheca	Peninsular spineflower	Polygonaceae	annual herb	May-Aug	None	None	G3	S3	4.2
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	Polygonaceae	annual herb	Apr-Jul	None	CE	G2T1	S1	1B.1
Chorizanthe parryi var. *parryi*	Parry's spineflower	Polygonaceae	annual herb	Apr-Jun	None	None	G3T2	S2	1B.1
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	Polygonaceae	annual herb	Apr-Jul	None	None	G5T3	S3	1B.2
Clinopodium chandleri	San Miguel savory	Lamiaceae	perennial shrub	Mar-Jul	None	None	G2G3	S2	1B.2
Collomia diversifolia	serpentine collomia	Polemoniaceae	annual herb	May-Jun	None	None	G4	S4	4.3
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	Ericaceae	perennial evergreen shrub	Apr-Jun	None	None	G3T2	S2	1B.2
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	None	None	G4	S4	4.2
Deinandra paniculata	paniculate tarplant	Asteraceae	annual herb	(Mar)Apr-Nov	None	None	G4	S4	4.2
Diplacus clevelandii	Cleveland's bush monkeyflower	Phrymaceae	perennial rhizomatous herb	Apr-Jul	None	None	G4	S4	4.2
Dodecahema leptoceras	slender-horned spineflower	Polygonaceae	annual herb	Apr-Jun	FE	CE	G1	S1	1B.1

Dudleya cymosa ssp. *ovatifolia*	Santa Monica dudleya	Crassulaceae	perennial herb	Mar-Jun	FT	None	G5T1	S1	1B.1
Dudleya multicaulis	many-stemmed dudleya	Crassulaceae	perennial herb	Apr-Jul	None	None	G2	S2	1B.2
Dudleya viscida	sticky dudleya	Crassulaceae	perennial herb	May-Jun	None	None	G2	S2	1B.2
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	Polemoniaceae	perennial herb	Apr-Sep	FE	CE	G4T1	S1	1B.1
Eryngium aristulatum var. *parishii*	San Diego button-celery	Apiaceae	annual/perennial herb	Apr-Jun	FE	CE	G5T1	S1	1B.1
Erythranthe diffusa	Palomar monkeyflower	Phrymaceae	annual herb	Apr-Jun	None	None	G4	S3	4.3
Geothallus tuberosus	Campbell's liverwort	Sphaerocarpaceae	ephemeral liverwort		None	None	G2	S2	1B.1
Harpagonella palmeri	Palmer's grapplinghook	Boraginaceae	annual herb	Mar-May	None	None	G4	S3	4.2
Hesperocyparis forbesii	Tecate cypress	Cupressaceae	perennial evergreen tree		None	None	G2	S2	1B.1
Hesperocyparis goveniana	Gowen cypress	Cupressaceae	perennial evergreen tree		FT	None	G1	S1	1B.2
Holocarpha virgata ssp. *elongata*	graceful tarplant	Asteraceae	annual herb	May-Nov	None	None	G5T3	S3	4.2
Hordeum intercedens	vernal barley	Poaceae	annual herb	Mar-Jun	None	None	G3G4	S3S4	3.2
Horkelia cuneata var. *puberula*	mesa horkelia	Rosaceae	perennial herb	Feb-Jul(Sep)	None	None	G4T1	S1	1B.1
Juglans californica	Southern California black walnut	Juglandaceae	perennial deciduous tree	Mar-Aug	None	None	G4	S4	4.2
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	Juncaceae	perennial rhizomatous herb	(Mar)May-Jun	None	None	G5T5	S4	4.2
Juncus luciensis	Santa Lucia dwarf rush	Juncaceae	annual herb	Apr-Jul	None	None	G3	S3	1B.2
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	None	None	G4T2	S2	1B.1
Lathyrus splendens	pride-of-California	Fabaceae	perennial herb	Mar-Jun	None	None	G4	S4	4.3
Lepechinia cardiophylla	heart-leaved pitcher sage	Lamiaceae	perennial shrub	Apr-Jul	None	None	G3	S2S3	1B.2
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	Brassicaceae	annual herb	Jan-Jul	None	None	G5T3	S3	4.3
Lilium humboldtii ssp. *ocellatum*	ocellated Humboldt lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	None	None	G4T4?	S4?	4.2
Lilium parryi	lemon lily	Liliaceae	perennial bulbiferous herb	Jul-Aug	None	None	G3	S3	1B.2
Limnanthes alba ssp. *parishii*	Parish's meadowfoam	Limnanthaceae	annual herb	Apr-Jun	None	CE	G4T2	S2	1B.2
Microseris douglasii ssp. *platycarpha*	small-flowered microseris	Asteraceae	annual herb	Mar-May	None	None	G4T4	S4	4.2

Monardella australis ssp. *jokerstii*	Jokerst's monardella	Lamiaceae	perennial rhizomatous herb	Jul-Sep	None	None	G4T1?	S1?	1B.1
Monardella hypoleuca ssp. *intermedia*	intermediate monardella	Lamiaceae	perennial rhizomatous herb	Apr-Sep	None	None	G4T2?	S2?	1B.3
Monardella macrantha ssp. *hallii*	Hall's monardella	Lamiaceae	perennial rhizomatous herb	Jun-Oct	None	None	G5T3	S3	1B.3
Myosurus minimus ssp. *apus*	little mousetail	Ranunculaceae	annual herb	Mar-Jun	None	None	G5T2Q	S2	3.1
Nama stenocarpa	mud nama	Namaceae	annual/perennial herb	Jan-Jul	None	None	G4G5	S1S2	2B.2
Navarretia fossalis	spreading navarretia	Polemoniaceae	annual herb	Apr-Jun	FT	None	G2	S2	1B.1
Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.2
Nolina cismontana	chaparral nolina	Ruscaceae	perennial evergreen shrub	(Mar)May-Jul	None	None	G3	S3	1B.2
Orcuttia californica	California Orcutt grass	Poaceae	annual herb	Apr-Aug	FE	CE	G1	S1	1B.1
Penstemon californicus	California beardtongue	Plantaginaceae	perennial herb	May-Jun(Aug)	None	None	G3	S2	1B.2
Pentachaeta aurea ssp. *allenii*	Allen's pentachaeta	Asteraceae	annual herb	Mar-Jun	None	None	G4T1	S1	1B.1
Phacelia keckii	Santiago Peak phacelia	Hydrophyllaceae	annual herb	May-Jul	None	None	G1	S1	1B.3
Phacelia stellaris	Brand's star phacelia	Hydrophyllaceae	annual herb	Mar-Jun	None	None	G1	S1	1B.1
Piperia cooperi	chaparral rein orchid	Orchidaceae	perennial herb	Mar-Jun	None	None	G3	S3S4	4.2
Piperia leptopetala	narrow-petaled rein orchid	Orchidaceae	perennial herb	May-Jul	None	None	G4	S4	4.3
Polygala cornuta var. *fishiae*	Fish's milkwort	Polygalaceae	perennial deciduous shrub	May-Aug	None	None	G5T4	S4	4.3
Pseudognaphalium leucocephalum	white rabbit-tobacco	Asteraceae	perennial herb	(Jul)Aug-Nov(Dec)	None	None	G4	S2	2B.2
Quercus engelmannii	Engelmann oak	Fagaceae	perennial deciduous tree	Mar-Jun	None	None	G3	S3	4.2
Romneya coulteri	Coulter's matilija poppy	Papaveraceae	perennial rhizomatous herb	Mar-Jul(Aug)	None	None	G4	S4	4.2
Scutellaria bolanderi ssp. *austromontana*	southern mountains skullcap	Lamiaceae	perennial rhizomatous herb	Jun-Aug	None	None	G4T3	S3	1B.2
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	None	None	G3	S2	2B.2
Sibaropsis hammittii	Hammitt's clay-cress	Brassicaceae	annual herb	Mar-Apr	None	None	G2	S2	1B.2
Sidalcea neomexicana	salt spring checkerbloom	Malvaceae	perennial herb	Mar-Jun	None	None	G4	S2	2B.2

Sphaerocarpos drewiae	bottle liverwort	Sphaerocarpaceae	ephemeral liverwort		None	None	G1	S1	1B.1
Symphyotrichum defoliatum	San Bernardino aster	Asteraceae	perennial rhizomatous herb	Jul-Nov	None	None	G2	S2	1B.2
Tetracoccus dioicus	Parry's tetracoccus	Picrodendraceae	perennial deciduous shrub	Apr-May	None	None	G2G3	S2	1B.2
Texosporium sancti-jacobi	woven-spored lichen	Caliciaceae	crustose lichen (terricolous)		None	None	G3	S2	3
Tortula californica	California screw moss	Pottiaceae	moss		None	None	G2G3	S2?	1B.2
Trichocoronis wrightii var. *wrightii*	Wright's trichocoronis	Asteraceae	annual herb	May-Sep	None	None	G4T3	S1	2B.1
Viguiera laciniata	San Diego County viguiera	Asteraceae	perennial shrub	Feb-Jun(Aug)	None	None	G4	S4	4.3
Viguiera purisimae	La Purisima viguiera	Asteraceae	shrub	Apr-Sep	None	None	G4	S1	2B.3
Yucca brevifolia						CC	GNR	SNR	CBR

Showing 1 to 97 of 97 entries

Suggested Citation:
California Native Plant Society, Rare Plant Program. 2023. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 18 May 2023].

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Appendix D USFWS Species List

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901

In Reply Refer To:
Project Code: 2023-0129289
Project Name: I-15 ELPSE

September 14, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A biological assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a biological assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a biological assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found at the Fish and Wildlife Service's Endangered Species Consultation website at:

https://www.fws.gov/service/esa-section-7-consultation

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

PROJECT SUMMARY

Project Code: 2023-0129289
Project Name: I-15 ELPSE
Project Type: Road/Hwy - Maintenance/Modification
Project Description: The Riverside County Transportation Commission (RCTC), in cooperation with the California Department of Transportation (Caltrans), is proposing to develop a tolled express lane network to meet existing and future travel demand, enhance mobility, and afford greater user flexibility on Interstate 15 (I‑15) in Riverside County. The primary component of the Project would be the addition of two tolled express lanes in both the northbound (NB) and southbound (SB) directions within the median of I-15 from State Route (SR-) 74 (Central Avenue) (post mile [PM] 22.3) in the city of Lake Elsinore, through the unincorporated Riverside County community of Temescal Valley to El Cerrito Road (PM 38.1) in the city of Corona for a distance of approximately 15.8 miles. The Project would also add a SB auxiliary lane between both Main Street (PM 21.2) Off-Ramp and SR-74 (Central Avenue) On-Ramp (approximately 0.75 mile), and SR-74 (Central Avenue) Off-Ramp and Nichols Road On-Ramp (PM 23.9) (approximately one mile). Along with the lane additions, which extend from PM 21.2 to PM 38.1, the Project would include widening of up to 15 bridges; potential construction of noise barriers, retaining walls, and drainage systems; and implementation of electronic toll collection equipment and signs. In addition, due to the southbound express lanes access between the Cajalco Road and Weirick Road interchanges, the southbound I-15 Weirick Road off-ramp would be configured as a dual lane exit. Associated improvements, including advance signage and transition striping, would extend two miles from each end of the project limits to PM 20.3 in the south and PM 40.1 in the north. The proposed lane additions and supporting infrastructure are expected to be constructed primarily within the existing state right of way (ROW) with the majority of the improvements occurring within the existing I-15 median. The Project is intended to improve and manage traffic operations, congestion, and travel times along the corridor.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@33.7757228,-117.48615565379983,14z

Counties: Riverside County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 22 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
San Bernardino Merriam's Kangaroo Rat *Dipodomys merriami parvus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2060	Endangered
Stephens' Kangaroo Rat *Dipodomys stephensi (incl. D. cascus)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3495	Threatened

BIRDS

NAME	STATUS
California Spotted Owl *Strix occidentalis occidentalis* Population: Coastal-Southern California No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7266	Proposed Endangered
Coastal California Gnatcatcher *Polioptila californica californica* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

AMPHIBIANS

NAME	STATUS
Arroyo (=arroyo Southwestern) Toad *Anaxyrus californicus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3762	Endangered

FISHES

NAME	STATUS
Santa Ana Sucker *Catostomus santaanae* Population: 3 CA river basins There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3785	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Quino Checkerspot Butterfly *Euphydryas editha quino (=E. e. wrighti)* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5900	Endangered

CRUSTACEANS

NAME	STATUS
Riverside Fairy Shrimp *Streptocephalus woottoni* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8148	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

FLOWERING PLANTS

NAME	STATUS
California Orcutt Grass *Orcuttia californica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4923	Endangered
Munz's Onion *Allium munzii* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2951	Endangered
San Diego Ambrosia *Ambrosia pumila* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8287	Endangered
San Diego Button-celery *Eryngium aristulatum var. parishii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5937	Endangered
San Jacinto Valley Crownscale *Atriplex coronata var. notatior* There is **final** critical habitat for this species. However, no *actual* acres or miles were designated due to exemptions or exclusions. See Federal Register publication for details. Species profile: https://ecos.fws.gov/ecp/species/4353	Endangered
Santa Monica Mountains Dudleyea *Dudleya cymosa ssp. ovatifolia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2538	Threatened
Slender-horned Spineflower *Dodecahema leptoceras* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4007	Endangered
Spreading Navarretia *Navarretia fossalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1334	Threatened
Thread-leaved Brodiaea *Brodiaea filifolia* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6087	Threatened

CRITICAL HABITATS

There are 2 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Coastal California Gnatcatcher *Polioptila californica californica* https://ecos.fws.gov/ecp/species/8178#crithab	Final
San Diego Ambrosia *Ambrosia pumila* https://ecos.fws.gov/ecp/species/8287#crithab	Final

IPAC USER CONTACT INFORMATION

Agency: California Department of Transportation District 8
Name: Shelly Dayman
Address: 525 B Street, Suite 1700
City: San Diego
State: CA
Zip: 92101
Email shelly.dayman@icf.com
Phone: 6198200768

LEAD AGENCY CONTACT INFORMATION

Lead Agency: California Department of Transportation District 8
Name: Maggi Elgeziry
Phone: 9094725567

Appendix E Photographic Log

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	**Photo 1** **Description:** View of mixed Goodding's and Red Willow forest; facing North (photo location and direction depicted in Figure 3).
	**Photo 2** **Description:** Viewing of a mix of willow trees and ornamentals by brome grassland west of I-15. At a drainage feature (photo location and direction depicted in Figure 3).

		**Photo 3** **Description:** Wild oat and brome-dominant grasslands, west of I-15 (photo location and direction depicted in Figure 3).
		**Photo 4** **Description:** View from within a patch of sycamore woodland abutted by disturbed habitat along Campbell Ranch Road; facing Northwest (photo location and direction depicted in Figure 3).

		**Photo 5** **Description:** Fremont Cottonwood forest with interspersed sage scrub community; at the intersection of Campbell Ranch Road and Indian Truck Trail (photo location and direction depicted in Figure 3).
		**Photo 6** **Description:** View off Campbell Ranch Road, viewing a sage scrub community leading into a mix of mustard and star-thistle fields (photo location and direction depicted in Figure 3).

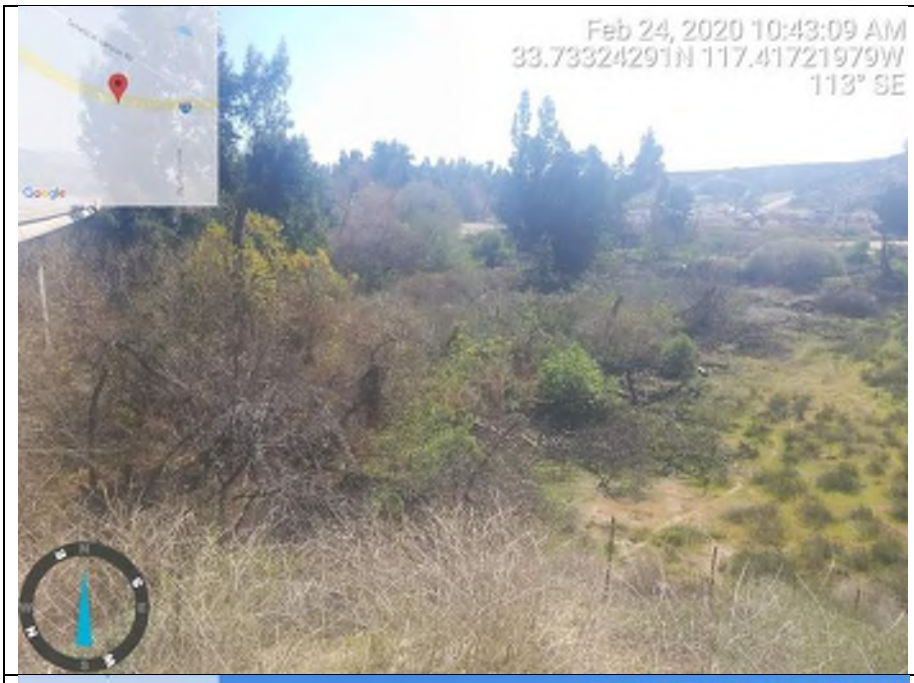
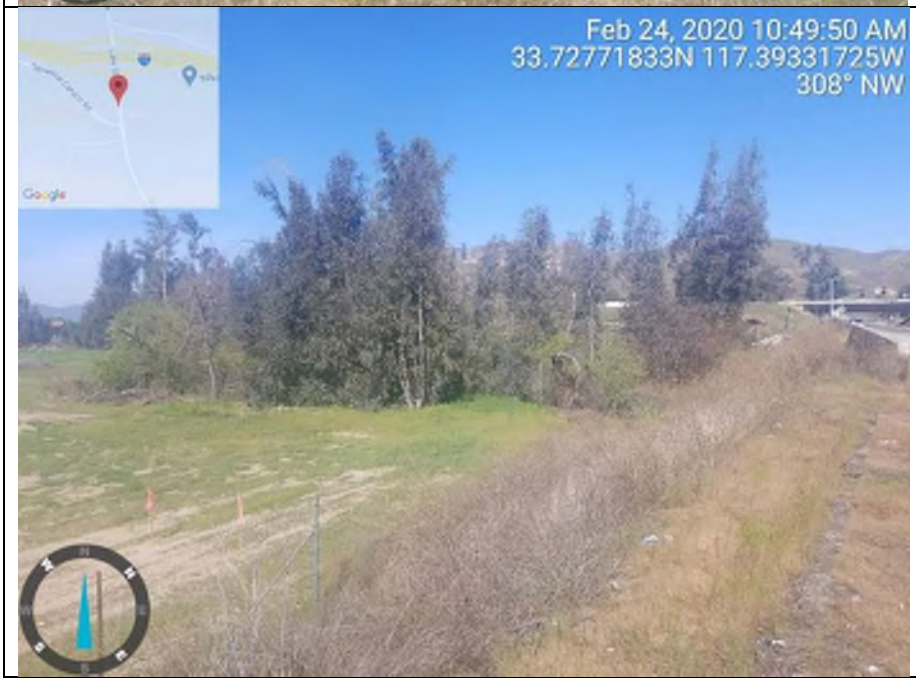
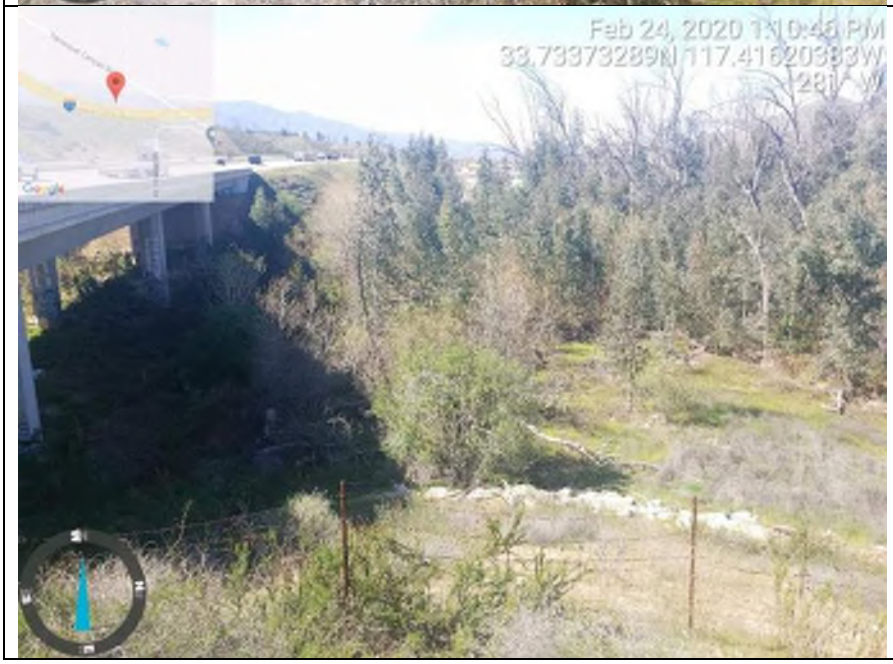
	**Photo 7** **Description:** Viewing the willow and riparian forest in the Temescal Wash under an overpass (photo location and direction depicted in Figure 3).
	**Photo 8** **Description:** Facing a Eucalyptus grove mixed with various ornamentals by Lake Street (photo location and direction depicted in Figure 3).

	**Photo 9** **Description:** At the curve of Hostettler Road facing several willow trees and riparian habitat adjacent to brittle bush scrub (photo location and direction depicted in Figure 3).
	**Photo 10** **Description:** Facing a riparian zone heading south along I-15; dominant mix of Fremont Cottonwood and Tamarisk woodlands (photo location and direction depicted in Figure 3).

	**Photo 11** **Description:** Continuing southwest off the I-15; more nonnative grasslands in the foreground with riparian willow thicket in background (photo location and direction depicted in Figure 3).
	**Photo 12** **Description:** Disturbed, fallow plot of land adjacent to the parking lot by the Lake Elsinore Outlet Center (photo location and direction depicted in Figure 3).

	**Photo 13** **Description:** Viewing frontage road by Costco and nonnative grasses adjacent to the drainage and rip-rap (photo location and direction depicted in Figure 3).
	**Photo 14** **Description:** Facing ornamental trees and shrubs by a drainage feature at Temescal Canyon High School. Looking towards the Northeast (photo location and direction depicted in Figure 3).

	**Photo 15** **Description:** Viewing mix of cottonwood, eucalyptus, and willow trees in riparian woodland just west of Walker Canyon Road (photo location and direction depicted in Figure 3).
	**Photo 16** **Description:** Viewing patchy eucalyptus woodland east of I-15 leading into a mixed willow woodland within Temescal Wash (photo location and direction depicted in Figure 3).

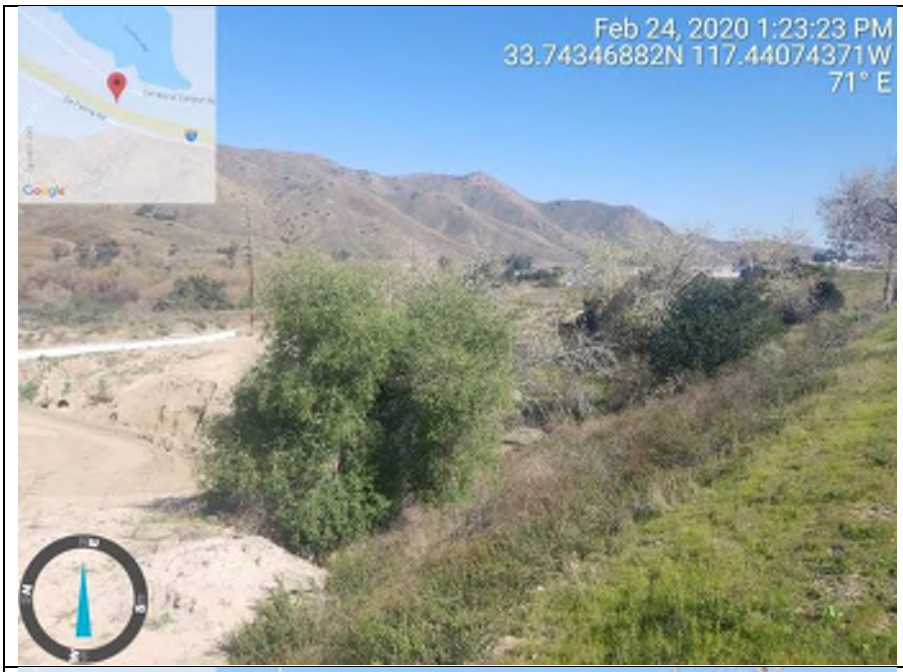
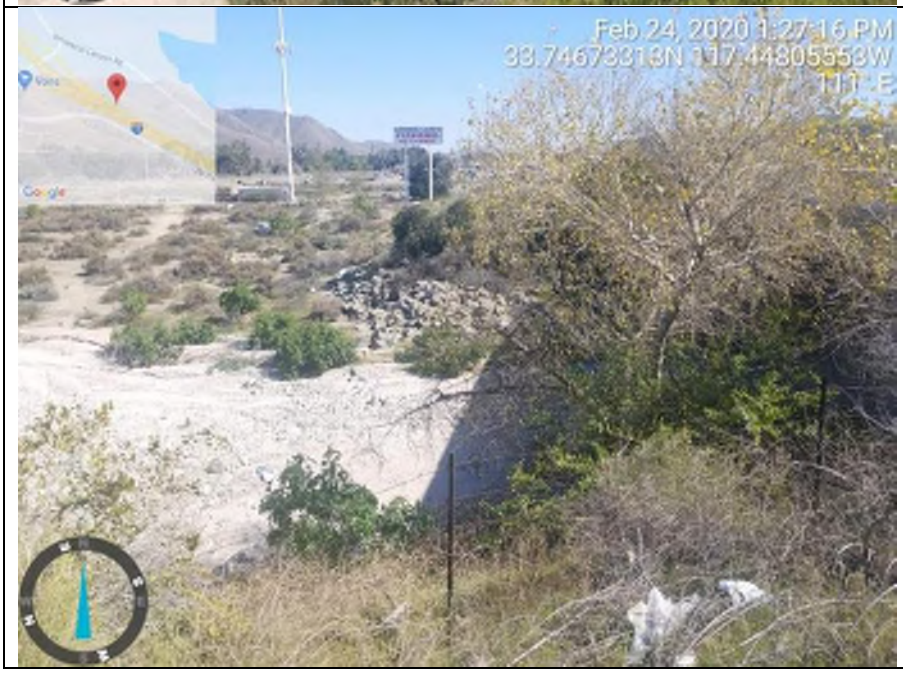
	**Photo 17** **Description:** Small patch of cottonwoods near Temescal Canyon Road and near associated buckwheat and mustard communities (photo location and direction depicted in Figure 3).
	**Photo 18** **Description:** Facing south and viewing a dry wash with a mix of brittle bush and broom scale communities (photo location and direction depicted in Figure 3).

	**Photo 19** **Description:** Viewing of a sage scrub community mixed with several willow trees, just east of I-15 and facing Temescal Canyon Road (photo location and direction depicted in Figure 3).
	**Photo 20** **Description:** Facing open grassland with small rock outcroppings; small forbs mixed throughout (photo location and direction depicted in Figure 3).

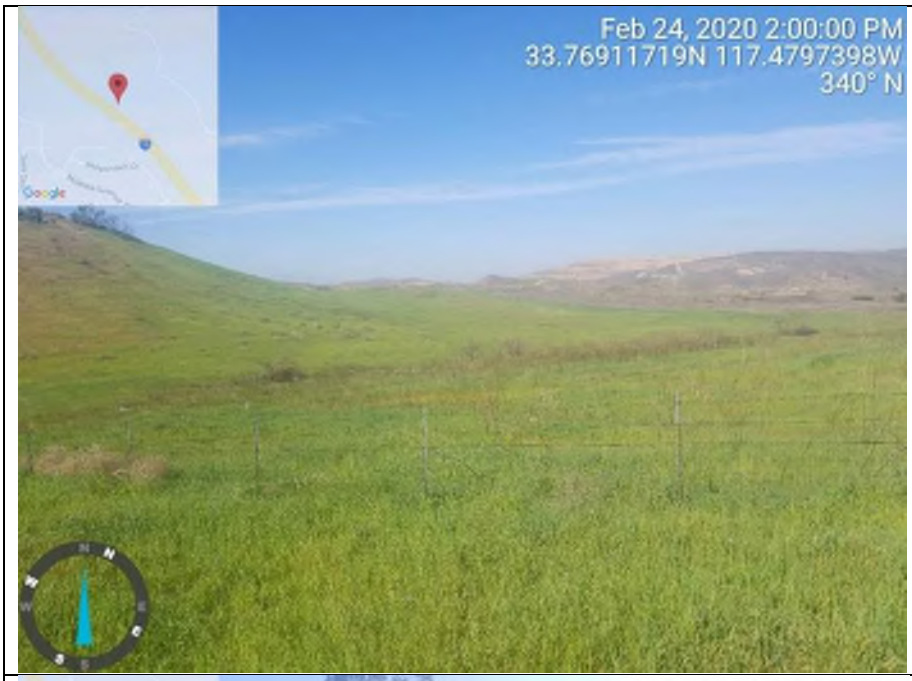
	**Photo 21** **Description:** Viewing a wide expanse of a wild oat and annual brome-dominant grassland (photo location and direction depicted in Figure 3).
	**Photo 22** **Description:** Viewing of a disturbed lot (in foreground) with a small grove of eucalyptus and ornamental trees in the background behind commercial property; east of I-15 (photo location and direction depicted in Figure 3).

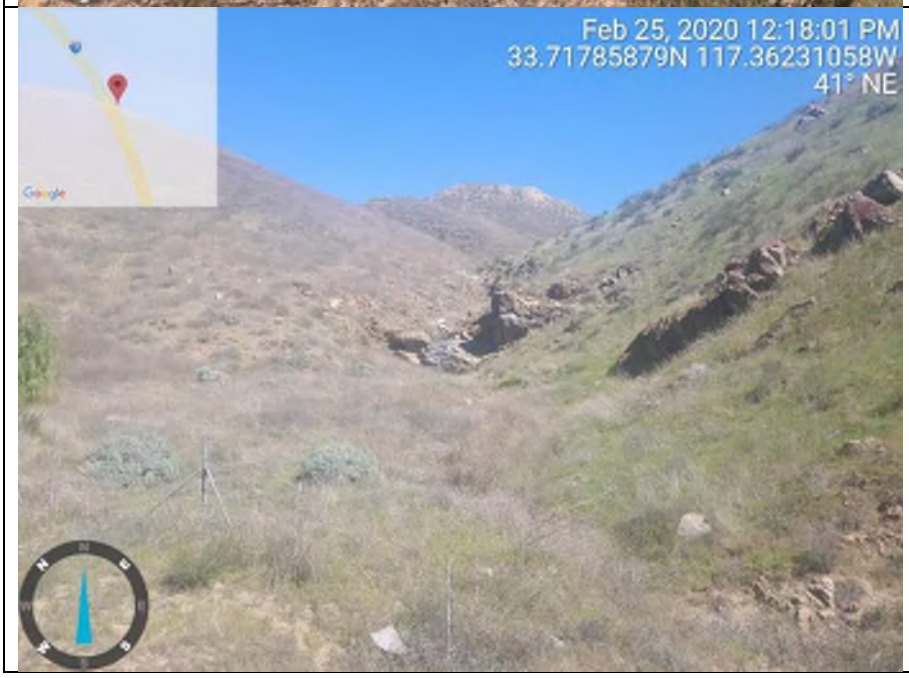
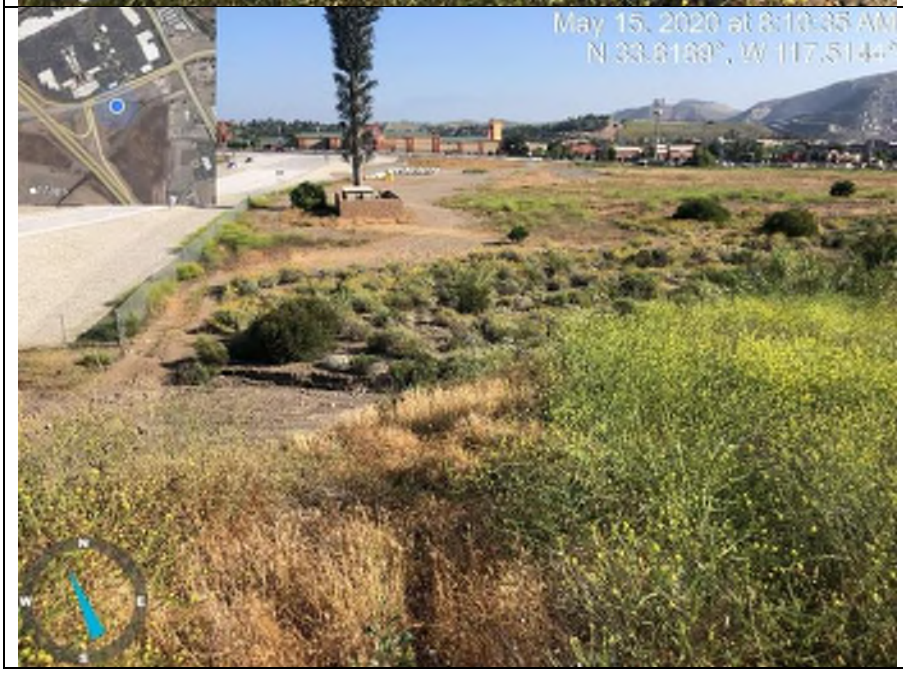
	**Photo 23** **Description:** Viewing of the ruderal plant community alongside the northbound lanes of I-15 (photo location and direction depicted in Figure 3).
	**Photo 24** **Description:** Viewing of rock outcrops alongside the northbound lanes of I-15; mix of nonnative grasslands and scrub communities (photo location and direction depicted in Figure 3).

	**Photo 25** **Description:** Viewing of an expanse of nonnative grassland, south of the outlet center by Cajalco Road (photo location and direction depicted in Figure 3).
	**Photo 26** **Description:** Facing the outlet center off Cajalco Road; viewing the nonnative grasses and sage scrub communities to the east of I-15 (photo location and direction depicted in Figure 3).

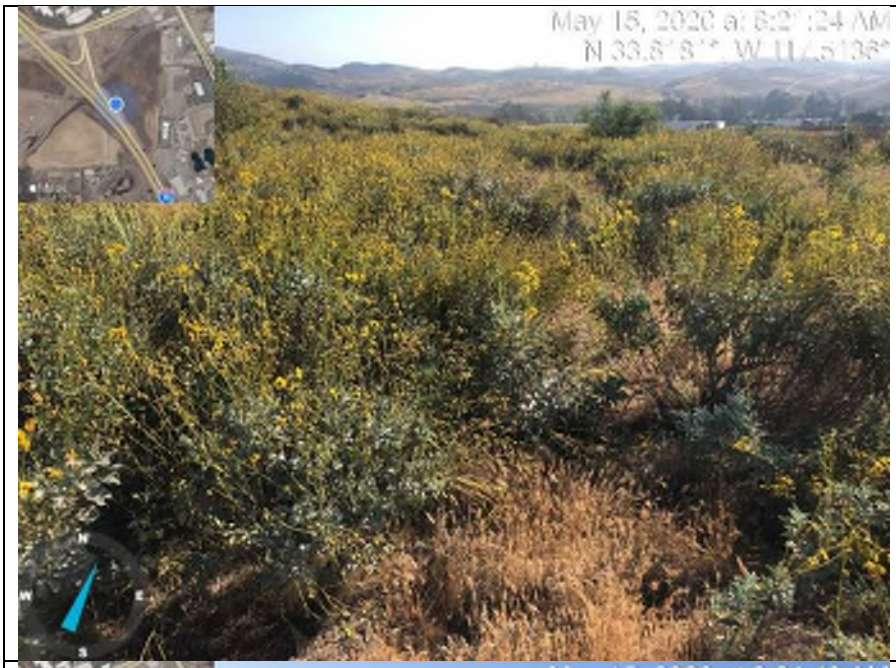
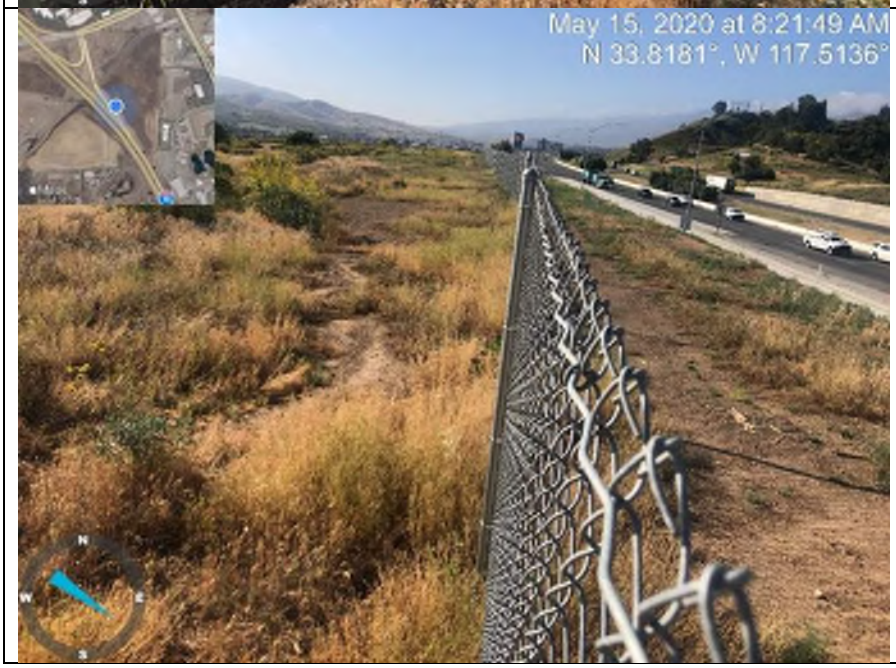
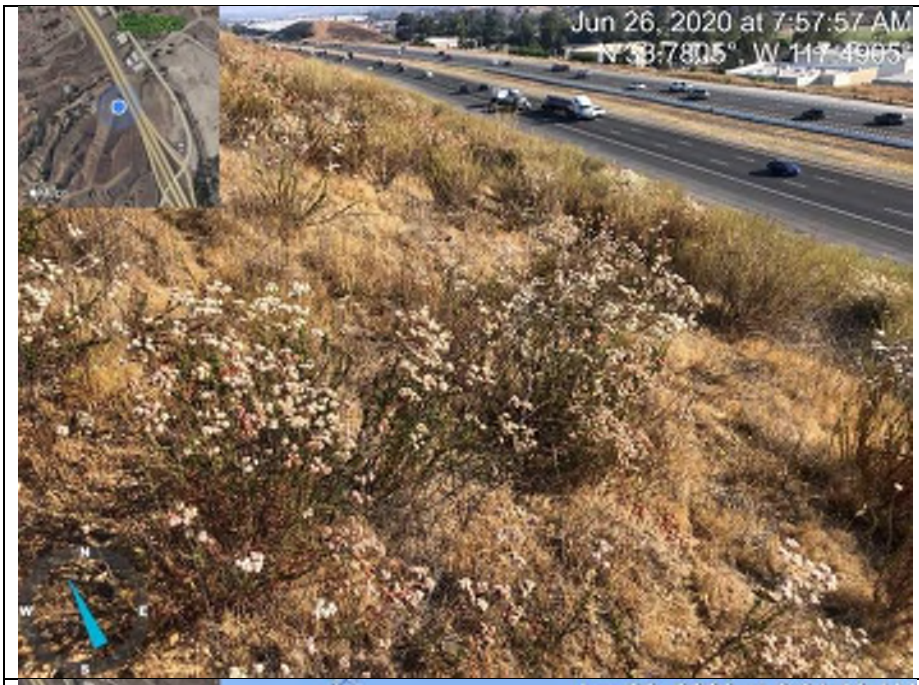
	**Photo 27** **Description:** Viewing of a field dominated by *Encelia farinosa* (photo location and direction depicted in Figure 3).
	**Photo 28** **Description:** Viewing of the ruderal plant community along the northbound lanes of I-15 as well as the mixed nonnative grasslands farther east (photo location and direction depicted in Figure 3).

	**Photo 29** **Description:** Viewing of a mix of nonnative grassland, elderberry, and willow trees running along a drainage.
	**Photo 30** **Description:** Viewing of a riparian scrub community alongside another drainage.

	**Photo 31** **Description:** Viewing of a brittle bush community on the downslope, western side of I-15; adjacent to a riparian forest community.
	**Photo 32** **Description:** Viewing of a riparian herbaceous vegetation community alongside several willow and palm trees.

	**Photo 33** **Description:** Viewing of a community dominated by California Buckwheat Scrub (photo location and direction depicted in Figure 3).
	**Photo 34** **Description:** Viewing of the disturbed, plowed fields directly west of the southbound lanes of I-15 (photo location and direction depicted in Figure 3).

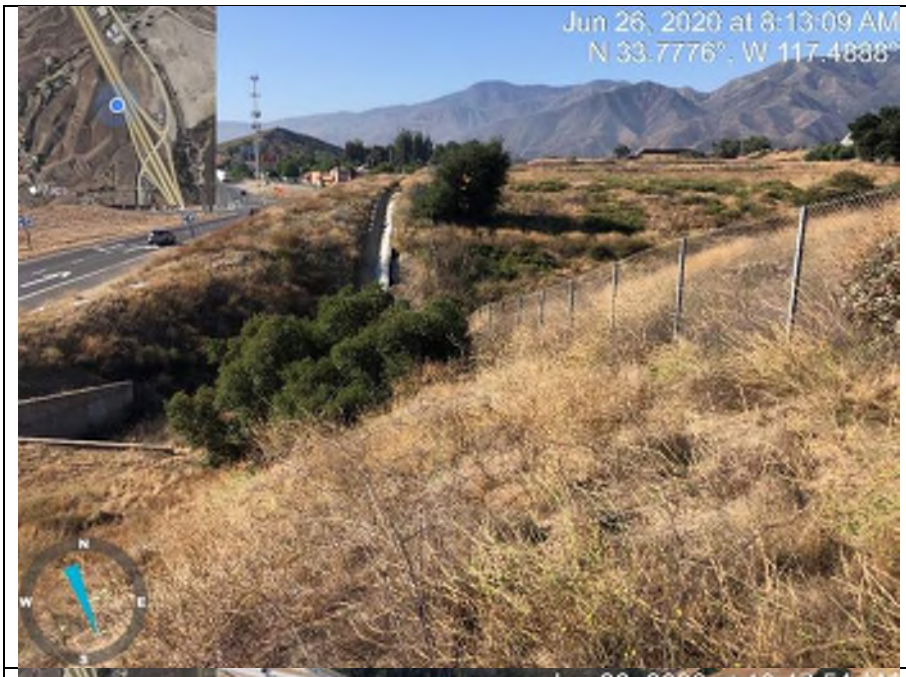
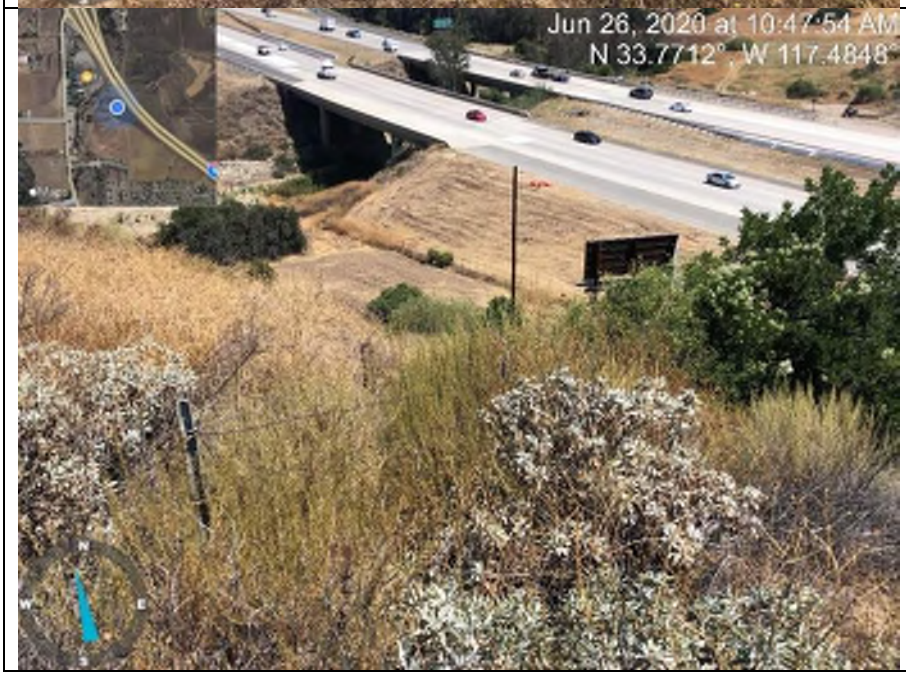
	**Photo 35** **Description:** Nonnative grasses mixed with Laurel Sumac near a drainage feature by the Temescal Canyon Road southbound off-ramp (photo location and direction depicted in Figure 3).
	**Photo 36** **Description:** Scrub community overlooking disced fields and the dry floodplain (Coldwater Canyon Creek) underneath the I-15 overpass (photo location and direction depicted in Figure 3).

	**Photo 37** **Description:** California Buckwheat and California Sage Scrub communities alongside the southbound lanes of I-15. Abruptly shifts towards nonnative grassland habitat moving farther south.
	**Photo 38** **Description:** Viewing of a fallow and disced agricultural plot of land (photo location and direction depicted in Figure 3).

	**Photo 39** **Description:** Viewing of the plowed fields and disturbed grasslands in one of the protocol survey sites for Burrowing Owl; West of the I-15 southbound lanes (photo location and direction depicted in Figure 3).
	**Photo 40** **Description:** Viewing of a wooden debris pile near potential Burrowing Owl burrows adjacent to private property; west of the southbound lanes (photo location and direction depicted in Figure 3).

	**Photo 41** **Description:** Viewing of the west side of an expansive riparian habitat (Temescal Wash), with a mix of buckwheat and sage scrub communities along the foothills (photo location and direction depicted in Figure 3).
	**Photo 42** **Description:** Viewing of disturbed and nonnative plants directly adjacent to a Eucalyptus woodland (photo location and direction depicted in Figure 3).

	**Photo 43** **Description:** Viewing of compacted dirt and weedy vegetation along a drainage area in the northern section of the biological study area (photo location and direction depicted in Figure 3).
	**Photo 44** **Description:** Viewing of an inundated section of the riparian corridor within Temescal Wash, west of the I-15 southbound lanes; towards the southern portion of the biological study area (photo location and direction depicted in Figure 3).

	**Photo 45** **Description:** Viewing of a drainage basin structure found within the riparian woodland corridor west of I-15 (photo location and direction depicted in Figure 3).
	**Photo 46** **Description:** Facing the riparian habitat and surrounding grassland/scrub communities; primarily featuring *Schoenoplectus* (photo location and direction depicted in Figure 3).

	**Photo 47** **Description:** Ruderal plants and weedy species alongside the I-15 southbound lanes and east of the riparian habitat in Temescal Wash (photo location and direction depicted in Figure 3).
	**Photo 48** **Description:** Viewing of a culvert and tunnel entrance that was monitored for bat activity during an evening survey.

Photo 49

Description:
Viewing the disturbed habitat underneath an overpass during an evening bat acoustic survey at Coldwater Wash (photo location and direction depicted in Figure 3).

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Appendix F Field Personnel and Qualifications

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Table F-1. Field Personnel and Qualifications

Error! Bookmark not defined.**Name**	**Company**	**Years of Experience**	**Field Skillset**	**Permits**	**Surveys Performed for Project**
Vincent Baker	ICF	2	General biological surveys; habitat assessments; construction monitoring; CAGN and BUOW protocol survey experience, water quality sampling, nesting bird surveys	N/A	Roosting bat surveys; BUOW habitat assessments; protocol surveys for BUOW
Jason Berkley	ICF	32	Experienced with focused surveys for LBV, CAGN, SWFL, California red-legged frog, arroyo toads, desert tortoise, and San Bernardino kangaroo rat; habitat assessments	USFWS Recovery Permit for SWFL, CAGN, LBV, and San Bernardino kangaroo rat, No. TE-009015-4	Protocol surveys for SWFL
Scot Chandler	ICF	TBP	Experience conducting special-status floral surveys, general biological surveys, vegetation mapping	N/A	Special-status floral surveys, rare plant surveys
Crysta Dickson	ICF	18	Experience conducting habitat assessments and vegetation mapping; general biological surveys; regulatory compliance; construction monitoring	USFWS Recovery Permit #TE-067347-5 for CAGN, quino checkerspot butterfly and vernal pool branchiopods	Protocol fairy shrimp vernal pool surveys
Kelsey Dix	ICF	5	Experience conducting special-status floral surveys, general biological surveys, vegetation mapping, jurisdictional delineation, and permitting	N/A	Special-status floral surveys, rare plant surveys
Marisa Flores	ICF	15	General biology; reconnaissance surveys and habitat assessments; LBV focused surveys; BUOW habitat assessments and focused surveys; jurisdictional delineations	N/A	Roosting bat survey
Sara Galindo	ICF	4	Botanical surveys, jurisdictional delineations, CRAM surveys	N/A	Special-status plant surveys, rare plant surveys

Error! Bookmark not defined.**Name**	**Company**	**Years of Experience**	**Field Skillset**	**Permits**	**Surveys Performed for Project**
James Hickman	ICF	16	General biological surveys; BUOW, LBV, desert tortoise, mountain yellow-legged frog, flying squirrel, and nesting bird surveys; jurisdictional delineations	CDFW Scientific Collecting Permit #801266-03	Roosting bat survey
Shawn Johnston	ICF	19	General biological surveys; habitat restoration; rare/special-status plan surveys and habitat assessments	N/A	Special-status plant focused surveys; rare plant surveys
Kristen Klinefelter	ICF	9	General biological surveys; jurisdictional delineation; restoration monitoring; rare plant surveys	N/A	Protocol fairy shrimp vernal pool surveys
Will Kohn	ICF	28	General biological surveys; habitat assessments; biological monitoring; BUOW, Swainson's hawk, Tehachapi slender salamander, California red-legged frog, and bat focused surveys	CDFW Scientific Collecting Permit, No. 80114-04; USFWS 10(a)(1)(A); Handling Permit for California tiger salamander	Bat habitat assessment; roosting bat surveys; BUOW habitat assessment; BUOW protocol surveys
Phil Richards	ICF	20	General biological surveys; biological monitoring; wetland delineations; Pacific pocket mouse, SKR, San Bernardino kangaroo rat, and CAGN focused surveys; rare plant surveys	USFWS permit for CAGN TE #095896	Roosting bat surveys; rare plant, LBV, and BUOW habitat assessments; protocol surveys for BUOW and LBV.
Frank Wegscheider	ICF	22	General biological surveys; herpetological survey experience; fairy shrimp, arroyo toad, yellow-legged frog, red-legged frog, coast range newt, California tiger salamander, western pond turtle, BUOW, and desert tortoise surveys	USFWS Permit for TE fairy shrimp, #038716-3	Protocol fairy shrimp vernal pool surveys

BUOW = burrowing owl; CAGN = California gnatcatcher; CDFW= California Department of Fish and Wildlife; CRAM = California Rapid Assessment Method; LBV = least Bell's vireo; SKR = Stephens' kangaroo rat; SWFL = southwestern willow flycatcher; USFWS = U.S. Fish and Wildlife Service

Appendix G Biological Survey Data

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Table G-1. Jurisdictional Waters and Wetlands Delineation Survey Dates and Personnel

Date(s)	Survey Type	Personnel
August 11–13, 25–27, December 14, 2020; February 8, 2021	Delineation for federal jurisdictional waters and wetlands, CDFW streambeds, and MSHCP riparian-riverine resources.	HDR: Sarah Barrera, Allegra Engleson, Aaron Newton, Rebecca Schartau, and Ingrid Eich

Source: HDR 2021.
CDFW = California Department of Fish and Wildlife; MSHCP = Multiple Species Habitat Conservation Plan.

Table G-2. Vegetation Mapping and Rare Plant Survey Dates, Times, Conditions, and Personnel

Date	Start/ End Time	Temperature (Start/Stop, °F)	Wind Speed (mph)	% Cloud Cover	Personnel
2020					
4/14/20	1235–1639	77–78	2–5	0	Phil Richards
4/17/20	1237–1609	67–68	2–6	75–50	Phil Richards
4/17/20	1430–1932	68–61	1–3	20–50	Scot Chandler
4/18/20	0944–1914	58–60	4–5	95–100	Scot Chandler
4/19/20	0853–1921	55–62	0–3	75–0	Scot Chandler
4/19/20	1430–1730	66–55	0	30–0	Kelsey Dix
4/20/20	0800–1552	73–76	1–5	60–50	Shawn Johnston
4/20/20	0933–1852	63–68	0–4	90–50	Scot Chandler
4/21/20	0834–1645	63–76	2–5	70–5	Shawn Johnston
4/21/20	1047–1719	68–76	0–4	0	Scot Chandler
4/24/20	1029–1730	90–97	1–2	0	Kelsey Dix
4/28/20	0741–1350	76–86	1–3	0	Shawn Johnston
4/28/20	0830–1500	79–91	1–6	0	Phil Richards
4/30/20	0801–1604	76–83	1–8	0	Shawn Johnston
5/4/20	0754–1515	62–88	1–5	0	Phil Richards
5/5/20	0900–1600	72–95	1–4	0	Phil Richards
5/6/20	0745–1530	68–94	2–5	0	Phil Richards
5/7/20	0740–1645	70–92	0–3	0	Phil Richards
5/7/20	0810–1525	78–98	1–3	5–35	Shawn Johnston
5/21/20	0815–1510	76–90	2–12	20–0	Shawn Johnston
6/9/20	0911–1434	83–92	1–4	0	Shawn Johnston, Phil Richards
6/10/20	0717–1444	66–98	0–3	0	Shawn Johnston, Phil Richards
6/11/20	0741–1353	68–91	1–5	0	Shawn Johnston, Phil Richards, Sara Galindo
2021					
4/27/2021	0820–1520	55–72	0–12	26–50	Shawn Johnston, Brian Cropper, Kelsey Dix
4/28/2021	0805–1500	55–76	0–12	25–0	Shawn Johnston
4/29/2021	0800–1515	57–78	0–7	0–25	Shawn Johnston, Brian Cropper, Kelsey Dix
6/29/2021	0730–1430	70–91	0–7	50–25	Shawn Johnston, Brian Cropper
6/30/2021	0730–1430	69–92	0–7	100–0	Shawn Johnston, Brian Cropper
7/1/2021	0700–1430	68–95	0–7	25–0	Shawn Johnston, Brian Cropper
7/22/2021	0730–1320	75–89	0–7	25–0	Shawn Johnston, Brian Cropper

°F = degrees Fahrenheit; mph=miles per hour

Table G-3. Rare Plant Reference Site Population Status

Date	Common Name	Species Name	Status (Federal/State/ CRPR[1]/ MSHCP)	Location	Reference Population Status
4/20/2020	San Diego ambrosia	*Ambrosia pumila*	FE/-/1B.1/ MSHCP(b)	Off Nichols Road	Vegetative, leafing out, no florescence
4/20/2020	Coulter's goldfields	*Lasthenia glabrata* spp*. coulteri*	-/-/1B.1/ MSHCP(d)	Off Nichols Road	Phenology approximately 50% flowering and 50% fruiting
4/28/2020	Chaparral sand verbena	*Abronia villosa* var. *aurita*	-/-/1B.1/-	Temescal Canyon Road	Flowering
6/10/2020	White rabbit tobacco	*Pseudognaphalium leucocephalum*	-/-/2B.2/-	Temescal Canyon Road	Flowering
4/27/2021	Coulter's goldfields	*Lasthenia glabrata* spp*. coulteri*	-/-/1B.1/ MSHCP(d)	Off Nichols Road	Phenology approximately 100% fruiting
4/29/2021	Munz's Onion	*Allium munzii*	FE/T/1B.1/?	South of De Palma road between Indian Truck Trail Road and Horse Thief Canyon Road	Phenology Approximately 25% flowering and 75% fruiting
6/30/2021	White rabbit tobacco	*Pseudognaphalium leucocephalum*	-/-/2B.2/-	Temescal Canyon Road	Phenology: 50%budding
7/1/2021	Chaparral sand verbena	*Abronia villosa* var. *aurita*	-/-/1B.1/-	Temescal Canyon Road	Phenology 50% Flowering and 50% fruiting
6/30/2021	San Diego ambrosia	*Ambrosia pumila*	FE/-/1B.1/ MSHCP(b)	Off Nichols Road	Phenology 50% Flowering and 50% fruiting

[1]CRPR = California Rare Plant Rank
1B – plants rare, threatened, or endangered in California and elsewhere
2B – plants rare, threatened, or endangered in California, but more common elsewhere
.1 – seriously threatened in California
.2 – fairly threatened in California
FE = federally endangered
MSHCP(b) = Surveys may be required within the Narrow Endemic Plant Species survey area
MSHCP(d) = Surveys may be required within Criteria Area

Table G-4. Wet Season Fairy Shrimp Survey Dates, Times, Personnel, and Conditions for 2019/2020

Visit	Date	Time	Personnel	Weather Conditions
1	12/31/2019	0715–1250	Frank Wegscheider/ Crysta Dickson	59°F–70°F, winds 0–30 mph, 80%–100% cloud cover, good visibility
2	1/2/2020	0710–1515	Frank Wegscheider/ Kristen Klinefelter	45°F–64F, winds 3–13 mph, 10%–60% cloud cover, good visibility
3	1/3/2020	0730–1250	Frank Wegscheider/ Kristen Klinefelter	50°F–71°F, winds 0–6 mph, 80% cloud cover, good visibility
4	1/7/2020	0730–1530	Frank Wegscheider/ Kristen Klinefelter	47°F–76°F, winds 0–3 mph, 10%–70% cloud cover, good visibility
5	1/14/2020	0850–1625	Frank Wegscheider/ Kristen Klinefelter	48°F–61°F, winds 1–5 mph, 100% cloud cover, poor–good visibility
6	1/17/2020	0930–1635	Frank Wegscheider/ Kristen Klinefelter	51°F–63°F, winds 0–6 mph, 100% cloud cover, light rain
7	1/21/2020	0930–1320	Frank Wegscheider/ Kristen Klinefelter	54°F–60°F, winds 1–6 mph, 50% cloud cover, good visibility
8	1/24/2020	0930–1510	Frank Wegscheider	52°F–75°F, winds 0–7 mph, 0% cloud cover, good visibility
9	1/28/2020	0930–1540	Frank Wegscheider	54°F–74°F, winds 5–12 mph, 30% cloud cover, good visibility
10	1/31/2020	0920–1530	Frank Wegscheider	49°F–78°F, winds 0–6 mph, 20% cloud cover, good visibility
11	2/4/2020	0955–1600	Frank Wegscheider	45°F–56°F, winds 20–30 mph, 0% cloud cover, good visibility
12	2/7/2020	1130–1330	Frank Wegscheider	42°F–68°F, winds 0–6 mph, 0% cloud cover, good visibility
13	2/11/2020	1000–1605	Frank Wegscheider	60°F–70°F, winds 6–25 mph, 0% cloud cover, good visibility
14	2/14/2020	1030–1640	Frank Wegscheider	50°F–69°F, winds 0–9 mph, 0% cloud cover, good visibility
15	2/18/2020	1130–1320	Frank Wegscheider	56°F–75°F, winds 0–12 mph, 60% cloud cover, good visibility
16	2/25/2020	1030–1240	Frank Wegscheider	71–80°F, winds 7–25 mph, 0% cloud cover, good visibility
17	2/29/2020	1000–1444	Frank Wegscheider	63–72°F, winds 0–10 mph, 20% cloud cover, good visibility
18	3/4/2020	0900–1045	Crysta Dickson	59–61°F, winds 0–1 mph, 10% cloud cover, good visibility
19	3/7/2020	0915–1115	Frank Wegscheider	54–64°F, winds 5–14 mph, 90% cloud cover, good visibility
20	3/11/2020	0740–1450	Frank Wegscheider/ Kristen Klinefelter	57–72°F, winds 0–15 mph, 90% cloud cover, good visibility
21	3/13/2020	1030–1730	Frank Wegscheider	54–56°F, winds 0–7 mph, 100% cloud cover, good visibility
22	3/17/2020	0930–1740	Frank Wegscheider	49–57°F, winds 3–10 mph, 80% cloud cover, good visibility
23	3/20/2020	0900–1720	Frank Wegscheider	51–62°F, winds 5–7 mph, 15% cloud cover, good visibility
24	3/21/2020	0930–1230	Frank Wegscheider	53–64°F, winds 0–12 mph, 30% cloud cover, good visibility
25	3/24/2020	1010–1815	Frank Wegscheider	54–62°F, winds 5–12 mph, 30% cloud cover, good visibility

Visit	Date	Time	Personnel	Weather Conditions
26	3/27/2020	0915–1720	Frank Wegscheider	46–63°F, winds 0–13 mph, 10% cloud cover, good visibility
27	3/28/2020	0910–1215	Frank Wegscheider	59–65°F, winds 3–10 mph, 25% cloud cover, good visibility
28	3/31/2020	1005–1505	Frank Wegscheider	61–77°F, winds 3–8 mph, 100% cloud cover, good visibility
29	4/3/2020	1150–1540	Frank Wegscheider	66–70°F, winds 8–15 mph, 10% cloud cover, good visibility
30	4/4/2020	0805–1400	Frank Wegscheider	55–68°F, winds 0–16 mph 30% cloud cover, good visibility
21	4/7/2020	0830–1630	Frank Wegscheider	52–59°F, winds 3–9 mph, 100% cloud cover, good visibility
32	4/10/2020	0810–1615	Frank Wegscheider	49–59°F, winds 7–12 mph, 100% cloud cover, good visibility
33	4/11/2020	0805–1330	Frank Wegscheider	50–68°F, winds 0–13 mph, 20% cloud cover, good visibility
34	4/14/2020	0820–1550	Frank Wegscheider	53–79°F, winds 0–9 mph, 0% cloud cover, good visibility
35	4/17/2020	0815–1555	Frank Wegscheider	55–68°F, winds 0–15 mph, 40% cloud cover, good visibility
36	4/18/2020	0835–1325	Frank Wegscheider	54–62°F, winds 7–12 mph, 100% cloud cover, good visibility
37	4/21/2020	0820–1355	Frank Wegscheider	56–74°F, winds 5–14 mph, 30% cloud cover, good visibility
38	4/24/2020	0845–1635	Frank Wegscheider	70–96°F, winds 0–8 mph, 0% cloud cover, good visibility
39	4/28/2020	0855–1220	Frank Wegscheider	67–90°F, winds 0–12 mph, 0% cloud cover, good visibility
40	5/2/2020	0830–1405	Frank Wegscheider	72–83°F, winds 5–11 mph, 0% cloud cover, good visibility
41	5/5/2020	1115–1645	Frank Wegscheider	66–81°F, winds 0–6 mph, 0% cloud cover, good visibility
42	5/9/2020	0930–1140	Frank Wegscheider	76–84°F, winds 4–7 mph, 10% cloud cover, good visibility
43	5/16/2020	0825–1115	Frank Wegscheider	70–81°F, winds 3–7 mph, 0% cloud cover, good visibility
44	5/23/2020	1140–1455	Frank Wegscheider	74–78°F, winds 4–9 mph, 0% cloud cover, good visibility
45	5/30/2020	1100–1310	Frank Wegscheider	69–79°F, winds 2–5 mph, 0% cloud cover, good visibility
46	6/6/2020	1030–1235	Frank Wegscheider	71–73°F, winds 1–7 mph, 100% cloud cover, good visibility
47	6/13/2020	1000–1155	Frank Wegscheider	68–77°F, winds 2–8 mph, 0% cloud cover, good visibility
48	6/20/2020	0910–1135	Frank Wegscheider	67–74°F, winds 2–4 mph, 100% cloud cover, good visibility
48	6/22/2020	0815–1125	Frank Wegscheider/ Crysta Dickson	68–79°F, winds 1–6 mph, 40% cloud cover, good visibility
50	6/27/2020	0900–1050	Frank Wegscheider	79–89°F, winds 3–5 mph, 0% cloud cover, good visibility
51	7/4/2020	0830–1150	Frank Wegscheider	80–95°F, winds 0–5 mph, 0% cloud cover, good visibility

Visit	Date	Time	Personnel	Weather Conditions
52	7/11/2020	0910–1140	Frank Wegscheider	86–103°F, winds 1–5 mph, 0% cloud cover, good visibility
53	7/18/2020	0920–1105	Frank Wegscheider	76–89°F, winds 2–9 mph, 0% cloud cover, good visibility

°F=Fahrenheit; mph=miles per hour

Table G-5. Wet Season Fairy Shrimp Survey Dates, Times, Personnel, and Conditions for 2020/2021

Visit	Date	Time	Personnel	Weather Conditions
1	12/30/20	1200–1415	Crysta Dixon	68°F–70°F, winds 0–3 mph, 0%–0% cloud cover, good visibility
2	12/30/20	1135–1510	Frank Wegscheider	68°F–86°F, winds 1–7 mph, 0–15 % cloud cover, good visibility
3	12/31/20	1000–1215	Crysta Dixon	64°F–64F, winds 0–3 mph, 10%–60% cloud cover, good visibility
4	1/06/21	1145–1430	Frank Wegscheider	76°F–77°F, winds 1–4 mph, 50–20% cloud cover, good visibility
5	1/12/21	0755–1220	Frank Wegscheider	49°F–61°F, winds 1–7 mph, 30–0 % cloud cover, good visibility
6	1/21/21	0940–1145	Frank Wegscheider	68°F–74°F, winds 2–7 mph, 0% cloud cover, good visibility
7	1/27/21	0750–1230	Frank Wegscheider	50°F–71°F, winds 1–3 mph, 80–30 % cloud cover, good visibility
8	2/04/21	0845–1440	Frank Wegscheider	51°F–75F, winds 1–6 mph, 0% cloud cover, good visibility
9	2/11/21	0855–1240	Frank Wegscheider	66°F–81°F, winds 2–4 mph, 0 % cloud cover, good visibility
10	2/18/21	0850–1150	Frank Wegscheider	60°F–64°F, winds 1–8 mph, 0 % cloud cover, good visibility
11	2/25/21	1100–1315	Frank Wegscheider	70°F–75°F, winds 1–5 mph, 0 % cloud cover, good visibility
12	3/04/21	0910–1520	Frank Wegscheider	57°F–70°F, winds 2–8 mph, 0–15 % cloud cover, good visibility
13	3/11/21	0710–1535	Frank Wegscheider	48°F–58°F, winds 2–9 mph, 0–50 % cloud cover, good visibility
14	3/19/21	0700–1055	Frank Wegscheider	53°F–71°F, winds 0–4 mph, 0% cloud cover, good visibility
15	3/26/21	0800–1135	Frank Wegscheider	52°F–69°F, winds 1–5 mph, 90–0 % cloud cover, good visibility
16	4/02/21	0805–1020	Frank Wegscheider	41°F–72°F, winds 0–6 mph, 0% cloud cover, good visibility
17	4/09/21	0820–0950	Frank Wegscheider	65°F, winds 3–6 mph, 0% cloud cover, good visibility
18	4/17/21	1255–1415	Frank Wegscheider	79°F–81°F, winds 2–4 mph, 0% cloud cover, good visibility

°F=Fahrenheit; mph=miles per hour

Table G-6. Southwestern Willow Flycatcher and Least Bell's Vireo Protocol Presence/Absence Survey Data

Survey Date	Survey Type and Number	Start–End Time	Temperature (Start–Stop, °F)	Wind Speed (mph)	% Cloud Cover (Start–Stop)	Surveyors	Species Detected
2020							
5/4/2020	LBV, Seg C - 1	0640–1015	55–82	0–0	0–3	Will Kohn	Yes LBV
5/6/2020	LBV, Seg B - 1	0643–1050	63–80	0–3	0–0	Will Kohn	No LBV
5/8/2020	LBV, Seg A - 1	0700–1051	69–88	0–3	0–0	Phil Richards	No LBV
5/14/2020	LBV, Seg C - 2	0715–1030	51–68	0–3	100–0	Will Kohn	Yes LBV
5/16/2020	LBV, Seg B - 2	0705–1030	64	0	0	Will Kohn	Yes LBV
5/18/20	LBV, Seg A - 2	0630–1040	65–71	0–4	90–50	Phil Richards	No LBV
5/25/2020	LBV, Seg C - 3	0715–1015	65–82	0–3	0–0	Will Kohn	No LBV
5/26/2020	LBV, Seg B - 3	0710–0955	64–84	0–5	0–0	Will Kohn	Yes LBV
5/27/2020	SWFL1	0530–1000	58–85	0–0	0–0	Jason Berkley	No SWFL
5/29/2020	LBV, Seg A - 3	0625–1050	64–70	0–4	100–40	Phil Richards	No LBV
5/31/2020	SWFL1	0630–0830	57–64	0–9	80–80	Jason Berkley	No SWFL
6/5/2020	LBV, Seg B - 4	0700–1100	61–73	2–4	100–75	Phil Richards	Yes LBV
6/8/2020	LBV, Seg A (half) - 4	0710–0910	68–73	0–15	75–0	Phil Richards	No LBV
6/9/2020	LBV – Seg A (half) 4	0645–0810	64–79	0–4	0–0	Phil Richards	No LBV
6/9/2020	LBV, Seg C - 4	0640–0800	60–79	1–5	0–0	Will Kohn	Yes LBV
6/12/2020	SWFL2	0530–1010	60–88	0–0	0–0	Jason Berkley	No SWFL
6/19/2020	LBV, Seg C - 5	0724–0947	68–73	0–3	100–75	Will Kohn	Yes LBV
6/19/2020	LBV, Seg A – 5	0655–1100	61–70	1 to 4	100–5	Phil Richards	No LBV
6/22/2020	LBV, Seg B – 5	0710–1100	63–78	1 to 5	100–0	Phil Richards	No LBV
6/22/2020	SWFL3	0530–0930	63–67	0–0	100–100	Jason Berkley	No SWFL
6/30/2020	LBV, Seg A - 6	0650–1100	64	0–2	100	Phil Richards	Yes LBV
7/2/2020	SWFL4	0530–0930	61–64	0–0	100–100	Jason Berkley	No SWFL
7/2/2020	LBV, Seg C - 6	0720–0918	62–67	1–3	100–50	Will Kohn	No LBV
7/2/2020	LBV, Seg B - 6	0700–1100	64–74	1–5	100–0	Phil Richards	No LBV
7/10/2020	SWFL5	0515–0930	61–72	0–0	100–0	Jason Berkley	No SWFL
7/14/2020	LBV, Seg C - 7	0715–0915	64–72	0–3	80–0	Will Kohn	Yes LBV

Survey Date	Survey Type and Number	Start–End Time	Temperature (Start–Stop, °F)	Wind Speed (mph)	% Cloud Cover (Start–Stop)	Surveyors	Species Detected
7/14/2020	LBV, Seg A - 7	0655–1055	68–86	0–4	50–10	Phil Richards	No LBV
7/15/2020	LBV, Seg B - 7	0710–1100	64–82	1–5	100–0	Phil Richards	Yes LBV
7/24/2020	LBV – Seg C - 8	0735–0925	61–66	0–3	100–0	Will Kohn	No LBV
7/24/2020	LBV, Seg A - 8	0650–1100	64–75	1–5	100–0	Phil Richards	Yes LBV
7/28/2020	LBV, Seg B - 8	0700–100	61–86	0–4	0–0	Phil Richards	Yes LBV
2021							
5/11/2021	LBV1	0830–0930	60–61	0	0	Marisa Flores	No LBV
5/23/2021	LBV2 and SWFL1	0600–0800	52–57	0	0	Jason Berkley	No LBV or SWFL
6/1/2021	LBV3	0730–0900	62–73	0–2	0	Vincent Baker	No LBV
06/8/21	SWFL2	0615–0830	58–63	1–3	100	Jason Berkley	No SWFL
6/21/2021	LBV4	0730–0840	64–66	0–1	0	Vincent Baker	No LBV
6/24/2021	SWFL3	053–0830	60–71	0	0	Jason Berkley	No SWFL
7/1/2021	LBV5	0730–0845	66	0–2	0	Vincent Baker	No LBV
7/6/2021	SWFL4	0545–0745	65–71	0	0	Jason Berkley	No SWFL
7/11/2021	LBV6	0735–0845	72–73	1–2	50	Vincent Baker	No LBV
7/16/2021	SWLF5	0630–0900	68–76	0	0	Jason Berkley	No SWFL
7/21/2021	LBV7	0640–0745	73–75	0–2	0–5	Vincent Baker	No LBV
7/31/2021	LBV8	0730–0910	74–82	1–4	10–5	Frank Wegscheider	No LBV

°F=Fahrenheit; mph=miles per hour
SWFL = southwestern willow flycatcher
LBV = least Bell's vireo

Table G-7. Burrowing Owl Habitat Evaluation Survey Dates, Times, Conditions, and Personnel

Date	Start–End Time	Temperature (Start–Stop, °F)	Wind Speed (mph)	% Cloud Cover	Personnel
2020					
2/25/20	0830–1500	65–80	2–4	0	Phil Richards, Vincent Baker
3/5/20	0815–1520	59–81	1–5	5–20	Phil Richards, Vincent Baker
3/6/20	0805–1040	59–71	1–4	5–0	Phil Richards, Vincent Baker
5/15/20	0745–1000	61–80	2–4	0	Phil Richards, Vincent Baker
6/26/20	0725–1345	66–88	1–6	0	Phil Richards, Vincent Baker
6/30/20	0735 –1445	63–82	1–3	100–0	Phil Richards, Vincent Baker
7/1/20	1000–1435	68–80	2–5	100–0	Phil Richards, Vincent Baker
7/7/20	1015–1430	84–90	2–5	0	Phil Richards, Vincent Baker
2021					
5/14/2021	0815–1500	59–79	2–8	100–0	Vincent Baker
5/28/2021	1030–1500	60–83	5–9	100–50	Will Kohn
6/2/2021	1100–1515	86–90	5–7	0	Vincent Baker
6/3/2021	1100–1600	82–87	5–7	0	Vincent Baker

°F=Fahrenheit; mph=miles per hour

Table G-8. Burrowing Owl Protocol Survey Dates, Times, Conditions, and Personnel

Visit #	Date	Start–End Time	Temperature (Start–Stop, °F)	Wind Speed (mph)	% Cloud Cover	Personnel
2020						
1	5/15/20	0600–0745	54–61	1–3	0	Phil Richards, Vincent Baker
1	7/15/20	1825–2045	76–88	2–5	0	Will Kohn
1	7/16/20	0525–0750	62–64	0–3	0	Phil Richards
1	7/16/20	0515–0730	62–64	0–3	0	Vincent Baker
1	7/17/20	0530–0740	64–70	0–3	0	Phil Richards
2	5/18/20	0615–0735	61–63	0–3	75–90	Vincent Baker
2	7/21/20	0540–0755	65–69	0–3	0	Phil Richards
2	7/22/20	0515–0730	61–63	1–4	100–25	Vincent Baker
2	7/22/20	0500–0730	61–63	1–4	100–25	Will Kohn
2	7/30/20	0550–0750	66–72	1–4	0	Phil Richards
3	5/26/20	0550–0725	61–64	1–3	0	Vincent Baker
3	7/28/20	0515–0735	61–66	0–2	0	Vincent Baker
3	7/31/20	0555–0755	72–82	0–3	0	Phil Richards
3	8/04/20	0520–0740	63–69	0–1	0	Will Kohn
3	8/07/20	0600–0800	60–64	0–3	0	Phil Richards
4	6/04/20	0540–0720	64–67	0–3	0	Vincent Baker
4	8/06/20	0515–0740	63–64	1–5	100	Vincent Baker
4	8/14/20	0605–0805	72–81	0–3	0	Phil Richards
4	8/24/20	0530–0815	75–84	0–3	0	Will Kohn
4	8/31/20	0630–0830	64–68	0–3	0	Phil Richards
2021						
1	6/18/21	0605–0725	73–74	1–2	75	Vincent Baker
1	7/1/21	0605–0730	64–66	0–6	0	Vincent Baker
1	7/21/21	0605–0725	72–73	1–2	50–25	Vincent Baker
1	7/28/21	0620–0710	68–70	0–2	0	Vincent Baker
2	6/23/21	0550–0630	66	0–1	75	Vincent Baker
2	7/2/21	0600–0730	62–66	0–5	0	Vincent Baker
2	7/22/21	0615–0735	72	0–2	0	Vincent Baker
2	8/2/21	0610–0705	70–71	1–3	0	Vincent Baker
3	6/24/21	0600–0705	61, 63	0–2	25	Vincent Baker
3	7/6/21	0600–0710	63, 64	2–5	0	Vincent Baker
3	7/26/21	0615–0735	68	0–1	0	Vincent Baker
3	8/3/21	0630–0715	72	0–2	0	Vincent Baker
4	6/25/21	0545–0650	57, 59	1–3	0	Vincent Baker
4	7/20/21	0620–0715	70, 72	2–3	0	Vincent Baker
4	7/27/21	0600–0725	67–69	0–2	50–0	Vincent Baker
4	8/9/21	0605–0700	71–73	0–2	0	Vincent Baker

°F=Fahrenheit; mph=miles per hour

Table G-9. Special-Status Bat Survey Data, Conditions, and Personnel

Site	Date	Start–End Time	Coordinates	Temperature (Start–Stop °F); Average Wind Speed (mph); Cloud Cover	Personnel
2020					
1	9/15/2020	1830–2030	Zone 11 S 0436439, 3765777	88–77°F; 0–1 mph; hazy/smoky	ICF: Will Kohn, Vincent Baker
2	9/15/2020	1830–2030	Zone 11 S 0436190, 3765781	88–77°F; 0–1 mph; hazy/smoky	ICF: Phil Richards, Marisa Flores
3	9/16/2020	1830–2030	Zone 11 S 436474, 3765685	88–82°F; 1–3 mph; hazy/smoky	ICF: Phil Richards, Vincent Baker
4	9/16/2020	1830–2030	Zone 11 S 0436236m E, 3765687m N	88–82°F; 1–3 mph; hazy/smoky	ICF: Will Kohn, James Hickman
2	9/28/2020	1830–2030	Zone 11 S 0436439m E, 3765777m N	90–86°F; 1–3 mph; clear skies	ICF: Will Kohn, Phil Richards
4	9/28/2020	1830–2030	Zone 11 S 0436190m E, 3765781m N	90–86°F; 1–3 mph; clear skies	ICF: Will Kohn, Phil Richards
2021					
5	7/28/2021	1935–2045	Zone 11 S 0463537m E, 3732187m N	90°F; 0–1 mph; clear skies	ICF: Vincent Baker
6	7/28/2021	1935–2045	Zone 11 S 0465216m E, 3731987m N	87–84°F; 1–2 mph; mostly clear	ICF: Marisa Flores
7	7/28/2021	1935–2045	Zone 11 S 465330 E 3731913m N	87–84°F; 1–2 mph; mostly clear	ICF: James Hickman
2022					
8	1/26/2022	None reported	Zone 11 S 33.8209465, 117.5183264	None reported	Caltrans: Michael Grimes, Natasha Walton
11	1/26/2022	None reported	Zone 11 S 33.8184151 117.5151493	None reported	Caltrans: Michael Grimes, Natasha Walton
12	1/26/2022	None reported	Zone 11 S 33.8069319, 117.5074131	None reported	Caltrans: Michael Grimes, Natasha Walton
8	4/20/2022	1800–2130	Zone 11 S 33.8209465, 117.5183264	None reported	Caltrans: Natasha Walton, Alluvion: Jenerro Lockhart, Dr. Edward West, Valente Ayala
9	4/20/2022	1800–2130	Zone 11 S 33.8209465, 117.5183264	None reported	Caltrans: Natasha Walton, Alluvion: Jenerro Lockhart, Dr. Edward West, Valente Ayala
10	4/20/2022	1800–2130	Zone 11 S 33.8199482, 117.5178971	None reported	Caltrans: Natasha Walton, Alluvion: Jenerro Lockhart, Dr. Edward West, Valente Ayala
11	4/20/2022	1800–2130	Zone 11 S 33.8184151 117.5151493	None reported	Caltrans: Natasha Walton, Alluvion: Jenerro Lockhart, Dr. Edward West, Valente Ayala

Site	Date	Start–End Time	Coordinates	Temperature (Start–Stop °F); Average Wind Speed (mph); Cloud Cover	Personnel
8	5/18/2022	1951–2121	Zone 11 S 33.8209465, 117.5183264	None reported	Alluvion: Jenerro Lockhart
9	5/18/2022	1951–2121	Zone 11 S 33.8209465, 117.5183264	None reported	Alluvion: Jenerro Lockhart
10	5/18/2022	1951–2121	Zone 11 S 33.8199482, 117.5178971	None reported	Alluvion: Jenerro Lockhart
11	5/18/2022	1951–2121	Zone 11 S 33.8184151 117.5151493	None reported	Alluvion: Jenerro Lockhart

* Alluvion refers to Alluvion Biological Consulting

Table G-10. Tree Inventory Survey Dates and Personnel

Visit	Date	Personnel
1	4/30/2021	Jean-Luc Brullot, Vincent Baker
2	5/7/2021	Jean-Luc Brullot, Vincent Baker
3	5/13/2021	Jean-Luc Brullot, Vincent Baker
4	5/18/2021	Jean-Luc Brullot, Vincent Baker

Appendix H Southwestern Willow Flycatcher Reports – 2020 and 2021

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I-15 Express Lanes Project Southern Extension, 2020 Southwestern Willow Flycatcher Protocol Survey Results, Riverside County, California

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August 2021

ICF. I-15 Express Lanes Project Southern Extension, 2021 Southwestern Willow Flycatcher Protocol Survey Results, Riverside County, California. September.

Contents

Figures

Tables

1.0 Introduction

This report documents the results of the protocol presence/absence surveys conducted by ICF in 2021 for southwestern willow flycatcher (*Empidonax traillii extimus*) for the Interstate (I) 15 Express Lanes Project Southern Extension along Temescal Creek, located in Riverside County, California (Figures 1).

Project Description

The Riverside County Transportation Commission (RCTC) and the California Department of Transportation (Caltrans) District 8 propose to construct improvements along Interstate (I-) 15 between Post Mile [PM] 20.3 and PM 40.1 in Riverside County, California. The primary component of the I-15 Express Lanes Project Southern Extension (Project) would be the addition of two tolled express lanes in both the northbound and southbound directions within the median of I-15 from State Route (SR-) 74 (Central Avenue) (PM 22.3) in the city of Lake Elsinore, through the unincorporated Riverside County community of Temescal Valley, to El Cerrito Road (PM 38.1) in the city of Corona for a distance of approximately 15.8 miles. The proposed project would also add southbound auxiliary lanes between both Main Street (PM 21.2) and SR-74 (Central Avenue), and SR-74 (Central Avenue) and Nichols Road (PM 23.9). In addition to the lane improvements, which extend from PM 21.2 to 38.1, the proposed project would include widening of up to 15 bridges, construction of noise barriers, retaining walls, drainage systems, and implementation of electronic toll collection equipment and signs. Associated improvements, including advance signage and transition striping, would extend approximately two miles from each end of the express lane limits to PM 20.3 in the south and PM 40.1 in the north. The proposed lane improvements and supporting infrastructure would be primarily constructed within the existing State right of way.

The project is located within the jurisdiction of Caltrans District 8 in the cities of Corona, Lake Elsinore, and unincorporated areas of Riverside County. The project occurs within the following portions of U.S. Geological Survey (USGS) 7.5-minute quadrangle maps: Corona South, Lake Mathews, Alberhill, and Elsinore, (USGS 2018, 2018, 2018, Township, range, and section are listed in Table 1, below.

Table 1. Project Location – Township, Range, and Section

Township	Range	Section
4 South	6 West	5, 8, 16, 17, 21, 27
5 South	5 West	1, 2, 12, 27, 34
5 South	4 West	7, 8, 12, 14, 15, 16, 18, 23
5 South 6 South	4 West	5, 6, 23. 24, 25, 30, 31, 36

Biological Survey Area Description

The I-15 project site is located at an elevation of approximately from 1180 to 1309 feet above mean sea level. Temescal Creek runs parallel and passes under the I-15 freeway, and then runs north before emptying into the Santa Ana River. Vegetation along the stream corridor was composed of an overstory of Fremont cottonwood (*Populus fremontii*) and willow (*Salix sp*.) and understory of mulefat (*Baccarhis salicifolia*), willow and poison oak (*Toxicodendron diversilobum*). Emergent vegetation was present consisting of cattails, (*Typha sp*.) and watercress (*Nasturtium officinale*).

The project occurs within suitable habitat for federally-listed southwestern willow flycatcher (SWWF). As a result, ICF conducted protocol level presence/absence surveys for this species within the Biological Study Area (BSA). In Temsecal Creek, the BSA includes approximately five and a half miles Temescal Creek that includes a 300-foot buffer from the edge of the right of way where accessible (Figure 2).

Species Account

Southwestern Willow Flycatcher

The SWWF is one of four subspecies of willow flycatcher in the United States that breeds in southern California and was listed as an endangered species by CDFW in 1991 (CDFW 2017) and the USFWS in 1995 (USFWS 1995). Critical habitat for this species was revised by the USFWS in 2013 (USFWS 2013). The other three willow flycatcher subspecies are not listed as sensitive by the federal or state governments.

This small, insectivorous, migratory bird is usually found in dense riparian vegetation occurring along streams or other wetlands (Sogge et al. 2010). The structure of these habitats typically consists of a dense midstory and understory and can also include a dense canopy (USFWS 1995). However, suitable vegetation is not uniformly dense and typically includes interspersed patches of open habitat. Typical plant species associated with their habitat include willow, , box-elder (*Acer negundo*), stinging nettle (*Urtica* spp.), cottonwood (*Populus* spp.), tamarisk (*Tamarix* spp.), and Russian olive (*Elaeagnus angustifolia*). Plant species composition does not seem as important as a dense twig structure and an abundance of live, green foliage (Sogge et al. 2010). Within the habitat structure parameters discussed above, SWWF does demonstrate adaptability in that it can occupy riparian habitats composed of native broadleaf species, a mix of native and exotic species, or monotypic stands of exotics (Sogge et al. 2010).

SWWF are known to breed in southern California, Arizona, New Mexico, extreme southern portions of Nevada and Utah, far western portions of Texas, possibly in southwestern Colorado, and in extreme northwestern Mexico (USFWS 1995). When listed by the USFWS in 1995, only 577 individuals were known to exist. The decline of this species was mostly due to disturbance and removal of riparian vegetation; water diversions and groundwater pumping; limited food availability and nesting sites; mismanagement of livestock; recreational development; and brood parasitism by the brown-headed cowbird (USFWS 1995).

SWWF usually arrive on their breeding grounds in southern California in early-May and remain through late-July. Timing of departure of locally breeding birds is difficult to determine because of their extremely secretive behavior at that time, coupled with more abundant migrants of the three other willow flycatcher subspecies passing through the area. Migrants of subspecies other than SWWF, such as the northwestern subspecies (*E. t. brewsteri*), are widespread as they pass through southern California. Other subspecies occurrences are mainly from late-May through mid-June, when generally uncommon, and from late-July through September, when fairly common. In light of these migration windows, definitive identification of a willow flycatcher as the southwestern subspecies usually occurs between June 14 and July 17 (Sogge et al. 2010).

2.0 Methods

Southwestern Willow Flycatcher

Five protocol-level SWWF focused surveys of the BSA were conducted following the survey methodology between May 15 and July 17, 2021 (Table 2; Sogge et al. 2010, USFWS 2000). One survey occurred within

the first survey period (May 15–31), two within the second survey period (June 1–24), and two within the third survey period (June 25–July 17). Each survey was conducted at least 5 days apart and was concluded by 1000. Surveys included thorough coverage of all potentially suitable habitats, which consisted of slowly walking with frequent stops to look, listen, and play recordings of flycatcher vocalizations. Recordings were played at distance intervals of approximately 75–100 feet, and only while stationary and after first looking and listening for any potential flycatchers. USFWS Survey Notifications and Survey Forms for Southwestern Willow Flycatcher are provided in Appendices B and C, respectively.

For all focused riparian bird surveys, surveys were not conducted during inclement weather such as extreme hot or cold temperatures, fog, high winds, or rain (Table 2). Flycatcher surveys were conducted by Jason Berkley (USFWS Permit No. TE-009015-5), in conjunction with focused riparian bird surveys. All other bird species that were detected during the survey were recorded. A species list is provided in Appendix D.

3.0 Results

Southwestern Willow Flycatcher

No SWWF were detected during the 2021 focused survey (Tables 2). Suitable SWWF habitat typically consists of a dense mid-story and understory and can also include a dense canopy (USFWS 1995). The riparian habitat within the BSA only provides sufficient structure; the same structure appears to occur both upstream and downstream of the BSA as well. As such, the riparian corridor provides low to moderate suitable foraging and nesting habitat for flycatchers within the BSA. This habitat is associated with the Temescal Creek. At this time, the BSA has a moderate potential to support breeding SWWF. Other sensitive species observed include least Bell's vireo (*Vireo bellii pusillus*) (Federally Endangered [FE], State Endangered [SE] and the yellow warbler (*Setophaga petechia*) (Species of Special Concern [SSC]),

Table 2. I- 5 Express Lanes Project Southern Extension. Southwestern Willow Flycatcher Protocol Presence/Absence Survey Data

Survey Date	Survey Type and Number	Start–End Time	Temperature (Start–Stop, °F)	Wind Speed (mph)	% Cloud Cover (Start–Stop)	Surveyors	Species Detected?
5/23/2021	SWFL1	0600-0800	52-57	0-0	0-0	J. Berkley	No
6/08/2021	SWFL2	0615-0830	58-63	1-3	100-100	J. Berkley	No
6/24/2021	SWFL3	0530-0830	60-71	0-0	0-0	J. Berkley	No
7/06/2021	SWFL4	0545-0745	65-71	0-0	0-0	J. Berkley	No
7/16/2021	SWFL5	0630-0900	68-76	0-0	0-0	J. Berkley	No

4.0 References

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USFWS. 1995. Final rule: Endangered and threatened wildlife and plants; final rule determining endangered status for the Southwestern Willow Flycatcher. Federal Register 60: 10693–10715.

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USFWS. 2013. Final Rule: Designation of critical habitat for the Southwestern Willow Flycatcher. Federal Register 50: 344–534.

5.0 Certification

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.

August 30, 2021

Jason Berkley (Permit No. TE-009015-5)
Wildlife Biologist
Author, Surveys

Date

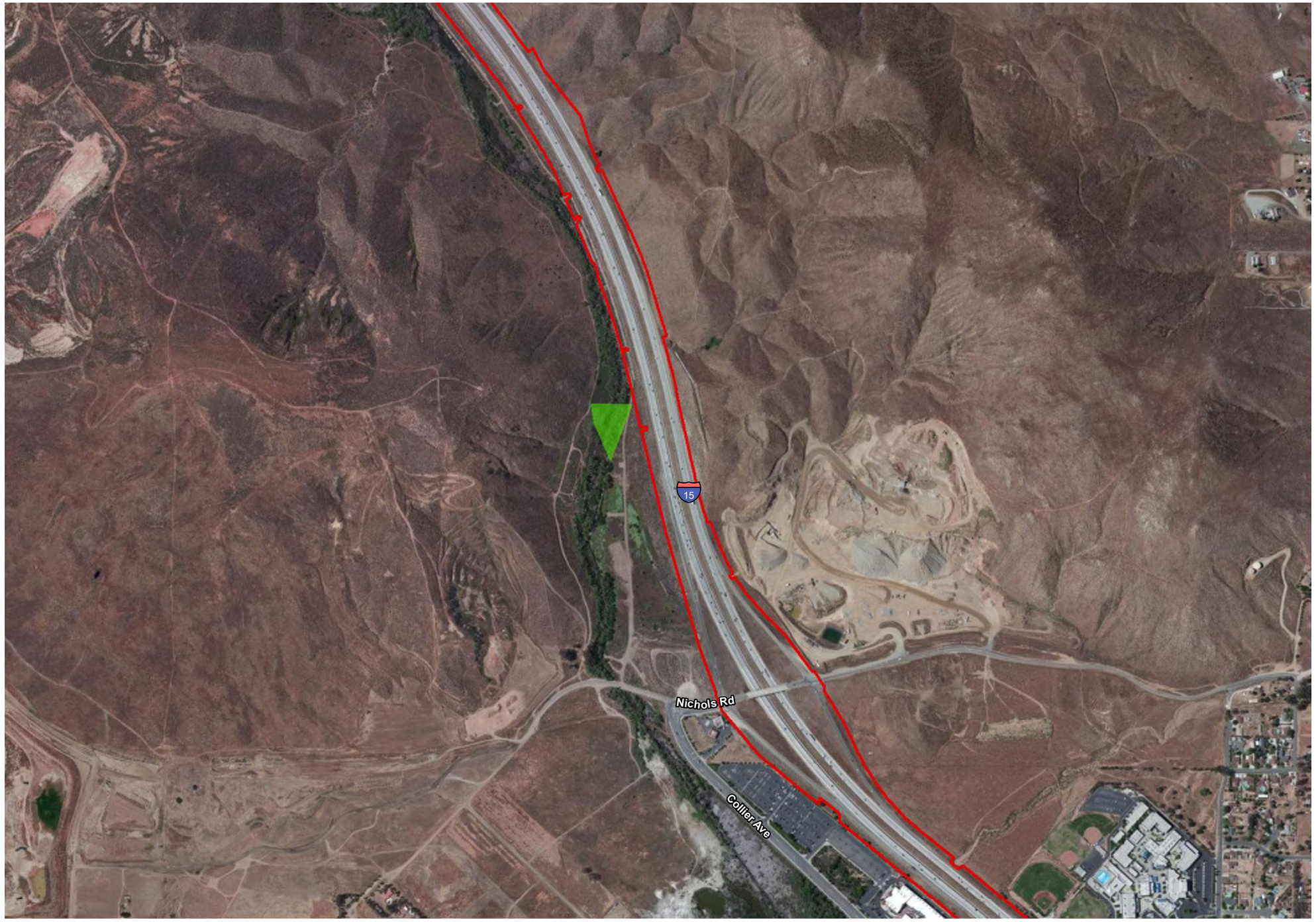
Appendix A
USFWS Survey Notification

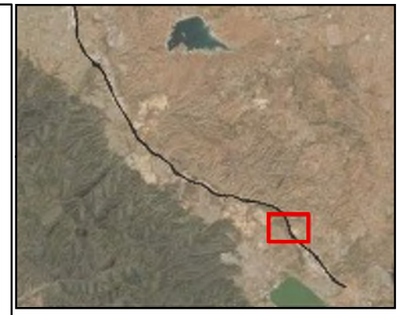
0 1 2 Miles
1:100,000

N

Figure 1
Project Location - Southwestern Willow Flycatcher Focused Survey
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

D:\CONTROLS\GIS\Projects_14\Caltrans\15_ELPSE\Figures\BioSurvey\Results\SWFL_2021\SurFig01_ProjectLocation_SurResSWFL.mxd User: [1919] Date: 9/7/2021





Legend

- Project Limits
- Advance Signage & Striping Transition
- Southwestern Willow Flycatcher Survey Area

Source: ESRI USA Imagery

N

0 500 1,000 Feet

1:9,000

Figure 2
Southwestern Willow Flycatcher Survey Area
Interstate 15 Express Lanes Project Southern Extension

April 20, 2021

Stacey Love
Recovery Permit Coordinator
U.S. Fish and Wildlife Service
Carlsbad Field Office
2177 Salk Road, Suite 250
Carlsbad, CA 92008

SUBJECT: 15-Day Notice – Request for Authorization to Focused Presence/Absence Protocol Surveys for the Southwestern Willow Flycatcher (*Empidonax traillii extimus*) for I-15 Widening project within Temescal Creek along I-15 in the City of Corona, Riverside County, California – USFWS Permit 009015-5.

Dear Mr. Love:

As outlined in United States Fish and Wildlife Service (10)(a)(1)(A) permits for conducting southwestern willow flycatcher, I have submitted the following information for your review.

1. The goal of the southwestern willow flycatcher surveys is to determine the presence/absence of southwestern willow flycatchers within Temescal Creek along I-15 in the City of Corona for a proposed Cal Trans road widening project. Surveys will only be conducted in areas with suitable habitat.

2 A total of 5 surveys will be conducted between May 15th and July 17th 2021 within Temescal Creek along I-15 in the City of Corona for a proposed Cal Trans road widening project. based on USFWS protocol "*Southwestern Willow Flycatcher Protocol Revision 2010*".

3. Jason Berkley (TE009015-5) will conduct all focused surveys.

4. Maps attached

Sincerely,
CEREUS ENVIRONMENTAL

Jason L. Berkley
Wildlife Biologist

Figure 1 Project Location Map

Figure 2 Survey Area

Appendix B
Southwestern Willow Flycatcher Survey Forms

Willow Flycatche n Form (revised April, 2004)

Site Name F-15 Widening Nichols State CA County Riverside

USGS Quad Name Lake Elsinore Elevation _____ feet / meters (circle one)

Is copy of USGS map marked with survey and WIFL sightings attached (as required)? ☐ *Yes* ☐ *No*

Site Coordinates: Start: N _____ E _____ UTM Datum _____ (NAD27 preferred)

Stop: N _____ E _____ UTM Zone _____

***** Fill in additional site information on back of this page *****

Survey # / Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N	Cowbirds Detected? Y or N	Presence of Livestock, Recent sign, If Yes, Describe Y or N	Comments about this survey (e.g., bird behavior, evidence of pairs or breeding, number of nests, nest contents or number of fledges seen; potential threats)
1 Jason Berkley	Date 5-23-21 Start 0600 Stop 0800 Total hrs 2	Ø	Ø	Ø	Ø	N	N	
2 Jason Berkley	Date 6-8-21 Start 0615 Stop 0830 Total hrs 2.25	Ø	Ø	Ø	Ø	N	N	
3 Jason Berkley	Date 6-24-21 Start 0530 Stop 0830 Total hrs 3	Ø	Ø	Ø	Ø	N	N	
4 Jason Berkley	Date 7-6-21 Start 0545 Stop 0745 Total hrs 2	Ø	Ø	Ø	Ø	N	N	
5 Jason Berkley	Date 7-16-21 Start 0630 Stop 0900 Total hrs 2.5	Ø	Ø	Ø	Ø	N	N	

Overall Site Summary (Total **resident** WIFLs only)	Adults	Pairs	Territories	Nests
	Ø	Ø	Ø	Ø

Were any WIFLs color-banded? Yes (No)

If yes, report color combination(s) in the comments section on back of form

Fill in the following information completely. Submit ... August 1st. Retain a copy for your records.

Reporting Individual Jason Berkley — Phone # (714) 493-1120
Affiliation Ceroux Environmental — E-mail jberkley@ceroux environmental.com
Site Name I-15 Widening Nichols Rd N — Date Report Completed 9-1-21

Did you verify that this site name is consistent with that used in previous years? (Yes) / No (circle one)
If name is different, what name(s) was used in the past? _____
If site was surveyed last year, did you survey the same general area this year? Yes / (No) If no, summarize in comments below.
Did you survey the same general area during each visit to this site this year? (Yes) / No If no, summarize in comments below.

Management Authority for Survey Area (circle one): Federal (Municipal/County) State Tribal Private
Name of Management Entity or Owner (e.g., Tonto National Forest) County of Riverside

Length of area surveyed: 1 mi (specify units, e.g., miles = mi, kilometers = km, meters = m)

Vegetation Characteristics: Overall, are the species in tree/shrub layer at this site comprised predominantly of (check one):

- ☐ Native broadleaf plants (entirely or almost entirely, includes high-elevation willow)
- ☒ Mixed native and exotic plants (mostly native)
- ☐ Mixed native and exotic plants (mostly exotic)
- ☐ Exotic/introduced plants (entirely or almost entirely)

Identify the 2-3 predominant tree/shrub species: Cottonwood, Arroyo willow, Adofat

Average height of canopy (Do not put a range): 3m (specify units)

Was surface water or saturated soil present at or adjacent to site? (Yes) / No (circle one)
Distance from the site to surface water or saturated soil: 0 ft (specify units)

Did hydrological conditions change significantly among visits (did the site flood or dry out)? (Yes) / No (circle one)
If yes, describe in comments section below. Water levels dropped in the creek

Remember to attach a copy of a USGS quad/topographical map (REQUIRED) of the survey area, outlining the survey site and location of WIFL detections. Also include a sketch or aerial photograph showing details of site location, patch shape, survey route in relation to patch, and location of any willow flycatchers or willow flycatcher nests detected. Such sketches or photographs are welcomed, but DO NOT substitute for the required USGS quad map. Please include photos of the interior of the patch, exterior of the patch, and overall site and describe any unique habitat features.

Comments (attach additional sheets if necessary)
Did not have permission to survey this stretch last year.

WIFL Detection Locations:

Appendix C
Bird Species List

Anas platyrhynchos	Mallard
Callipepla californica	California quail
Podilymbus podiceps	Pied-billed grebe
Plegadis chihi	White-faced ibis
Ardea herodias	Great blue heron
Ardea alba	Great egret
Nycticorax nycticorax	Black-crowned night heron
Butorides virescens	Green heron
Egretta thula	Snowy egret
Cathartes aura	Turkey Vulture
Buteo jamaicensis	Red-tailed hawk
Fulica americana	American coot
Columba livia	Rock pigeon
Zenaida macroura	mourning dove
Streptopelia decaocto	Eurasian collared dove
Geococcyx californianus	Greater roadrunner
Aeronautes saxatalis	White-throated swift
Calypte anna	Anna's hummingbird
Selasphorus sasin	Allen’s hummingbird
Colaptes auratus	Northern flicker
Picoides nuttallii	Nuttall's woodpecker
Falco sparverius	American Kestral
Sayornis nigricans	Black phoebe
Myiarchus cinerascens	ash-throated flycatcher
Tyranus verticalis	Western kingbird
Vireo bellii pusillus	Least Bell’s vireo
Vireo gilvus	Warbling vireo
Geococcyx californianus	Greater roadrunner
Aphelocoma californica	California scrub-jay
Corvus brachyrhynchus	American crow
Corvus corax	common raven
Tachycineta thalassina	Violet-green swallow
Petrochelidon pyrrhonota	cliff swallow
Stpterelgidoyx serripennis	Notrhern rough-winged swallow
Psaltriparus minimus	bushtit
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	House wren
Chamaca fasciata	Wrentit
Mimus polyglottos	Northern mockingbird
Toxostoma redivivum	California thrasher
Strunus vulgaris	European starling
Phainopepla nitens	Phainopepla
Geothlypis trichas	Common yellowthroat
Cardellina pusilla	Wilson’s warbler
Geothlypis tolmiei	MacGillvray’s warbler
Setophaga petechia	Yellow warbler
Setophaga coronata	Yellow-rumped warbler
Pipilo crissalis	California towhee

Pipilo maculatus	spotted towhee
Melospiza melodia	song sparrow
Passerina caerulea	Blue grosbeak
Passerina amoena	Lazuli bunting
Pheucticus melanocephalus	black-headed grosbeak
Icteria virens	Yellow-breasted chat
Icterus cucullatus	Hooded oriole
Icterus bullockii	Bullock's oriole
Agelatus phoeniceus	Red-winged blackbird
Carpodacus mexicanus	house finch
Spinus psaltria	Lesser goldfinch

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Appendix I Jurisdictional Delineation Report

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Interstate 15 Express Lanes Project Southern Extension (ELPSE)

RIVERSIDE COUNTY, CALIFORNIA
DISTRICT 8 – RIV–15 PM 20.3 TO PM 40.1
EA: RIV 08-0J0820 / ID: 08-18000063

Jurisdictional Delineation Report

Prepared for the
State of California Department of Transportation
in coordination with the Riverside County Transportation Commission

September 2021

15-RIV-08-PM 20.3 to PM 40.1

EA: RIV 08-0J0820

Traffic capacity and operational improvements would be constructed on Interstate 15 (I-15) between post miles (PM) 21.2 near Main Street in Lake Elsinore to PM 38.1 near El Cerrito Road in Corona. This area is referred to as the lane improvement limits. These lane improvements are located within Riverside County, California and run through the cities of Lake Elsinore, Corona and portions of unincorporated Riverside County including the Temescal Valley. Limits for the express lanes advance signage extend from PM 20.3 to PM 40.1 in Riverside County; these post miles constitute the overall project limits.

Jurisdictional Delineation Report

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 U.S.C 4332(2)(C) and 49 U.S.C. 303

THE STATE OF CALIFORNIA
Department of Transportation
in cooperation with
THE RIVERSIDE COUNTY TRANSPORTATION COMMISSION

_____
Date of Approval

_____
Daniel Ciacchella
District 8, Caltrans Consultant Project Manager
California Department of Transportation

10/21/21
Date of Approval

Stephanie Blanco
Capital Projects Manager (Toll)
Riverside County Transportation Commission

Table of Contents

Figures

Tables

Appendices

Acronyms and Abbreviations

Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
CFR	Code of Federal Regulations
DEC	demand exceeds capacity
FTIP	Federal Transportation Improvement Program
GIS	geographic information system
HUC	Hydrologic Unit Code
I-15 ELP	Interstate 15 Express Lanes Project
I-	Interstate
I-15 ELPSE	Interstate 15 Express Lanes Project Southern Extension
I-215	Interstate 215
JD	jurisdictional determination
JSA	jurisdictional study area
LOS	level of service
NB	northbound
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
PM	Post Mile
Project	Interstate 15 Express Lanes Project Southern Extension
RCTC	Riverside County Transportation Commission
RTA	Riverside Transit Agency
RTP/SCS	Regional Transportation Plan / Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SB	southbound
SCAG	Southern California Association of Governments
SR	State Route
SWANCC	Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers
SWRCB	State Water Resources Control Board
TNW	traditional navigable waters
U.S.	United States
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WETS	Climate Analysis for Wetlands

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1 Introduction

This report summarizes the extent of United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) jurisdiction pursuant to Section 404 and 401 of the Clean Water Act (CWA) and Section 1600 et seq of the California Fish and Game Code, respectively, for the Interstate 15 (I-15) Express Lanes Project Southern Extension Project (I-15 ELPSE or Project). Department of Transportation (Caltrans), is proposing to construct new lanes along Interstate 15 (I-15) between Post Mile (PM) 21.2 and PM 38.1 in Riverside County, California, in the cities of Corona, Lake Elsinore, and portions of unincorporated Riverside County (Figure 1-1 and Figure 1-2). The information provided in this report will be used to determine Project impacts on jurisdictional resources that will be included in the Natural Environment Study prepared for the Project, as well as support regulatory permitting for Project impacts on aquatic features that are potentially subject to USACE, RWQCB, and CDFW jurisdiction.

Caltrans is the lead agency under both the National Environmental Policy Act and the California Environmental Quality Act.

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Figure 1-1.
Regional Location

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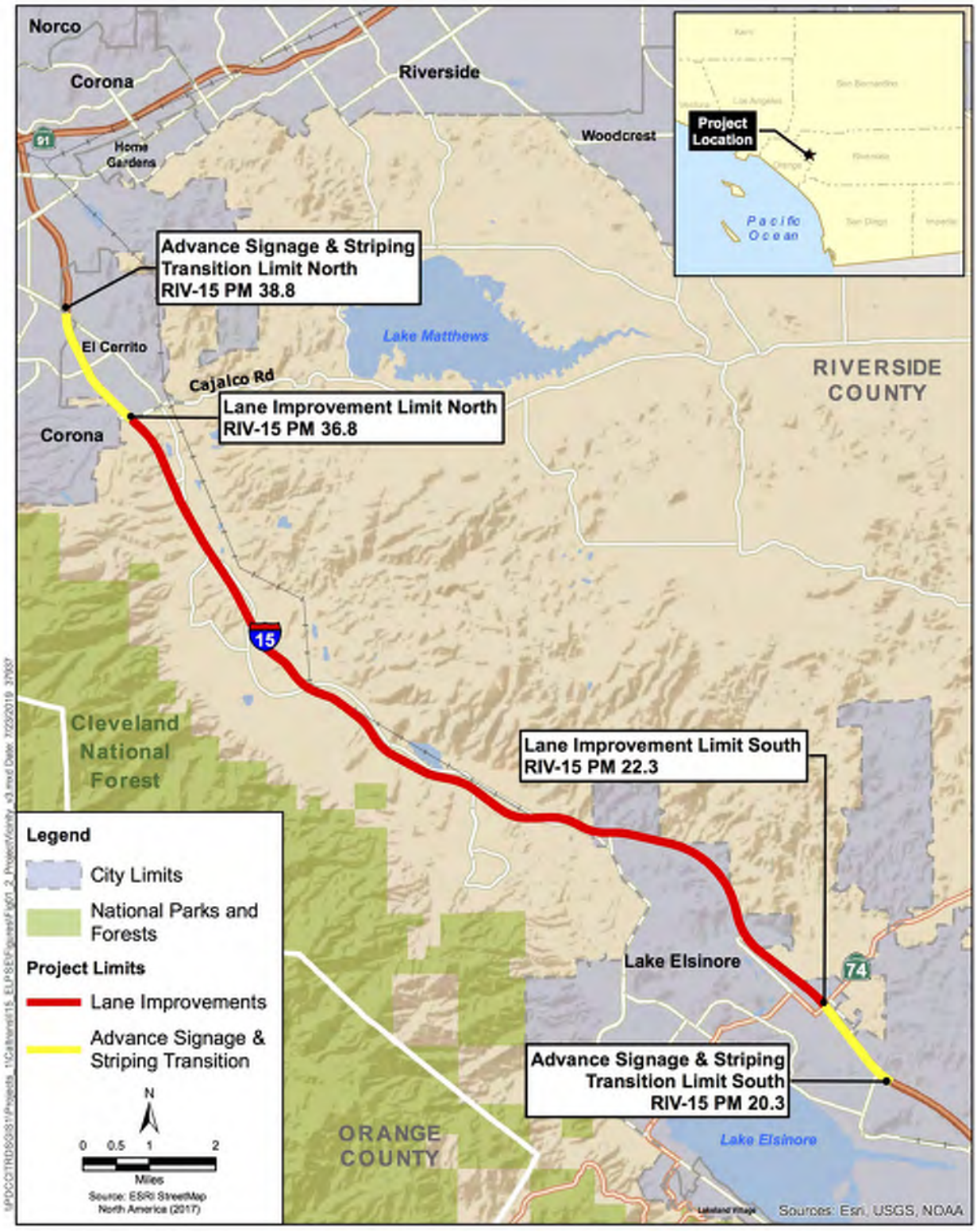

Figure 1-2.
Project Location

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2 Purpose and Need

2.1 Project Purpose

The purpose of the proposed Project is to:

- Improve and manage traffic operations, congestion, and travel times along the corridor
- Expand travel mode choice along the corridor
- Provide an option for travel time reliability
- Provide a cost-effective mobility solution
- Expand and maintain compatibility with the express lane network in the region

2.2 Project Need

Existing traffic volumes often exceed current highway capacity along several segments of I-15 between SR-74 (Central Avenue) and El Cerrito Road. Due to forecasted population growth and the continued development to support the projected growth in the region, the I-15 corridor is expected to continue to experience increased congestion and longer commute times that are projected to negatively affect traffic operations along the freeway mainline.

The adopted SCAG 2016 RTP Growth Forecast estimates a 36.7-percent increase in population in Riverside County between 2015 and 2040. SCAG's recently adopted *Connect SoCal* (2020–2045 RTP/SCS) Growth Forecast estimates a 38.3-percent increase in population in Riverside County between 2020 and 2045, with the number of households and employment increasing by approximately 30.5 percent and 34.02 percent, respectively. In the City of Corona, the 2020–2045 RTP/SCS Growth Forecast estimates an 11.6-percent increase in population from 2016 to 2045 and an 11.7-percent increase in households. According to the same source, the City of Lake Elsinore is projected to see a 76.8-percent increase in population. This projected growth is expected to place a high demand on existing transportation facilities and services.

Currently, north-south mobility options for motorists are limited through this portion of Riverside County. Besides local streets, the only parallel route for motorists is Interstate 215, which is over 10 miles east of I-15 and generally serves a different region within Riverside County. As demonstrated in the traffic analyses performed for the project, northbound I-15 currently operates at an unacceptable level of service (LOS)[1] (i.e., LOS E or F) during the AM and/or PM peak hour along 6 out of the 15 segments evaluated between the Cajalco Road off-ramp and the Indian Truck Trail on-ramp. This is projected to climb to 8 of 18 segments evaluated by 2030 between the El Cerrito Road on-ramp and the Indian Truck Trail on-ramp,

[1] The ability of a highway to accommodate traffic is typically measured in terms of LOS. Traffic flow is classified by LOS, ranging from LOS A (traffic is free flowing, with low volumes and high speeds) to LOS F (traffic volume exceeds design capacity, with forced flow and substantial delays). The LOS for signalized and unsignalized intersections is based on delay time per vehicle.

and to 19 of 20 locations evaluated within the project limits by 2050. Southbound I-15 currently operates at an unacceptable LOS (i.e., LOS E or F) during the AM and/or PM peak periods at 3 of 15 mainline segment locations evaluated between the El Cerrito Road off-ramp and the Weirick Road/Dos Lagos Drive off-ramp. This is projected to increase to five locations by 2030, and then decrease to four locations by 2050, also between the El Cerrito Road off-ramp and the Weirick Road/Dos Lagos Drive off-ramp.

The expected increase in congestion during peak periods and worsening traffic conditions, particularly during AM and PM peak periods, are expected to result in additional local and regional traffic congestion. Existing heavy peak-period congestion and traffic delays, as evidenced by the poor LOS, are expected to continue to negatively affect traffic operations along mainline I-15.

Based on the traffic analyses performed, along both northbound and southbound I-15 vehicle volume served is projected to continue to increase during the AM and PM peak periods from the existing year through 2050, as is the total distance traveled. In addition, the total travel time during the PM peak period in particular is anticipated to more than double by the Design Year (2050), with total travel time during the PM peak period forecasted to rise by 167-percent compared to the existing (2019) travel time condition. Furthermore, average delay per vehicle and total delay are projected to increase from Existing Year (2019) to Design Year (2050) during the AM and PM peak periods, at least tripling on both northbound and southbound I-15 during this timeframe.

Under Existing Conditions (2019) average speeds for northbound and southbound I-15 during the AM and PM peak hours are projected to decrease between the Existing Conditions (2019) and Design Year (2050) in all instances except during the PM peak hour in the southbound direction. These projected reductions are most pronounced on northbound I-15, ranging from a reduction of 25.5 miles per hour (mph) to 52.6 mph. The projected average delay per vehicle during this same period is expected to increase, with the northbound I-15 delay projected to increase from 774 seconds and 102 seconds during the AM and PM peak hours, respectively, under Existing Conditions (2019), to 3,828 seconds and 6,224 seconds during the AM and PM peak hours, respectively, in the Design Year (2050).

Based on the above existing and forecasted traffic data, recurring daily congestion due to continuing population growth, development, and travel demand exceeding available highway capacity is expected to continue to result in slower travel speeds, reduced throughput, and increased travel times along mainline I-15.

3 Project Description and Study Area

3.1 Project Description

RCTC), in cooperation with the Caltrans), is proposing to construct new lanes along I-15 between PM 21.2 and PM 38.1 in Riverside County, California. The primary component of the Project would be the addition of two tolled express lanes[2] in both the northbound and southbound directions within the median of I-15 from State Route 74 (SR-74) (Central Avenue) (PM 22.3) in the City of Lake Elsinore, through the unincorporated Riverside County community of Temescal Valley, to El Cerrito Road (PM 38.1) in the City of Corona, for a distance of approximately 15.8 miles. The proposed Project would also add a southbound auxiliary lane between both the Main Street (PM 21.2) off-ramp and SR-74 (Central Avenue) on-ramp (approximately 0.75 mile), and the SR-74 (Central Avenue) off-ramp and Nichols Road on-ramp (PM 23.9) (approximately 1 mile). Along with the lane additions, which would extend from PM 21.2 to 38.1, the proposed Project would include widening of up to 14 bridges, potential construction of noise barriers, retaining walls, drainage systems, and implementation of electronic toll collection equipment and signs. Associated improvements for the toll lanes, including advance signage and transition striping, would extend approximately 2 miles from each end of the express lane limits to PM 20.3 in the south and PM 40.1 in the north. The proposed lane additions and supporting infrastructure are expected to be constructed primarily within the existing State right of way. This Project is included in the 2019 Federal Transportation Improvement Program (FTIP) as Project ID RIV170901. It is also included in the Southern California Association of Governments' (SCAG) *Connect SoCal* 2020–2045 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) as Project ID 3160001.

The FTIP and RTP listings for this Project were amended in April 2021 to accurately reflect the scope and limits of the Project as currently proposed. The amended FTIP and RTP listings will state the following:

> *IN WESTERN RIVERSIDE COUNTY - ON I-15, ADD 2 EXPRESS LANES IN EACH DIRECTION, GENERALLY IN THE MEDIAN, FROM SR-74 (CENTRAL AVENUE) (PM 22.3) IN THE CITY OF LAKE ELSINORE TO EL CERRITO ROAD (PM 38.1) IN THE CITY OF CORONA. CONSTRUCT SOUTHBOUND AUXILIARY LANE FROM MAIN STREET (PM 21.2) TO SR-74 (CENTRAL AVENUE) (PM 22.3) AND FROM SR-74 (CENTRAL AVENUE) (PM 22.3) TO NICHOLS ROAD (PM 23.9). SIGNAGE AND TRANSITION STRIPING EXTENDS TO PM 20.3 TO THE SOUTH AND PM 40.1 TO THE NORTH.*

3.2 Jurisdictional Study Area

The jurisdictional study area (JSA) includes the footprint of disturbance for potential direct and indirect effects on jurisdictional waters that could result from the proposed Project alternatives. The JSA was determined using the limits of disturbance and a 50-foot buffer on all sides (Figure 3-1). Advance signage and striping transition areas were not included in the JSA. The JSA spans the Cities of Corona and Lake Elsinore as well as portions of unincorporated Riverside County. The JSA is located on the United States Geological Survey (USGS) *Corona South, Lake Mathews, Alberhill* and *Lake Elsinore, California* 7.5-

[2] Express lanes are traffic lanes that are separated from general purpose lanes where users are charged a toll to use the lanes.

minute series topographical quadrangles (Figure 3-1) (USGS 1967a, 1967b, 1954 and 1953). All accessible areas within the JSA were surveyed on foot. Areas that were not accessible, due to safety, locked gates, or fences/walls, were observed from the nearest possible vantage point in the field using binoculars, or by viewing aerial photographs.

Following completion of the field studies conducted for this report, the limits of disturbance were refined to reflect the latest project design, which included parcels which have been subsequently relinquished by Caltrans. In addition, due to the refinements of the limits of disturbance since the JSA surveys, the JSA mapping may not reflect the 50-foot buffer that was standard from the limits of disturbance in all areas. In the instances where the limits of disturbance extended beyond the original JSA survey area, aerial photographs were reviewed to verify that these areas did not support any additional potential jurisdictional features and is consistent with the findings of the Natural Environment Study prepared for this Project.

Figure 3-1.
Jurisdictional Study Area: Map 1

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Figure 3-1.
Jurisdictional Study Area: Map 2

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Figure 3-1.
Jurisdictional Study Area: Map 3

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Figure 3-1.
Jurisdictional Study Area: Map 4

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4 Regulatory Setting

4.1 Clean Water Act

4.1.1 United States Army Corps of Engineers

Section 404 of the CWA establishes a program for USACE to regulate the discharge of dredge and fill material into waters of the United States (U.S.), including wetlands. Activities regulated under this program include fills for development, water resource projects (e.g., dams and levees), infrastructure development (e.g., highways and airports), and conversion of wetlands to uplands for farming and forestry. Either an individual Section 404 permit or authorization to use an existing USACE nationwide permit must be obtained if any portion of an activity will result in dredge or fill impacts to a river or stream that has been determined to be jurisdictional under Section 404 of the CWA. When applying for a permit, a company or organization must show that they would either avoid wetlands where practicable, minimize wetland impacts, or provide compensation for any unavoidable destruction of wetlands.

On June 9, 2021, the U.S. Environmental Protection Agency (EPA) and the Department of the Army announced their intent to revise the Navigable Waters Protection Rule's definition of "waters of the United States." That rulemaking process is anticipated to take approximately two years. In the meantime, pursuant to an August 30, 2021 U.S. District Court for the District of Arizona order vacating and remanding the Navigable Waters Protection Rule (*Pascua Yaqui Tribe v. U.S. Environmental Protection Agency),* EPA and U.S. Army Corps of Engineers have halted implementation of the Navigable Waters Protection Rule that became effective on June 22, 2020 and are interpreting "waters of the United States" consistent with the pre-2015 regulatory regime until further notice. The term "waters of the U.S." is defined in the USACE regulations at 33 Code of Federal Regulations (CFR) Part 328.3(a) as:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters;
- Which or could be used by interstate or foreign travelers for recreation or other purposes; or
- From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- Which are used or could be used for industrial purpose by industries in interstate commerce;
- All impoundments of waters otherwise defined as Waters of the U.S. under the definition;
- Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;
- The territorial seas;
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section; and
- Waters of the U.S. do not include prior converted cropland.

The limits of USACE jurisdiction in non-tidal waters extends to the ordinary high water mark (OHWM) which is defined at 33 CFR 328.3(e) as:

> "…that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

Per USACE Regulatory Guidance Letter 08-02, when applying for a Section 404 permit, applicants may choose to proceed under the assumption that all drainage features that exhibit an OHWM within a project footprint are subject to regulation if a discharge of fill is proposed. This assumption is considered a preliminary Jurisdictional Determination (JD). Alternatively, applicants may request an approved JD, which is USACE's concurrence that the jurisdictional delineation's findings are correct and is an official USACE determination that jurisdictional aquatic resources are present or absent from the subject site. An approved JD is typically valid for up to five years and allows for the USACE to exclude features that they have reviewed and deemed non-jurisdictional. The use of a preliminary JD may expedite the permitting process when compared to the approved JD process which requires the JD to be coordinated with the U.S. Environmental Protection Agency.

Wetlands

The term "wetlands" (a subset of "waters of the United States") is defined at 33 Code of Federal Regulations 328.3(b) as:

"those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions."

In 1987, the Corps published a manual to guide its field personnel in determining jurisdictional wetland boundaries followed by the Arid West Supplement in 2008. The methodology set forth in the 1987 *Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Arid West Supplement* (USACE 2008a) generally requires that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area must exhibit at least minimal hydric characteristics. While the manual provides great detail in methodology and allows for varying special conditions, a wetland should normally meet each of the following three criteria:

- The plant community must be determined to by hydrophytic based on: (1) the dominance test applied using the 50/20 rule[3], or (2) where the vegetation fails the dominance test and wetland hydrology and hydric soils are present, vegetation is determined to be hydrophytic using the Prevalence Index test [4] based upon the indicator status (i.e., rated as facultative or wetter) in the *National List of Plant Species that Occur in Wetlands* (Reed 1988);

[3] If a particular species accounts for more than 50 percent of the total coverage of vegetation in the stratum, or for at least 20 percent of the total coverage in the stratum in which the species was found, that species is defined as dominant.

[4] A Prevalence Index is calculated using wetland indicator status and relative abundance for each vascular plant species present.

- Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., redoximorphic features with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and
- Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for a sufficient period to cause: (1) the formation of hydric soils; and (2) establishment of a hydrophytic plant community. A positive test for wetland hydrology is based on the presence of one primary or two secondary indicators.

Supreme Court Decisions

Solid Waste Agency

On January 9, 2001, the Supreme Court of the United States issued a decision on *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al*. (SWANCC) with respect to whether USACE could assert jurisdiction over isolated waters. The Solid Waste Agency of North Cook County ruling stated that USACE does not have jurisdiction over "non-navigable, isolated, intrastate" waters.

Rapanos/Carabell

In the Supreme Court cases of *Rapanos* v. *United States* and *Carabell* v. *United States* (herein referred to as *Rapanos*), the court attempted to clarify the extent of USACE jurisdiction under the CWA. The nine Supreme Court justices issued five separate opinions (one plurality opinion, two concurring opinions, and two dissenting opinions) with no single opinion commanding a majority of the Court. In light of the *Rapanos* decision, the USACE will assert jurisdiction over traditional navigable waters, wetlands adjacent to traditional navigable waters, non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months) and wetlands that directly abut such tributaries. The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water: non-navigable tributaries that are not relatively permanent, wetlands adjacent to non-navigable tributaries that are not relatively permanent, and wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

Flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary indicate whether they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters. Analysis of potentially jurisdictional streams includes consideration of hydrologic and ecologic factors. The consideration of hydrological factors includes volume, duration and frequency of flow, proximity to traditional navigable waters, size of watershed, average annual rainfall, and average annual winter snow pack. The consideration of ecological factors also includes the ability for tributaries to carry pollutants and flood waters to a TNW, the ability of a tributary to provide aquatic habitat that supports a TNW, the ability of wetlands to trap and filter pollutants or store flood waters, and maintenance of water quality.

According to a USACE guidance document (USACE 2008b) the USACE generally will not assert jurisdiction over the following features: swales or erosional features (e.g., gullies, small washes

characterized by low volume, infrequent, or short duration flow) and ditches (including roadside ditches) excavated wholly in and draining only uplands that generally do not carry a relatively permanent flow of water.

4.1.2 Regional Water Quality Control Board

In California, the State Water Resources Control Board (SWRCB) and nine RWQCBs regulate activities within state and federal waters under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act (Porter-Cologne). The SWRCB is responsible for setting statewide policy, coordinating and supporting RWQCB efforts, and reviewing petitions that contest RWQCB actions. Each RWQCB is semiautonomous and has the authority to set water quality standards, issue Section 401 certifications and waste discharge requirements, and take enforcement action for projects occurring within its boundary. However, when a project crosses multiple RWQCB jurisdictional boundaries, the SWRCB becomes the regulating agency and issues project permits.

State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State

The SWRCB adopted a statewide definition of rules to protect wetlands and other environmentally sensitive waterways throughout the state on April 2, 2019. These rules define what SWRCB considers a wetland and include a framework for determining if a feature that meets the SWRCB wetland definition is a "water of the state," subject to regulation. Second, the rules clarify requirements for permit applications to discharge dredged or fill material to any water of the state.

The SWRCB defines an area as wetland as follows:

> An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. (SWRCB 2019).

SWRCB considers the following wetlands (as determined using methodology in the *USACE Wetland Delineation Manual* [Environmental Laboratory 1987]) as waters of the state:

1. Natural wetlands
2. Wetlands created by modification of a surface water of the state
3. Artificial wetlands that meet any of the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration
    b. Specifically identified in a water quality control plan as a wetland or other water of the state
    c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape

d. Greater than or equal to 1 acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):

   i. Industrial or municipal wastewater treatment or disposal

   ii. Settling of sediment

   iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program

   iv. Treatment of surface waters

   v. Agricultural crop irrigation or stock watering

   vi. Fire suppression

   vii. Industrial processing or cooling

   viii. Active surface mining, even if the site is managed for interim wetlands functions and values

   ix. Log storage

   x. Treatment, storage, or distribution of recycled water

   xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits)

   xii. Fields flooded for rice growing

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in numbers 2, 3.a, 3.b, or 3.c are not waters of the state. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a water of the state.

Section 401 of the Clean Water Act

Section 401 specifies that certification from the state is required for any applicant requesting a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities that may result in any discharge into waters of the U.S. A federal permit or license cannot be issued that may result in a discharge to waters of the U.S. unless certification under Section 401 of the CWA is granted or waived by the U.S. Environmental Protection Agency, state, or tribe where the discharge would originate. The Project JSA is within the boundaries of the Santa Ana RWQCB (Region 9), which would have the authority to grant, grant with conditions, deny, or waive certification for the Project.

Under Section 401, all activities regulated at the federal level by USACE are also regulated at the state level. Therefore, state jurisdiction usually includes all waters or tributaries to waters that are determined to be waters of the U.S. and, similar to waters of the U.S., are typically delineated at the OHWM.

Porter-Cologne Water Quality Control Act

RWQCB also regulates discharge of waste to waters of the state, pursuant to California's Porter-Cologne Water Quality Control Act, enacted in 1969, which provides the legal basis for water quality regulation within California. Under this act, "waters of the state" is defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code section 13050(e)). Should RWQCB determine that discharge of pollutants (including fill) is proposed to waters that meet the definition of 'waters of the state' but not 'waters of the U.S.', waste discharge requirements may be required.

Water Quality Order No. 2004-0004-DWQ

Water Quality Order No. 2004-0004-DWG (SWRCB 2020) provides a General Order for Waste Discharge Requirements for ephemeral waters that are not regulated by USACE, particularly those excluded from USACE jurisdiction following issuance of the Navigable Waters Protection Rule. This General Order provides that if a project is only impacting ephemeral waters that are no longer regulated as Waters of the U.S. per the Navigable Waters Protection Act, and impacts are less than 0.2 acre and 400 linear feet, Water Quality Certification can be attained through the submittal of a Notice of Intent to utilize this existing General Order. So long as the RWQCB Executive Officer or the SWRCB Executive Director has not issued a Notice of Exclusion within 45 days of receiving a complete and accurate Notice of Intent, the discharge may proceed.

4.2 California Department of Fish and Wildlife

CDFW, through provisions of the California Fish and Game Code (Section 1600 et seq.), issues agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Section 1602 states:

"An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake."

CDFW jurisdiction includes ephemeral, intermittent and perennial watercourses and extends to the top of the bank of a stream or lake if unvegetated, or to the limit of the adjacent riparian habitat located contiguous to the watercourse if the stream or lake is vegetated.

5 Methodology

5.1 Literature Review

The following literature and materials were reviewed both prior to conducting delineation fieldwork and in the process of determining jurisdictional status of features identified in the field:

- Current and historical aerial photographs of the Project site to determine the potential locations of waters of the U.S. and riparian areas (ICF 2020, GoogleEarth 2020; NETR Online 2020);
- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) soil mapping data (NRCS 2021a);
- USGS topographical maps to determine the current or historical presence of any "blue line" drainages or other mapped water features [*Corona South, Lake Mathews, Alberhill,* and *Lake Elsinore* (USGS 1967a, 1967b, 1954, and 1953);
- Precipitation and Climate Data for Riverside County - Elsinore, CA (Station 06065) Climate Analysis for Wetlands (WETS) Tables (NRCS 2021b);
- USACE's Antecedent Precipitation Tool was used to document antecedent precipitation conditions for the time of the delineation (USACE 2021);
- National Hydrography Dataset Online Mapper (USGS 2020);
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data to identify areas mapped as wetland features (USFWS 2020); and
- City of Corona Storm Drain Atlas (City of Corona 2013).

5.2 Field Investigation

Field surveys of the JSA were conducted by RCTC consultant biologists Sarah Barrera, Allegra Engleson, Aaron Newton, Rebecca Schartau, and Ingrid Eich in August and December 2020 and February 2021 (Table 5-1).

Table 5-1. Survey Dates and Field Personnel

Survey Date	Personnel
August 11, 2020	SB, AE, AN, RS
August 12, 2020	SB, AE, AN, RS
August 13, 2020	SB, AE, AN, RS
August 25, 2020	SB, AE, AN, RS
August 26, 2020	SB, AE, AN, RS
August 27, 2020	SB, RS, IE

Table 5-1. Survey Dates and Field Personnel

Survey Date	Personnel
December 14, 2020	RS
February 8, 2021	SB, RS

[1] SB: Sarah Barrera; AE: Allegra Engleson; AN: Aaron Newton; RS: Rebecca Schartau; IE: Ingrid Eich

The JSA was established to capture drainages within and adjacent to the limits of disturbance. All potential drainage features in accessible areas within the JSA were investigated on foot. Potential drainage features within the JSA that were not accessible were viewed in the field using binoculars, if possible, and reviewed and mapped using aerial photography. Feature names used in this report were determined based on the feature location in reference to I-15 PM values. Where a feature was named on topographic mapping, the mapped name of the feature was also included.

5.2.1 U.S. Army Corps of Engineers Jurisdiction

Features within the JSA were assessed to identify potential presence of USACE waters of the U.S., including wetlands, according to the methods outlined in the *USACE Wetland Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008b), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008c).In addition, vegetation types (i.e. typically upland or hydrophytic/riparian species), hydrology indicators, and historic aerial photographs within aquatic features were studied in support of establishing the hydrologic regime of potential aquatic features within the JSA. Aquatic features were considered ephemeral if they did not support evidence of surface flows for at least two weeks (e.g. inundation on aerial photographs more than two weeks after a substantial precipitation event, hydrophytic vegetation, cracked soils, algae, coarse substrates). Features that supported evidence of surface flows for at least two weeks were identified as intermittent or perennial.

The USACE's Antecedent Precipitation Tool was used to document antecedent precipitation conditions for the time of the delineation. Antecedent precipitation is defined as precipitation occurring onsite prior to the field review. Antecedent precipitation helps to determine whether the site review is conducted during "normal environmental conditions" for that time of year. The Antecedent Precipitation Tool compares precipitation that occurred in the three months prior to the field assessment and compares that to the range of precipitation observed in the local region over a 30-year period. Antecedent precipitation scores of 6 to 9 are considered "dry," 10 to 14 "normal," and 15 to 18 "wet" (Sprecher and Warne 2000). The Primary Station identified by the Antecedent Precipitation Tool was Ontario International Airport, approximately 17 miles northwest of the JSA.

When linear potential waters of the U.S. were encountered, the length of the drainage feature was walked and the outer jurisdictional limits within the JSA were recorded on 1:2,400 -scale 0.3-meter resolution 2020 aerial maps, where visible on the aerial photography, or widths were recorded (in feet) with an ESRI Collector for ArcGIS application on iOS and Android phones connected to a global positioning system recorder with submeter accuracy. The OHWM was measured at locations where transitions were

apparent. Other data recorded included bank-to-bank width, bank height and morphology, substrate type, flow regime, and all vegetation within and adjacent to the feature.

Thirty-three (33) Wetland Determination Data Forms were completed throughout the JSA in areas exhibiting potential wetland conditions. Two or more (i.e. paired) wetland data points were assessed in areas where changes in observed wetland characteristics were not associated with an abrupt topographic change. Where potential wetland boundaries were obvious due to abrupt topographic and vegetation changes (i.e., switch from vegetated to bare ground), a single data point was collected to confirm the presence or absence of wetland within the well-defined aquatic feature being assessed. Wetland status of plant species was determined by using the *2018 Arid West Regional Wetland Plant List* (USACE 2018). Soils were analyzed using the Natural Resources Conservation Service 2010 Field Indicators of Hydric Soils in the United States, Version 7.0 (U.S. Department of Agriculture Natural Resources Conservation 2010) and Munsell Soil Color Chart (Munsell Color 2010). Results of wetland assessments are discussed in Section 6.2 under Potential Wetland Waters of the U.S. and Wetland Determination Data Forms are provided in Appendix A.

Wetland status for areas where access was not available for biologists to conduct soil pits was determined based on a review of aerial photography and existing NWI wetland mapping and NRCS soil maps. Notes regarding these circumstances are included in the applicable Wetland Determination Data Forms in Appendix A.

5.2.2 Regional Water Quality Control Board Jurisdiction

Waters of the state, as defined by the SWRCB's State Wetland Definition and Procedures for Discharges of Dredged or Fill Materials to Waters of the State, include potential jurisdictional waters of the U.S. as well as some isolated features not regulated by USACE. RWQCB jurisdiction, for the purposes of CWA Section 401 Certification, is identical to USACE jurisdiction. In addition, the JSA was evaluated for isolated features that would not be subject to federal jurisdiction but would be potentially regulated under Porter-Cologne as waters of the state.

Data for potential Waters of the State was collected pursuant to the same methodology used for waters of the U.S. Constructed, ephemeral features that were positioned in the freeway median, gore areas, interchange areas, or other areas where features were clearly constructed in uplands in order to convey roadway runoff, which also did not exhibit more than minimal (if any) functions and values for wildlife resources, were not considered jurisdictional Waters of the State.

5.2.3 California Department of Fish and Wildlife Jurisdiction

Features potentially subject to CDFW jurisdiction were mapped from top of bank to top of bank or to the extent of riparian vegetation, whichever was greater. Constructed, ephemeral features that were positioned in the freeway median, gore areas, interchange areas, or other areas where features were clearly constructed in uplands in order to convey roadway runoff, which also did not exhibit more than minimal (if any) functions and values for wildlife resources (i.e. riparian habitat or aquatic characteristics) were not considered jurisdictional.

Upon completion of fieldwork, all data collected in the field were incorporated into a geographic information system (GIS) along with topography, National Hydrography Dataset features and aerial

photographs. The GIS data was then used to quantify the extent of potential jurisdictional features within the JSA.

5.2.4 Vegetation

Vegetation communities associated with jurisdictional features within the JSA were mapped in the field and verified with data collected by ICF in 2020 in support of the Natural Environment Study Report prepared for the I-15 ELPSE. Fieldwork was conducted in 2020 and vegetation communities were mapped according to *A Manual of California Vegetation,* second edition (Sawyer et al. 2009).

6 Results

6.1 Environmental Setting

The JSA is located within southwestern Riverside County and consists of a developed freeway corridor that connects the Cities of Riverside and Corona to Lake Elsinore and San Diego County. Temescal Wash, a riparian stream corridor that conveys flows from Lake Elsinore to the Santa Ana River, runs parallel to the JSA. Prior to development, drainages from the adjacent Santa Ana Mountains and Gavilan Hills drained into Temescal Wash. With increased agricultural, residential, and commercial development, these drainages were channelized for flood control purposes. Construction of I-15 and high levels of residential and urban development within the JSA have resulted in removal of most of the natural vegetation and modification, to some extent, of all historically-present drainage features within the JSA.

6.1.1 Climate and Precipitation

Riverside County has a Mediterranean climate, characterized by warm, dry summers and cool, moist winters. Average annual precipitation for the Elsinore WETS station between 1990 and 2019 was 11.1 inches with most of the annual rainfall occurring between November and April (NRCS 2020).

Antecedent precipitation for the JSA was identified as normal at the time the surveys were conducted in September 2020 (Antecedent Precipitation Score of 14; Dry Season) and February 2021 (Antecedent Precipitation Score of 11) (USACE 2021).

6.1.2 General Vegetation

The majority of the JSA is paved or developed with disturbed areas supporting ornamental or ruderal vegetation. For the most part, plants within the JSA consist of weedy, non-native species such as non-native grasses, and planted trees such as eucalyptus (*Eucalyptus* sp.) or Peruvian pepper (*Schinus molle*). Hillsides adjacent to I-15, and some earthen drainages within the JSA that have not been substantially disturbed, support native scrub species, such as California buckwheat (*Eriogonum fasciculatum*) and brittlebush (*Encelia farinosa*). Earthen portions of Temescal Wash, flood control basins, and other unnamed drainages with intermittent or perennial flows support riparian vegetation typically associated with wet streams in southern California. Vegetation community types identified within the JSA are listed below and are shown in maps provided in Appendix B.

- Agricultural
- Arrow Weed Thickets (*Pluchea sericea* Shrubland Alliance)
- Brittle Bush Scrub (*Encelia farinosa* Shrubland Alliance)
- Broom Scale Scrub (*Lepidospartum squamatum* Shrubland Alliance)
- Bush Penstemon Scrub (*Keckiella antirrhinoides* Shrubland Alliance)
- California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)
- California Sagebrush - California Buckwheat Scrub (*Artemisia californica - Eriogonum Fasciculatum* Shrubland Alliance)

- California Sycamore Woodlands (*Platanus racemosa - Quercus agrifolia* Woodland Alliance)
- Coast Live Oak Woodland and Forest (*Quercus agrifolia* Forest and Woodland Alliance)
- Deer Weed Scrub (*Acmispon glaber* Shrubland Alliance)
- Developed
- Disturbed
- Eucalyptus - Tree of Heaven - Black Locust Groves (*Eucalyptus spp. - Ailanthus altissima - Robinia pseudoacacia* Woodland)
- Fremont Cottonwood Forest and Woodland (*Populus fremontii - Fraxinus velutina - Salix gooddingii* Forest and Woodland Alliance)
- Goodding's Willow-Red Willow Riparian Woodland and Forest (*Salix gooddingii - Salix laevigata* Forest and Woodland Alliance)
- Hardstem and California Bullrush Marshes (*Schoenoplectus (acutus, californicus)* Herbaceous Alliance)
- Holly Leaf Cherry - Toyon - Greenbark Ceanothus Chaparral (*Prunus ilicifolia - Heteromeles arbutifolia - Ceanothus spinosus*)
- Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance)
- Needle grass - Melic grass grassland (*Nassella spp. - Melica spp.* Herbaceous Alliance)
- Quailbush Scrub (*Atriplex lentiformis* Shrubland Alliance)
- Salt Grass Flats (*Distichlis spicata* Herbaceous Alliance)
- Scrub Oak Chaparral (*Quercus berberidifolia* Shrubland Alliance)
- Tamarisk Thickets *(Tamarix* spp. Shrubland Semi-Natural Alliance)
- Tarweed Fields (*Deinandra* spp. Herbaceous Alliance)
- Upland Mustards or Star-Thistle Fields (*Brassica nigra - Centaurea (solstitialis, melitensis)* Herbaceous Semi-Natural Alliance)
- Wild Oats and Annual Brome Grasslands (*Avena spp. - Bromus spp.* Herbaceous Semi-Natural Alliance)
- Wild Tarragon Patches (*Artemisia dracunculus* Herbaceous Alliance)[5]

[5] Vegetation classification and mapping was provided by ICF, as documented in the Natural Environment Study prepared for this project. The limits of wetland and riparian vegetation follows mapping conducted by ICF.

6.1.3 Soils

The following information is taken from the *Soil Survey of Western Riverside Area* (United States Department of Agriculture Natural Resources Conservation Service 1971) and *Soil Survey of Orange County and Part of Western Riverside Area* (United States Department of Agriculture Natural Resources Conservation Service 1978). The Western Riverside Area is made up of the western one-third of Riverside County, located south of the San Bernardino Mountains, east of the Santa Ana Mountains, and north of the Agua Tibia and Palomar Mountains. Soils in the Western Riverside Area survey area range from nearly level to very steep and are suitable for many kinds of crops. Many areas are irrigated, however large areas are also used for dryland crops (NRCS 1971).

Soils mapped within the JSA are shown on Figure 6-1 and listed in Table 6-1. Soils within the JSA are highly disturbed and largely do not match those occurring on USGS map. Several of the soil types identified on the soil map within the JSA have hydric components, as shown in Table 6-1.

Table 6-1. Soil Types within the Jurisdictional Study Area

Soil Type	Hydric (Yes/No)
Altamont clay, 15 to 25 percent slopes, eroded	No
Altamont clay, 5 to 15 percent slopes	No
Arbuckle gravelly loam, 15 to 25 percent slopes	No
Arbuckle gravelly loam, 2 to 9 percent slopes, dry, MLRA 19	No
Arbuckle gravelly loam, 8 to 15 percent slopes	No
Arbuckle loam, 8 to 15 percent slopes	No
Badland	Yes
Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded	No
Cortina cobbly loamy sand, 2 to 8 percent slopes	Yes (Riverwash component)
Cortina cobbly sandy loam, 2 to 12 percent slopes	No
Cortina gravelly coarse sandy loam, 2 to 8 percent slopes	No
Cortina gravelly loamy sand, 2 to 8 percent slopes	Yes (Riverwash and Garretson components)
Escondido fine sandy loam, 8 to 15 percent slopes, eroded	No
Garretson gravelly very fine sandy loam, 0 to 2 percent slopes	No
Garretson gravelly very fine sandy loam, 2 to 9 percent slopes	No
Garretson very fine sandy loam, 0 to 2 percent slopes	No
Garretson very fine sandy loam, 2 to 8 percent slopes	No
Gorgonio loamy sand, 0 to 8 percent slopes	No

Table 6-1. Soil Types within the Jurisdictional Study Area

Soil Type	Hydric (Yes/No)
Gorgonio loamy sand, 8 to 15 percent slopes	No
Gorgonio loamy sand, channeled, 2 to 15 percent slopes	Yes (Riverwash component)
Gullied land	No
Hanford coarse sandy loam, 2 to 8 percent slopes	No
Hanford coarse sandy loam, 8 to 15 percent slopes, eroded	No
Hanford cobbly coarse sandy loam, 2 to 15 percent slopes, eroded	Yes (Riverwash component)
Hanford loamy fine sand, 0 to 8 percent slopes	No
Honcut cobbly sandy loam, 2 to 25 percent slopes	Yes (Riverwash component)
Honcut loam, 2 to 8 percent slopes, eroded	No
Honcut sandy loam, 2 to 8 percent slopes	No
Honcut sandy loam, 8 to 15 percent slopes, eroded	No
Lodo rocky loam, 25 to 50 percent slopes, eroded	No
Lodo rocky loam, 8 to 25 percent slopes, eroded	No
Modjeska gravelly loam, 2 to 9 percent slopes	No
Modjeska gravelly loam, 9 to 15 percent slopes	No
Placentia cobbly fine sandy loam, 8 to 25 percent slope s	Yes (unnamed ponded component)
Placentia fine sandy loam, 5 to 15 percent slopes	Yes (unnamed ponded component)
Porterville clay, 0 to 8 percent slopes	No
Ramona sandy loam, 0 to 5 percent slopes, severely eroded	No
Ramona sandy loam, 15 to 25 percent slopes, severely eroded	No
Ramona sandy loam, 5 to 8 percent slopes, severely eroded	No
Ramona sandy loam, 8 to 15 percent slopes, eroded	No
Ramona sandy loam, 8 to 15 percent slopes, severely eroded	No
Riverwash	Yes
Rough broken land	No
San Emigdio loam, 2 to 8 percent slopes	No
Soper cobbly loam, 25 to 50 percent slopes, eroded	No

Table 6-1. Soil Types within the Jurisdictional Study Area

Soil Type	Hydric (Yes/No)
Temescal rocky loam, 15 to 50 percent slopes, eroded	No
Terrace escarpments	No
Tujunga gravelly loamy sand, 0 to 8 percent slopes	No
Tujunga loamy sand, channeled, 0 to 8 percent slopes	Yes (Riverwash component)
Vallecitos loam, thick solum variant, 15 to 50 percent slopes, eroded	No
Vallecitos rocky loam, 8 to 50 percent slopes, eroded	No
Waukena loamy fine sand, saline-alkali	No
Willows silty clay, saline-alkali	No
Yokohl loam, 8 to 15 percent slopes, eroded	Yes (unnamed component)
Yokohl loam, 8 to 25 percent slopes, severely eroded	Yes (unnamed component)
Yorba gravelly sandy loam, 2 to 9 percent slopes	No

Source: Soil Survey of Western Riverside Area, California (NRCS 1971)

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Figure 6-1.
Soils: Map 1

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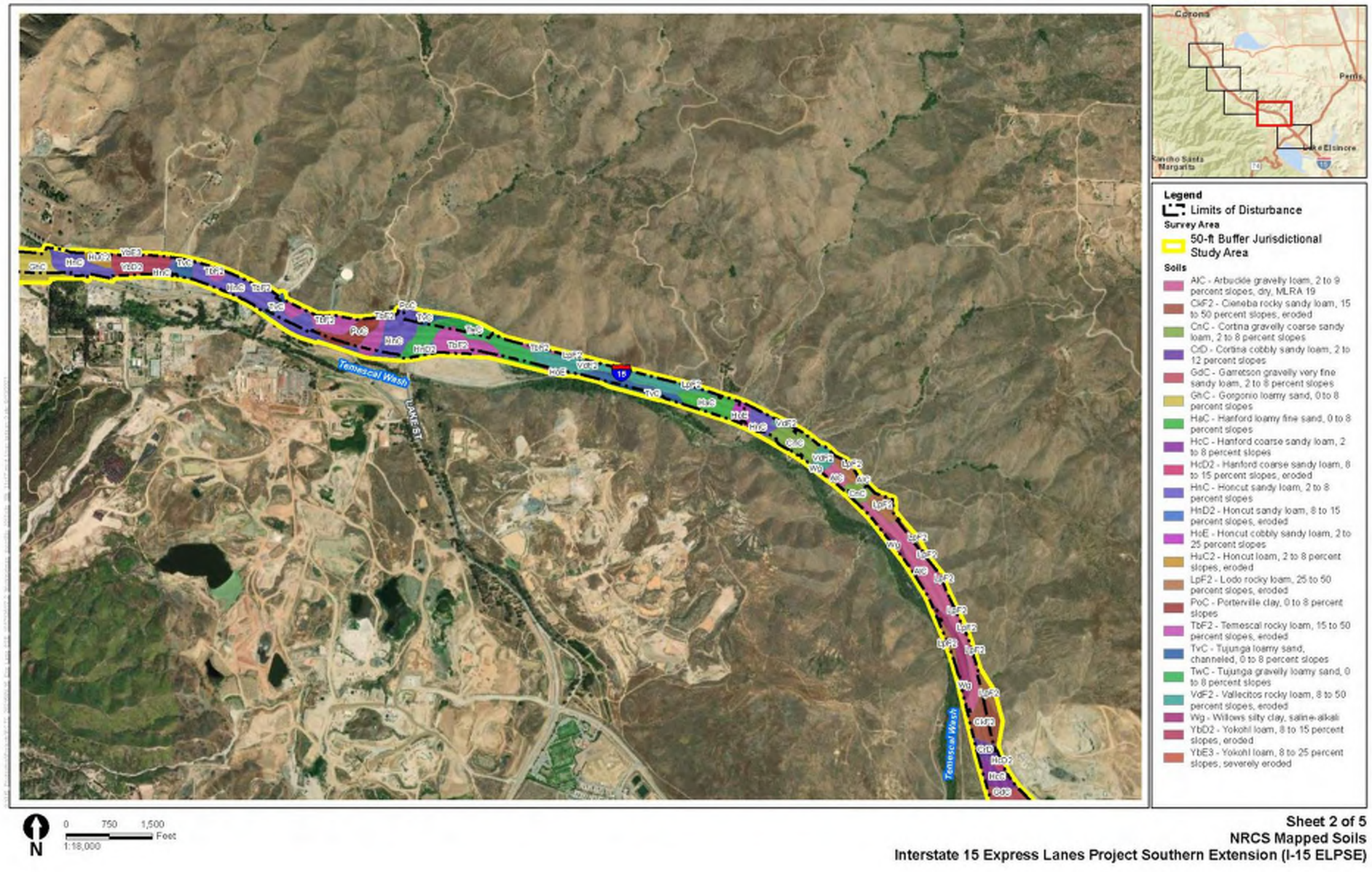

Figure 6-1.
Soils: Map 2

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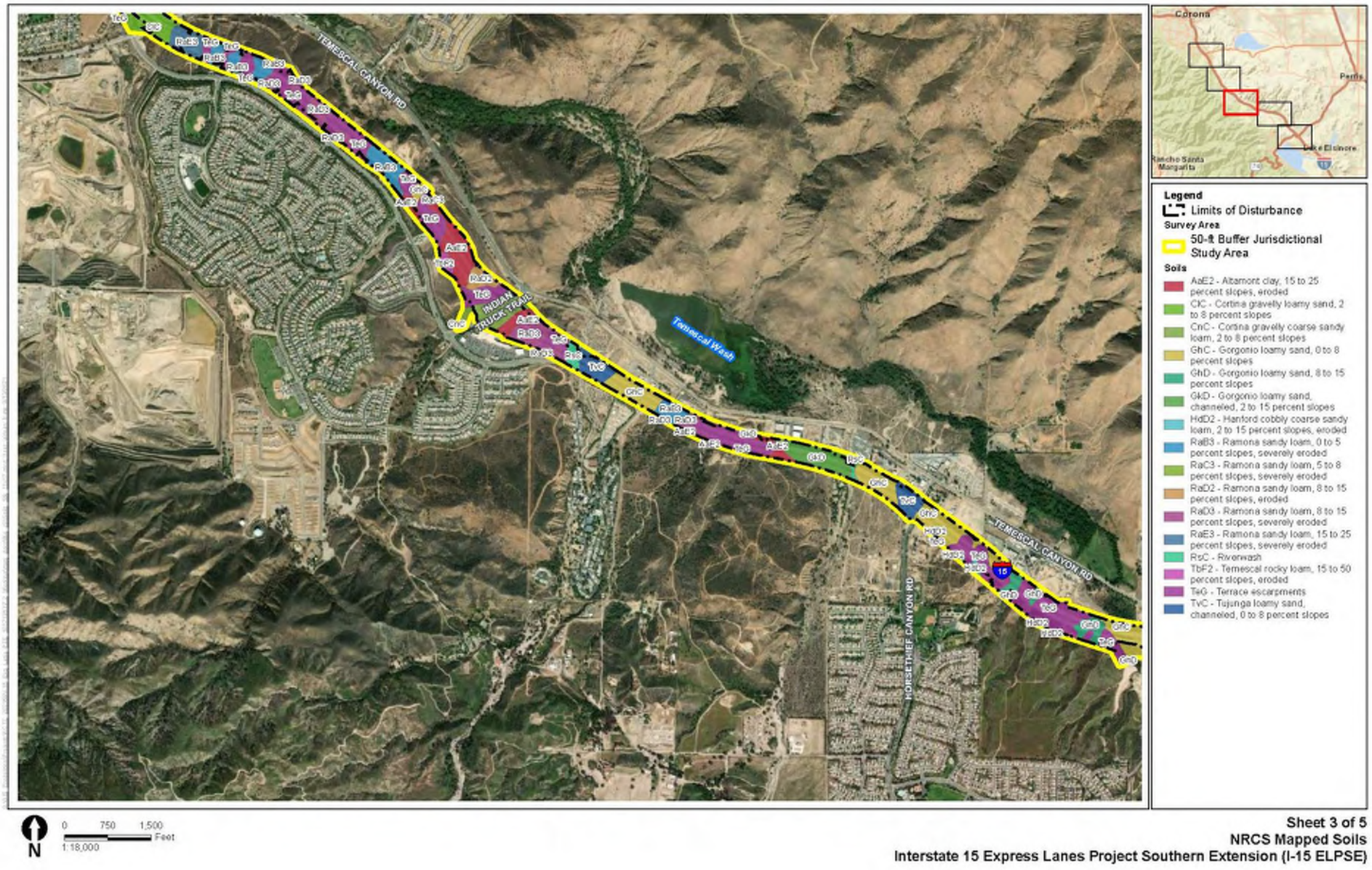

Figure 6-1.
Soils: Map 3

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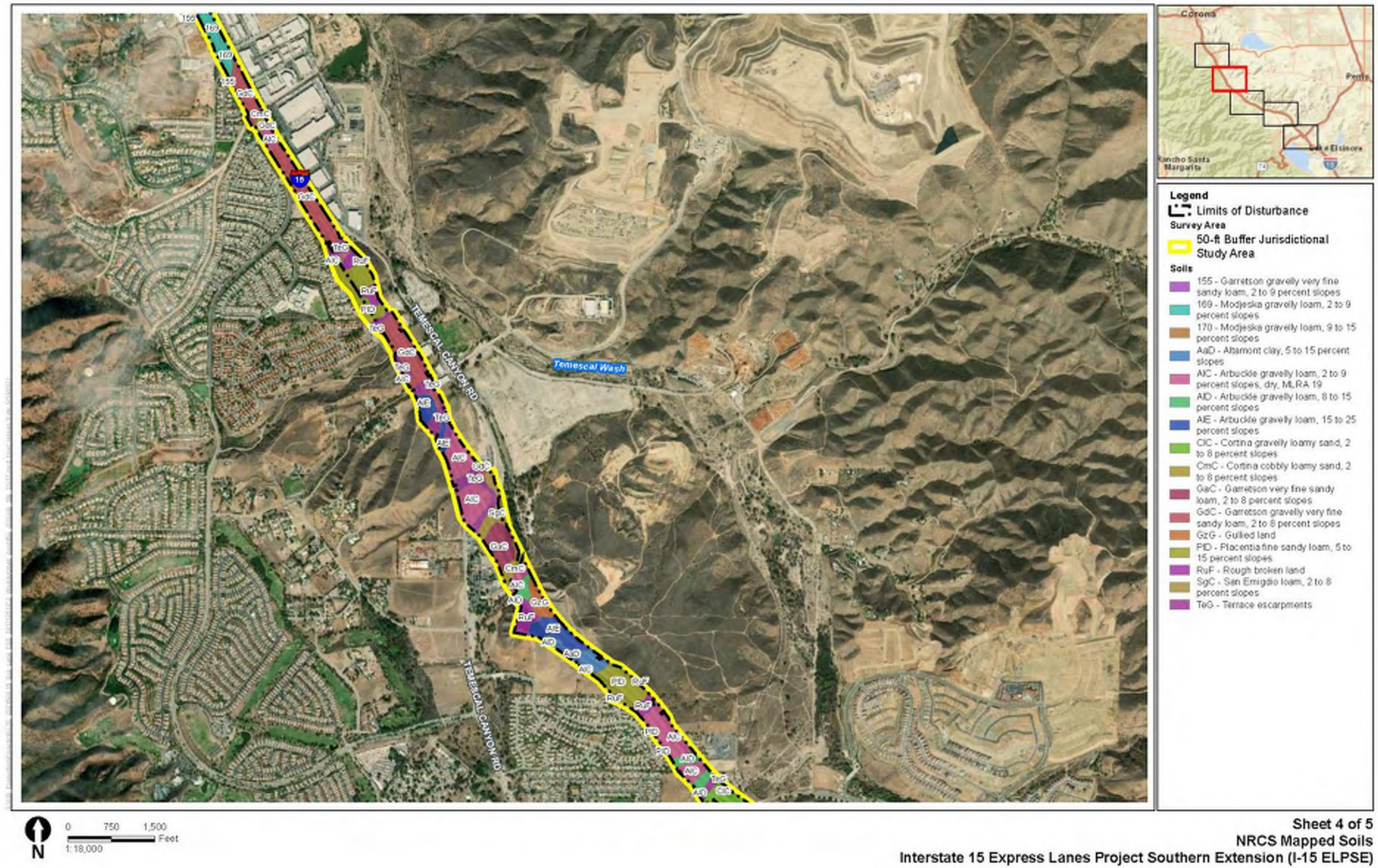

Figure 6-1.
Soils: Map 4

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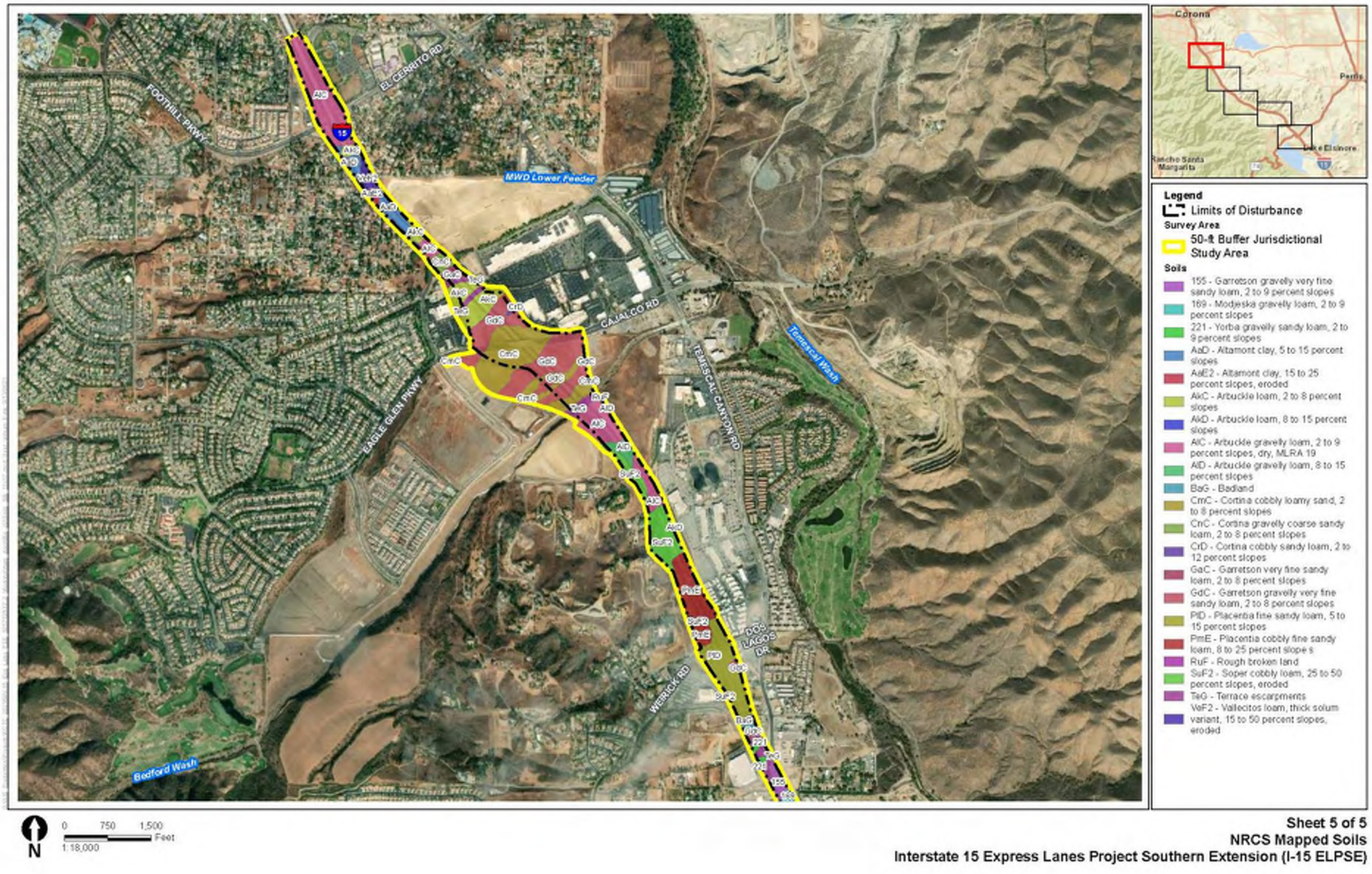

Figure 6-1.
Soils: Map 5

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6.1.4 Hydrology

The JSA occurs within the Bedford Wash-Temescal Wash [(Hydrologic Unit Code (HUC) 180702030604)], Dawson Canyon-Temescal Wash (HUC 180702030602), Arroyo del Toro-Temescal Wash (HUC 180702030601) and Lake Elsinore (HUC 180702020308) subwatersheds of the Santa Ana River Watershed (HUC 18070105) (USGS 2021). The Santa Ana River Watershed drains a 2,650 square mile area (Santa Ana RWQCB 1994). Drainages within the JSA receive flows from the Santa Ana Mountains, west of the JSA, and the Gavilan Hills east of the JSA. Temescal Wash, which connects Lake Elsinore in the south to the Santa Ana River north of the JSA, is the main drainage within the JSA, and most of the aquatic features within the JSA are eventually tributary to Temescal Wash. Within the JSA, Temescal Wash is an intermittent and perennial earthen drainage that supports riparian habitat throughout much of its length. Between the JSA and the Santa Ana River, Temescal Wash contains portions with earthen substrate that support areas with riparian habitat as well as portions that have been concrete-lined/channelized. All hydrological features within the JSA have been modified to some extent to support development of I-15 and surrounding residential, agricultural, and commercial land uses.

6.2 Field Assessment Results

A total of 146 features with an identifiable OHWM or discernible bed-and-bank, or both, were observed within the JSA. These features, and their potential USACE, RWQCB, and CDFW jurisdictional statuses are described below. The total extent of features potentially subject to USACE, RWQCB, and/or CDFW jurisdiction within the JSA is detailed in Appendix C. Maps showing the extent of potential jurisdictional areas overlaid on aerial photographs of the JSA are included in Appendix D and representative photographs of these features are provided in Appendix E. Features that did not exhibit an OHWM or discernible bed-and-bank were not mapped and are not listed in Appendix C or shown in Appendix D. Findings presented in this Jurisdictional Delineation Report are preliminary and subject to verification by USACE, RWQCB, and CDFW during final design.

6.2.1 U.S. Army Corps of Engineers Jurisdiction

A total of 145 features with an identifiable OHWM were observed within the JSA. Indicators used to delineate the OHWM within features in the JSA commonly included terracing, sediment deposition, destruction of terrestrial vegetation, changes in the character of the soil, an abrupt change in a plant community, flow patterns, a natural line impressed on the bank, the presence of litter and debris, and the presence of a wrack line. Three of these features were determined not to be subject to USACE jurisdiction per SWANCC as they were isolated from any downstream waters. 90 features within the JSA were determined to be potentially subject to USACE jurisdiction pursuant to Section 404 of the CWA based on the presence of an OHWM, location within a historical flowline or 100-year floodplain, and downstream connection to a traditional navigable water (Santa Ana River via Temescal Wash). Both wetland and nonwetland waters of the U.S. occur within the JSA. Total USACE jurisdiction within the JSA is detailed in Table A provided in Appendix C, and shown on figures provided in Appendix D. Findings presented in this Jurisdictional Delineation Report are preliminary and subject to verification by USACE.

Traditional Navigable Waters

Features within the JSA that exhibit a hydrologic connection to downstream waters are all eventually tributary to Temescal Wash, which is tributary to the Santa Ana River, approximately 8.5 river miles to

the northwest of the JSA. USACE has identified the Santa Ana River as a TNW in the portion from 19th Street Bridge in the City of Newport Beach to near its confluence with the Pacific Ocean in the City of Newport Beach, Orange County. Because of this significant nexus to a TNW, features within the JSA that are tributary to Temescal Wash are potentially subject to USACE jurisdiction pursuant to Section 404 of the CWA.

Constructed in Uplands

Fifty-two (52) features within the JSA exhibited an OHWM but are best characterized as ephemeral ditches constructed in upland areas, which are not generally regulated by USACE according to 2008 guidance issued by USACE (USACE 2008b). These are labeled as Constructed In Uplands on maps provided in Appendix D and are not considered subject to regulation by USACE under CWA Section 404. A total of 0.652 acre of features with an OHWM that were constructed in uplands were mapped within the JSA, as shown in Table 6-2.

Isolated Features

Three features within the JSA, two non-wetland (Features 27.9-1 and 28.2-1) and one wetland (Feature 30.8-1), exhibited an OHWM but were determined to be isolated from downstream features. Features were determined to be isolated if they are not traditionally navigable or interstate waters, nor tributaries thereof, nor adjacent to any of these. Isolation was determined by reviewing downstream areas in the field and reviewing aerial photographs. Isolated features are not subject to USACE following precedent set under SWANCC.

Feature 27.9-1

Feature 27.9-1 is a 0.17-acre earthen depressional area that exhibits evidence of ponding in the form of soil cracks and patches of algae in some areas. Mapped vegetation within this area is Goodding's Willow-Red Willow Riparian Woodland and Forest, with dominants including Goodding's willow (*Salix gooddingii*), tamarisk (*Tamarix* sp.), and arroyo willow (*Salix laevigata*) identified in the tree layer, mule fat (*Baccharis salicifolia*) and castor bean (*Ricinus communis*) in the shrub layer, and Spanish false fleabane (*Pulicara paludosa*) and stinging nettle (*Urtica dioica*) in the herbaceous layer. Wetland Determination Data Forms 27.9-1_01 and 27.9-1_02 were completed for the portions of the depression that exhibited the clearest signs of wetland hydrology. This feature does not support all three USACE wetland parameters (i.e. hydrophytic vegetation, hydric soil, and wetland hydrology) at either of the sampled locations. Hydrology within Feature 27.9-1 appears to be supported by runoff from nearby Temescal Canyon Road and does not connect to any downstream features. Therefore Feature 27.9-1 is isolated and not considered a water of the U.S. Wetland Determination Data Forms 27.9-1_01 and 27.9-1_02 are included in Appendix A. It is labeled as OHWM (Isolated) on maps provided in Appendix D and is not subject to USACE following precedent set under SWANCC.

Table 6-2. Acreage of Potential Waters of the U.S. by Project Section

Potential Jurisdictional Status	Map Label (Appendix D)	Total Acreage within JSA (acres)
USACE		
Non-jurisdictional	Constructed in Uplands	0.652
Non-jurisdictional	OHWM (Isolated)	0.171
Non-jurisdictional	Wetland (Isolated)	0.038
Total		***0.860***
Section 404 Non-Wetland	OHWM (Intermittent) OHWM (Perennial) OHWM (Ephemeral)	6.757
Section 404 Wetland	Wetland	3.234
Total		***9.991***
RWQCB		
Non-jurisdictional	Constructed in Uplands	0.652
Non-jurisdictional	OHWM (Isolated)	0.002
Total		***0.654***
Section 401 Non-Wetland	OHWM (Intermittent) OHWM (Perennial) OHWM (Ephemeral)	6.757
Section 401 Wetland	Wetland	3.234
Total		***10.008***
Porter-Cologne Wetland	Wetland (Isolated)	0.206
Porter-Cologne Riparian	Riparian (Isolated)	0.168
Total		***0.374***
CDFW		
Non-jurisdictional	Constructed in Uplands	2.275
Total		***2.275***
Section 1600 Streambed	Streambed	11.730
Section 1600 Riparian	Riparian	14.693
Total		***26.423***
Source: HDR, Inc 2021		

Feature 28.2-1

Feature 28.2-1 is an ephemeral, earthen channel conveying flows from a small valley west of the JSA into the shoulder of SB I-15. It supports Brittle Bush Scrub vegetation throughout the feature and is a non-wetland feature. Feature 28.2-1 terminated in the SB I-15 shoulder and does not connect to any downstream features. Feature 28.2-1 is labeled as OHWM (Isolated) on maps provided in Appendix D and is not subject to USACE jurisdiction pursuant to SWANCC.

Feature 30.8-1

Feature 30.8-1 is an earthen depressional area located on the SB side of I-15 near Mayhew Canyon Road. It occurs along a natural flowline that is apparent in topographic maps and historic aerial photographs. The area supports southern willow scrub vegetation around a defined channel that. It collects water from the west and exhibits a defined 6-foot wide channel that supports perennial flows with arroyo willow (*Salix laevigata*), cattails (*Typha* sp.), and tall cyperus (*Cyperus eragrostis*) in the accessible portion of the channel. Cattails were observed in the channel in inaccessible areas. It is mapped as Freshwater/Forested Shrub Wetland on NWI Mapping. A Wetland Determination Data Form was completed in the wet portion of the channel and the feature met all three USACE wetland parameters. Vegetation is confined to the wet portions of the channel; therefore, an upland paired point was not conducted due to the lack of hydrophytic vegetation in adjacent upland areas. Feature 30.8-1 is isolated, as it does not have an outlet or other connection to downstream waters. It is labeled as Wetland (Isolated) on maps provided in Appendix D and is not subject to USACE jurisdiction pursuant to SWANCC. Wetland Determination Data Form 30.8-1_01 is included in Appendix A.

Potential Non-Wetland Waters of the U.S.

Eighty-three (83) of the features identified as subject to USACE jurisdiction support areas of potentially jurisdictional non-wetland waters of the U.S. Table 6-2 shows the total acreage of potential waters of the U.S. within the JSA. Details of features within the JSA that support non-wetland waters of the U.S. are included in Appendix C. Features that support non-wetland waters of the U.S. are shown as OHWM (Ephemeral), OHWM (Intermittent) and OHWM (Perennial) on maps included in Appendix D. Photographs of these features are included in Appendix E.

Potential Wetland Waters of the U.S.

Features containing areas that exhibited hydrophytic vegetation, hydric soils, and wetland hydrology were mapped as potential wetland waters of the U.S. Characteristics regarding flow regime, location in regards to watershed or floodplain, or alignment with historical naturally-occurring features are included in Appendix C and photographs of these features are included in Appendix E.

Ten (10) of the features identified within the JSA contain wetlands as defined by USACE guidelines, including multiple sections of Temescal Wash (Features 24.3-2, 25.2-1, 25.8-1, and 28.1-1) as well as Features 26.4-1, 30.3-1, 31.5-2, 33.8-3, 35.7-1, and 37.2-1. Some of these areas were inaccessible and soil pits could not be conducted. In these cases, features were studied to the fullest extent possible in the field, on current and historical aerial photographs and on the National Wetlands Inventory Online Mapping tool. Soil maps were reviewed where needed to identify mapped hydric soils. In these inaccessible areas, wetlands were assumed for areas where vegetation and hydrology were present and soils were considered

likely to meet wetland parameters based on the presence of water in the drainages on aerial photographs taken at several different seasons in multiple years.

Temescal Wash

Temescal Wash generally flows from south to north, connecting Lake Elsinore in the south to the Santa Ana River in the north. It runs mostly parallel to the JSA, crossing under I-15 just north of the intersection of Hostettler Road and Temescal Canyon Road. Within the JSA, Temescal Wash has an earthen bottom and exhibits intermittent and perennial flows that support riparian habitat and wetlands in some areas. Temescal Wash was mapped in four separate locations within the JSA (Features 24.3-2, 25.2-1, 25.8-1, and 28.1-1), all of which supported wetland waters of the U.S. Vegetation communities mapped within Temescal Wash within the JSA include Fremont Cottonwood Forest and Woodland, Goodding's Willow-Red Willow Riparian Woodland and Forest, Hardstem and California Bullrush Marshes, and Quailbush scrub. Within the JSA, Temescal Wash has areas mapped as Freshwater Forested Shrub Wetland, Freshwater Emergent Wetland and Riverine on NWI mapping.

Seven Wetland Determination Data Forms were assessed within Temescal Wash. Some portions of Temescal Wash within the JSA were not accessible due to presence of standing water. Portions of the wash within inaccessible areas that supported monotypic stands of OBL vegetation, notably cattails (*Typha* sp.), were mapped as wetlands without Wetland Determination Data Forms completed. Wetland Determination Data Forms 24.3-2_01, 24.3-2_02, 28.1-1_01, 28.1-1_02, 28.1-1_03, 28.1-1_04 and 28.1-1_05 are included in Appendix A.

Feature 26.4-1

Feature 26.4-1 is an earthen basin located on the NB side of I-15, just south of Lake Street. Vegetation mapped for the basin includes Hardstem and California Bullrush Marshes and Goodding's Willow-Red Willow Riparian Woodland and Forest. The basin supports willows in the drier areas around the edges and at the northern edge of the basin, and dense cattail thickets in the southern end of the basin. It receives flows via a corrugated pipe inlet in the southwest corner of the basin. Based on USGS hydrography data, flows are conveyed from the basin into a culvert at the northwest edge and into Temescal Wash via an underground pipe. It is mapped as Freshwater Forested/Shrub Wetland on NWI mapping.

Two Wetland Determination Data Forms were completed within Feature 26.4-1: one in the drier northern end where soil cracks were present (26.4-1_01) and one in the wetter central portion where vegetation transitioned from willow scrub to cattail thickets (26.4-1_02). Both data points met all three USACE wetland parameters and the entire portion of the basin within the OHWM was mapped as wetland waters of the U.S. Wetland Determination Data Forms 26.4-1_01 and 26.4-1_02 are included in Appendix A.

Feature 30.3-1

Feature 30.3-1 is an earthen depressional area located on the NB side of I-15, just south of Indian Truck Trail. Vegetation within this area is mapped as Goodding's Willow-Red Willow Riparian Woodland and Forest. It receives flows from three culverts at the northwest corner, one of which had water in its flowline at the time of the surveys. Two Wetland Determination Data Forms were completed at this location, one within the OHWM and one just outside. The data form within the OHWM (30.3-1_01) met all three USACE wetland parameters and all areas within the OHWM for this feature were mapped as

wetland waters of the U.S. Wetland Determination Data Forms 30.3-1_01 and 30.3-1_02 are included in Appendix A.

Feature 31.5-2

Feature 31.5-2 is a constructed channel located in a mitigation area between SB I-15 and Campbell Ranch Road. It consists of a deep channel with earthen bottom and rock rip-rap sides. The channel supports willows (*Salix* sp) and cattails (*Typha* sp.). It receives flows from a culvert on its south end and conveys flows into a separate channel via a culvert at the north end. It is not shown as wetlands or riverine on NWI mapping.

Wetland Determination Data Form 31.5-2 was completed for this channel. Wetland hydrology and hydrophytic vegetation are present in this location. A soil pit was not conducted as permission to dig on the property was not granted, so soils were assumed to be hydric and the area was mapped as wetland. Soils mapped for the location on NRCS mapping were Ramona sandy loam, 0 to 5 percent slopes, severely eroded, which does not have any hydric components. However, since this channel is constructed, actual soils likely do not match the mapped soils. Wetland Determination Data Form 31.5-2 is included in Appendix A.

Feature 33.8-3

Feature 33.8-3 is a channelized feature with concrete bottom that collects flows via a storm drain outlet on its northwest edge. It is not shown as wetlands or riverine on NWI mapping. Much of the feature was inaccessible due to a fence at the ROW edge, however the feature was visible and supported 100 percent cover of cattails, which is listed as obligate wetland on USACE's *2018 Arid West Regional Wetland Plant List*. Therefore, the portions of this feature within the OWHM were mapped as wetland waters of the U.S. Wetland Determination Data Form 33.8-3_01 was completed for this location and is included in Appendix A.

Feature 35.7-1

Feature 35.7-1 is a channelized feature with rock rip-rap bottom, as observed within accessible portions of the JSA. It collects flows from an unnamed drainage to the west that is mapped as R4SBA (Riverine, Intermittent, Streambed) on National Wetland Inventory mapping. There is a culvert on the eastern edge that is blocked, resulting in ponding at the culvert and approximately 40 feet upstream. The channel supports standing water with dense cover of perennial pepperweed (*Lepidium latifolium*). It is mapped as Riverine on NWI mapping.

Wetland Determination Data Form 35.7-1_01 was completed for this feature, although a soil pit was not dug due to the rock rip-rap bottom. A paired data point was not conducted because the area has a clearly defined transition between the incised channel with rock rip-rap and upland banks. Much of the feature was inaccessible due to a fence at the ROW edge, however the portion of the feature within the JSA was visible and supported 100 percent cover of perennial pepperweed, which is listed as facultative wetland on USACE's *2018 Arid West Regional Wetland Plant List*. Therefore, the portions of this feature within the OWHM were mapped as wetland waters of the U.S. Wetland Determination Data Form 35.7-1_01 is included in Appendix A.

Feature 37.2-1

Feature 37.2-1 is a detention basin that collects upstream flows from an inlet on its southwest corner near Bedford Canyon Road. An outlet from the basin was not visible in the field due to dense vegetation growth, however it appears, based on aerial imagery, that flows that collect in the basin are conveyed under I-15 and into a rectangular concrete channel located on the east side of I-15. This channel is eventually tributary to Temescal Wash, approximately 0.75 mile downstream of the JSA. It is mapped a Riverine on NWI mapping.

The outer edges of the basin support a dense canopy mapped as Goodding's Willow-Red Willow Riparian Woodland and Forest. The bottom of the basin supported a stand of cattails. Wetland Determination Data Form 37.2-1_01 was completed in the area dominated by cattails, and all three USACE wetland parameters were met at this location. Wetland Determination Data Form 37.2-1_02 was conducted at the point where herbaceous vegetation transitioned into upland species dominated by castor bean (*Ricinis communis*) and red brome (*Bromus madritensis* ssp. *rubens*). This area did not support hydric soils; therefore, wetlands were mapped for this feature only within the lower portion dominated by cattails. Wetland Determination Data Forms 37.2-1_01 and 37.2-1_02 are provided in Appendix A and photos of Feature 37.2-1 are included in Appendix E of this JD report.

The total acreage of wetland areas potentially subject to USACE jurisdiction pursuant to Section 404 of the CWA is 3.234 acres, as shown in Table 6-2 . Details of features within the JSA that support wetland waters of the U.S. are included in Appendix C. Features that support wetland waters of the U.S. are shown as Wetland on maps in Appendix D. Photographs of these features are included in Appendix E. Wetland Determination Data Forms for these features are included in Appendix A.

6.2.2 Regional Water Quality Control Board Jurisdiction

Constructed in Uplands

Fifty-two (52) features within the JSA exhibited an OHWM but are best characterized as unvegetated ephemeral ditches constructed in upland areas to convey only roadside runoff. Since these features lack vegetation and exhibit minimal or no aquatic function, they support only limited (if any) functions and values for wildlife resources (i.e. wetland or riparian vegetation other aquatic resources). As a result, these features are not generally regulated by RWQCB. These are labeled as Constructed In Uplands on maps provided in Appendix D and are not considered subject to regulation by RWQCB under Section 401 of the CWA or Porter-Cologne. A total of 0.652 acre of features constructed in uplands were mapped within the JSA, as shown in Table 6-2.

Potential RWQCB-Regulated Non-Wetland Waters

All non-wetland features previously discussed as subject to USACE regulation pursuant to Section 404 of the CWA are also subject to RWQCB regulation pursuant to Section 401 of the CWA. These features are labeled as OHWM (Ephemeral), OHWM (Intermittent) and OHWM (Perennial) on maps in Appendix D. As shown in Table 6-2, a total of 6.757 acres of non-wetland areas potentially subject to RWQCB jurisdiction pursuant to CWA Section 401 were identified within the JSA.

Potential RWQCB-Regulated Wetlands and Riparian

RWQCB regulates areas that meet the USACE definition of wetlands pursuant to Section 401 of the CWA. The total acreage of wetland areas potentially subject to RWQCB jurisdiction pursuant to Section 401 of the CWA is 3.234 acres, as shown in Table 6-2.

In addition to Section 401 wetlands, pursuant to Porter-Cologne, RWQCB also regulates isolated wetlands and riparian habitat. As previously discussed, one isolated wetland area (Feature 30.8-1) and one isolated area with riparian habitat (Feature 27.9-1) were mapped within the JSA. As shown in Table 6-2, the total area of potential isolated wetlands and riparian habitat subject to potential RWQCB jurisdiction pursuant to Porter-Cologne is 0.206 acre.

6.2.3 California Department of Fish and Wildlife Jurisdiction

Features within the JSA were considered subject to CDFW jurisdiction if they exhibited a bed and bank, provided substantial habitat value for terrestrial and/or aquatic wildlife, and occurred within or were constructed within a naturally occurring drainage feature. Ditches that collected sheet flows only from adjacent roadways and were either isolated or connected directly to the underground storm drain system were not considered subject to CDFW jurisdiction. Details regarding CDFW jurisdiction for each feature identified within the JSA are provided in Appendix C and the limits of CDFW jurisdiction are included in Appendix E.

Constructed in Uplands

Fifty-two (52) features were considered to be not subject to CDFW jurisdiction because they were constructed in uplands, are not natural or modified natural drainages based on historical aerials and USGS topographic maps, and do not have adequate functions and values to benefit fish and wildlife resources (i.e. features are unvegetated, constructed in upland, concrete-lined, collect and convey only sheet flow or exhibit no evidence of surface flow, or discharge directly to an underground storm drain system,). These non-jurisdictional features are not included for further analysis, but are described in Appendix C and shown as Constructed in Uplands on maps included as Appendix D. As shown in Table 6-2, a total of 2.275 acres of streambed that were constructed in uplands were mapped within the JSA.

Potential Jurisdictional Streambeds

Seventy-five (75) features exhibiting streambeds that are either unvegetated or support upland vegetation that are potentially subject to CDFW jurisdiction under Section 1600 et seq. of the California Fish and Game Code were mapped within the JSA. These features are labeled as Streambed on maps in Appendix D. As shown in Table 6-2, potential CDFW-jurisdictional streambeds within the JSA totals 11.730 acres. Details of these features are provided in Appendix C and photographs are included in Appendix A.

Potential Jurisdictional Riparian Habitat

Typical riparian vegetation communities mapped within the JSA include Fremont Cottonwood Forest and Woodland, Goodding's Willow-Red Willow Riparian Woodland and Forest, Hardstem and California Bullrush Marshes, and Mulefat Thickets. Within the JSA, riparian communities were identified within Temescal Wash, and fourteen unnamed channels, basins, or depressional areas. In total, 19 features

supporting riparian habitat either within or extending beyond the mapped bed-and-bank that are potentially subject to CDFW jurisdiction under Section 1600 et seq. of the California Fish and Game Code were identified within the JSA. These features are labeled as Riparian on maps provided in Appendix D. While most riparian vegetation was confined to areas within the banks of the drainage, the canopy of trees and other plants typically supported by intermittent or perennial water extended beyond the banks in some instances. CDFW jurisdiction was mapped to the furthest extent of the riparian canopy.

As shown in Table 6-2, total of 14.693 acres of potential CDFW-jurisdictional riparian areas were mapped within the JSA. Details of features within the JSA that support CDFW riparian habitat are included in Appendix C and photographs are included in Appendix A.

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7 Conclusions

The JSA is located between two mountain ranges – the Santa Ana Mountains to the west and the Gavilan Hills to the east. As previously discussed, flows from these ranges are generally conveyed downstream towards Temescal Wash, which flows from south to north along much of the JSA. As a result, numerous drainage features occur within the JSA. The JSA is in a highly urbanized area and all of the drainage features within the JSA have been modified to some extent or were built exclusively for flood control purposes.

7.1 U.S. Army Corps of Engineers Jurisdiction

A total of 90 features potentially subject to USACE jurisdiction under Section 404 of the CWA were identified within the JSA. These features support both wetland and non-wetland potential waters of the U.S. A total of 6.757 acres of potential non-wetland waters of the U.S. and 3.234 acres of wetland waters of the U.S. subject to USACE jurisdiction under Section 404 of the CWA were identified within the JSA. These findings are preliminary and subject to verification by USACE.

7.2 Regional Water Quality Control Board Jurisdiction

All features identified as subject to USACE jurisdiction would also be subject to RWQCB jurisdiction. A total of 6.757 acres of potential non-wetland waters of the U.S. and 3.234 acres of wetland waters of the U.S. subject to RWQCB jurisdiction under Section 401 of the CWA were identified within the JSA.

A total of 0.206 acre of isolated wetlands and riparian habitat potentially subject to RWQCB jurisdiction according to Porter-Cologne were identified in the JSA. These findings are preliminary and subject to verification by RWQCB.

7.3 California Department of Fish and Wildlife Jurisdiction

A total of 91 features potentially subject to CDFW jurisdiction under Section 1600 et seq. of the California Fish and Game Code were identified within the JSA. These features support both riparian and non-riparian characteristics. A total of 11.730 acres of potential unvegetated streambed and 14.693 acres of riparian habitat potentially subject to CDFW jurisdiction were identified within the JSA. These findings are preliminary and subject to verification by CDFW.

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——— 1967a. Photo revised 1988. *Corona South, California* 7.5-minute topographic quadrangle map

——— 1967b. Photo revised 1988. *Lake Mathews, California* 7.5-minute topographic quadrangle map
——— 1954. Photorevised1988. *Alberhill, California* 7.5-minute topographic quadrangle map
——— 1953. Photo revised 1988. *Lake Elsinore, California* 7.5-minute topographic quadrangle map.

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Appendix A. Vegetation Communities Maps

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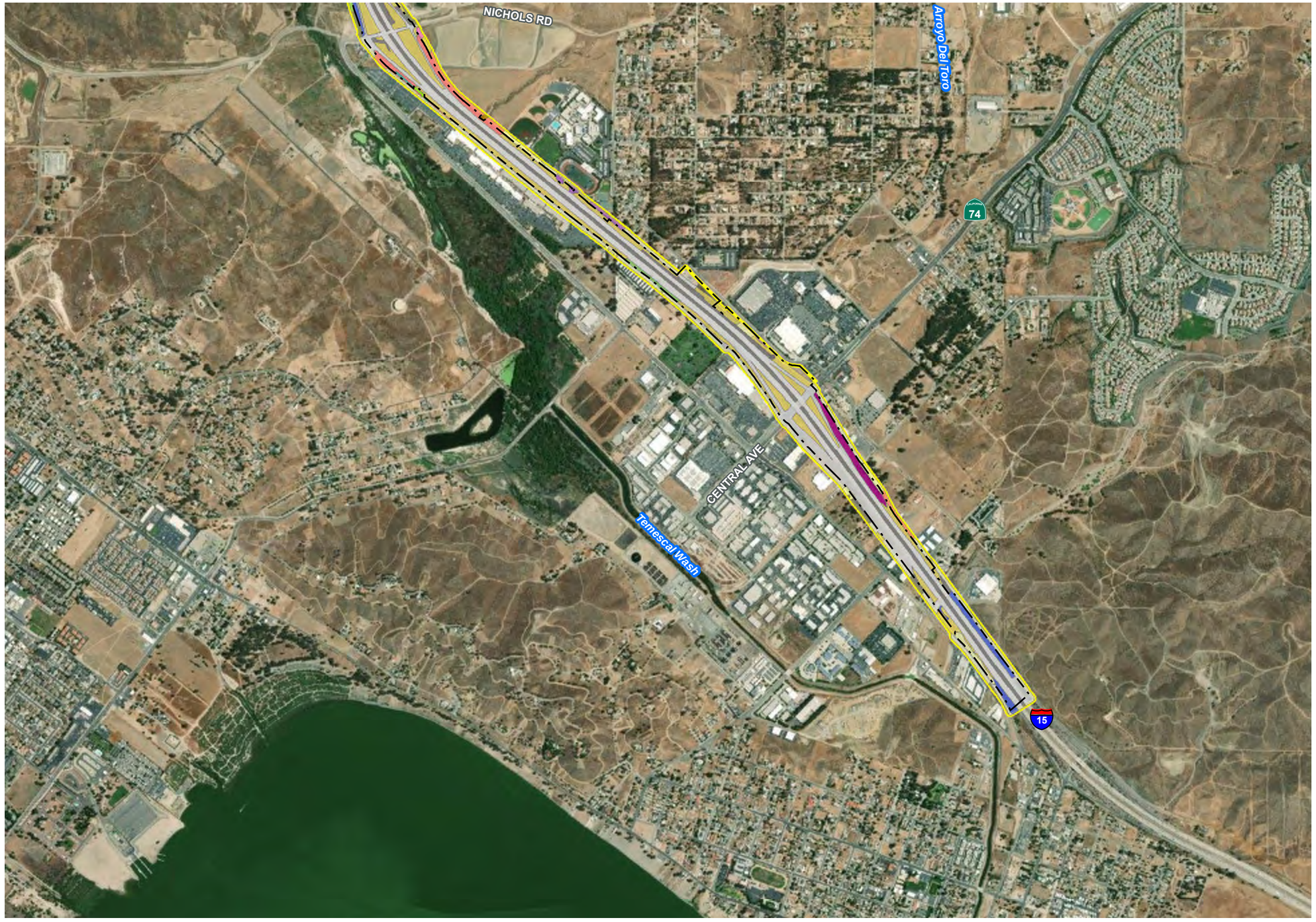
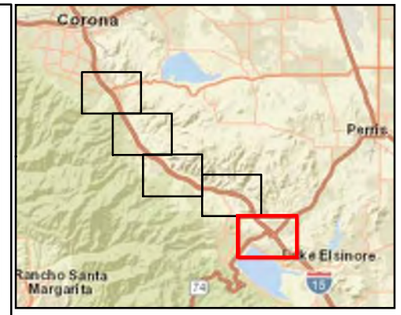




Legend

- Limits of Disturbance

Survey Area

- 50-ft Buffer Jurisdictional Study Area

Vegetation Communities

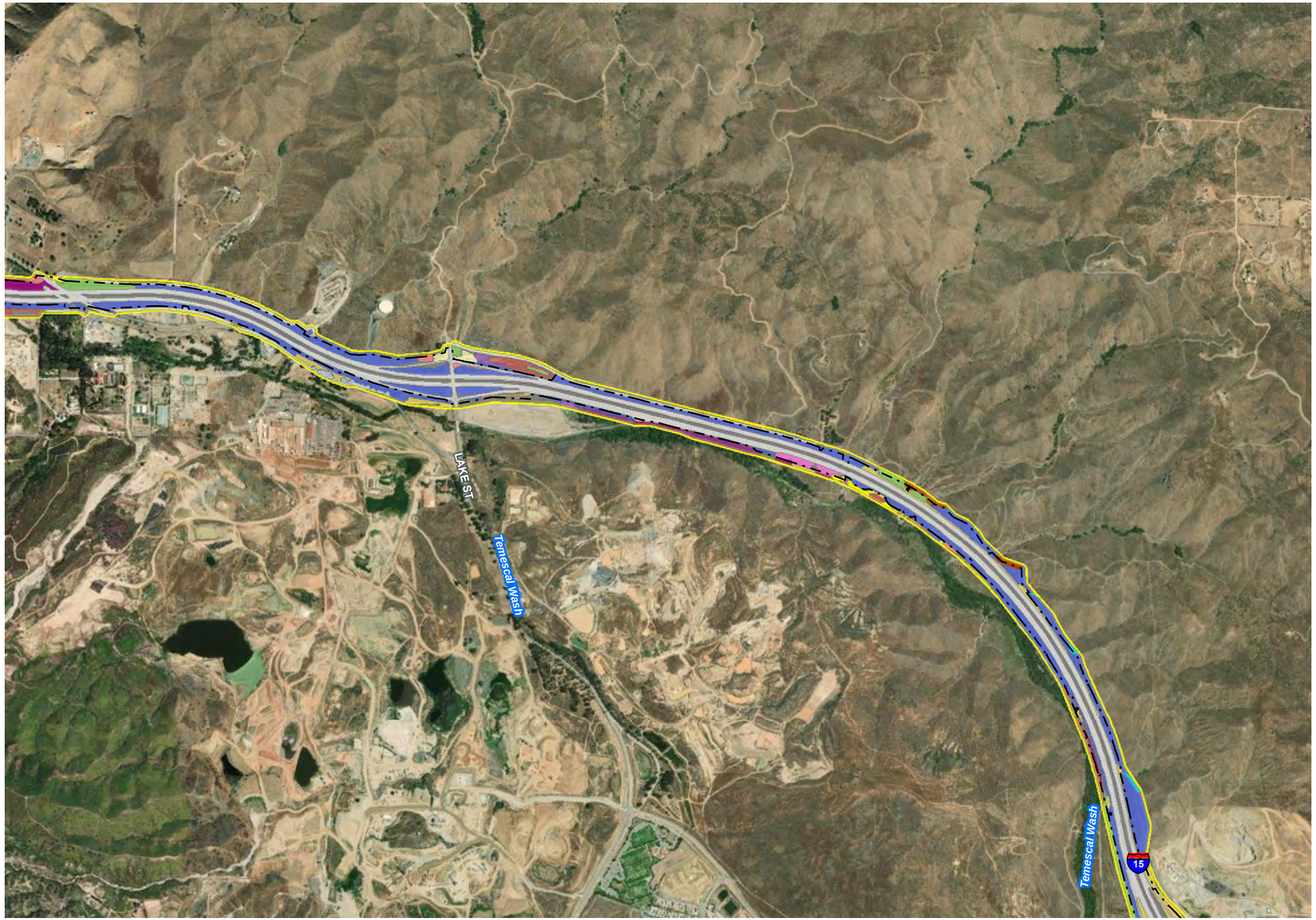
- Brittle Bush Scrub (BBS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Deer Weed Scrub (DWS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Needle grass - Melic grass grassland (NG-MGG)
- Quailbush Scrub (QBS)
- Scale Broom Scrub (BSS)
- Tamarisk Thickets (TAM)
- Tarweed Fields (TAR-F)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

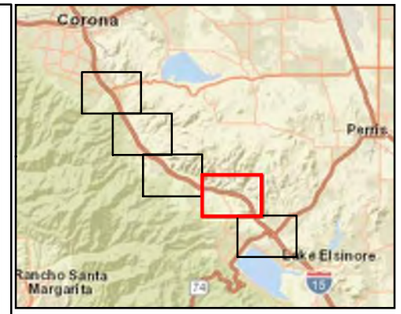
N

0 750 1,500 Feet

1:18,000

Sheet 1 of 5
Vegetation Communities
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

Limits of Disturbance

Survey Area

50-ft Buffer Jurisdictional Study Area

Vegetation Communities

- Agricultural (AGR)
- Arrow Weed Thickets (AWT)
- Brittle Bush Scrub (BBS)
- Bush Penstemon Scrub (BPS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Coast Live Oak Woodland and Forest (CLOWF)
- Deer Weed Scrub (DWS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Hardstem and California Bullrush Marshes (HCBM)
- Holly Leaf Cherry - Toyon - Greenbark Ceanothus Chaparral (HLC/T/GCC)
- Mulefat Thickets (MFT)
- Salt Grass Flats (SGF)
- Scale Broom Scrub (BSS)
- Tamarisk Thickets (TAM)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

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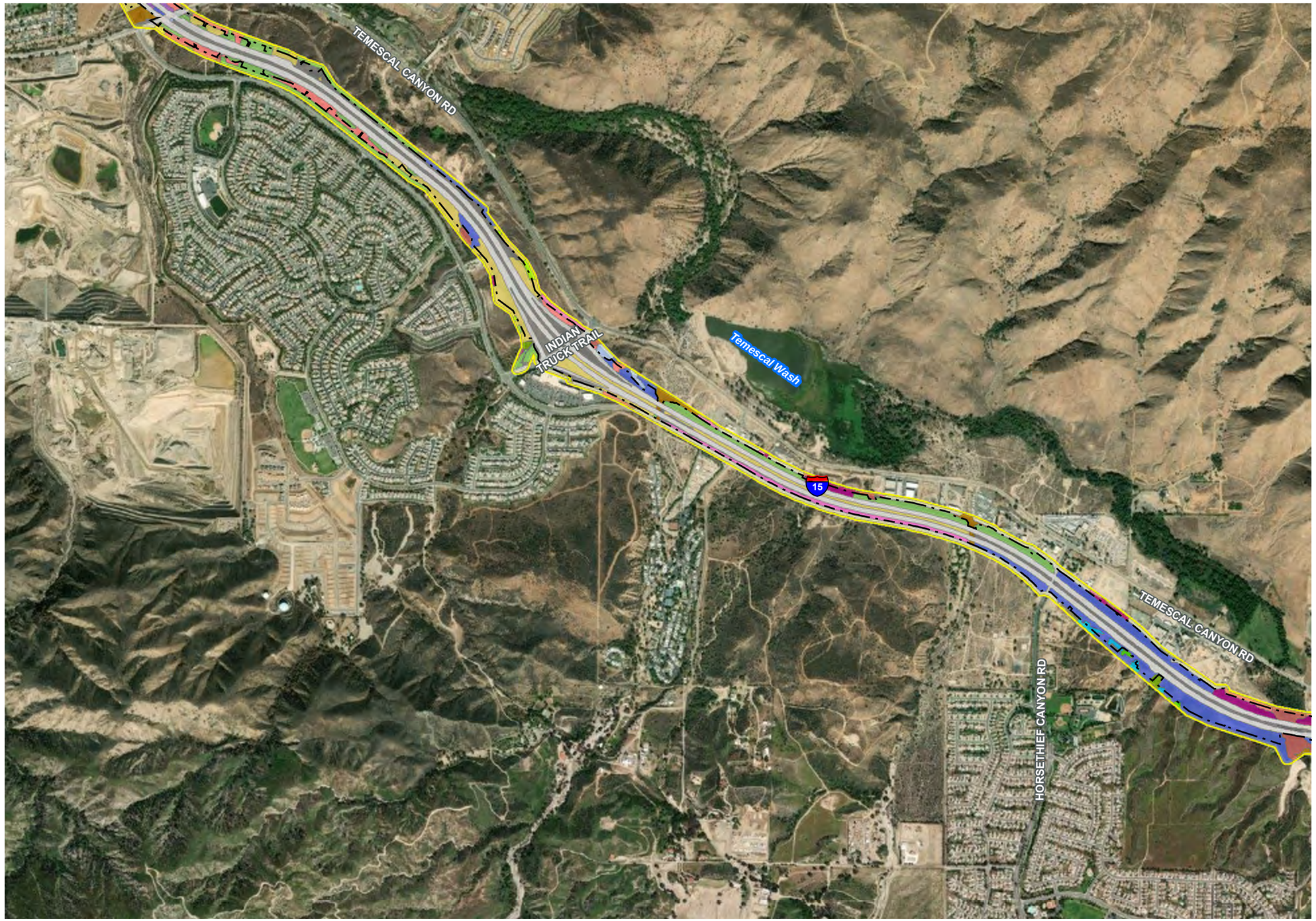
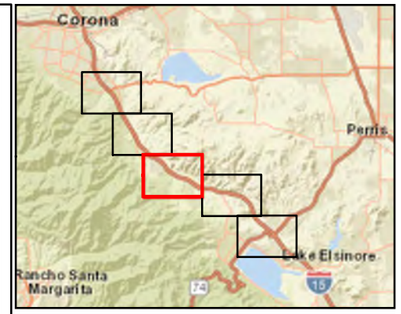
Sheet 2 of 5
Vegetation Communities
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

Limits of Disturbance

Survey Area

50-ft Buffer Jurisdictional Study Area

Vegetation Communities

- Brittle Bush Scrub (BBS)
- Bush Penstemon Scrub (BPS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- California Sycamore Woodlands (CSW)
- Coast Live Oak Woodland and Forest (CLOWF)
- Deer Weed Scrub (DWS)
- Developed (DEV)
- Disturbed (DIS)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Mulefat Thickets (MFT)
- Needle grass - Melic grass grassland (NG-MGG)
- Scale Broom Scrub (BSS)
- Scrub Oak Chaparral (SOC)
- Tamarisk Thickets (TAM)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)
- Wild Tarragon Patches (WTP)

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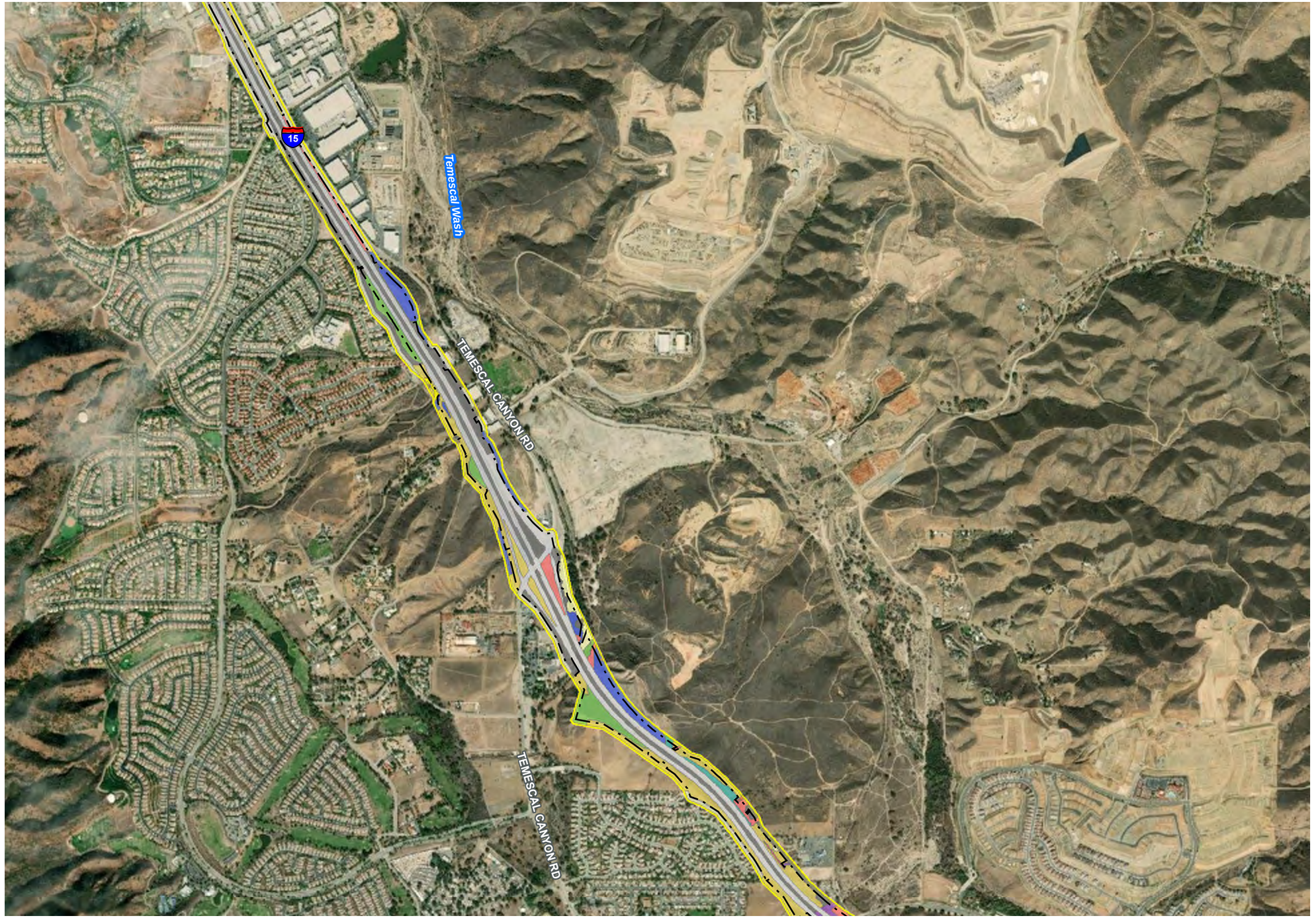
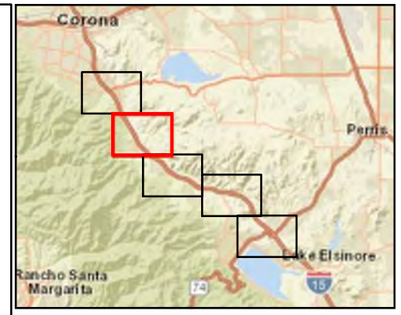
Sheet 3 of 5
Vegetation Communities
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

- Limits of Disturbance

Survey Area

- 50-ft Buffer Jurisdictional Study Area

Vegetation Communities

- Brittle Bush Scrub (BBS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Developed (DEV)
- Disturbed (DIS)
- Eucalyptus - Tree of Heaven - Black Locust Groves (EUC/TH/BLG)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Mulefat Thickets (MFT)
- Scale Broom Scrub (BSS)
- Tamarisk Thickets (TAM)
- Tarweed Fields (TAR-F)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

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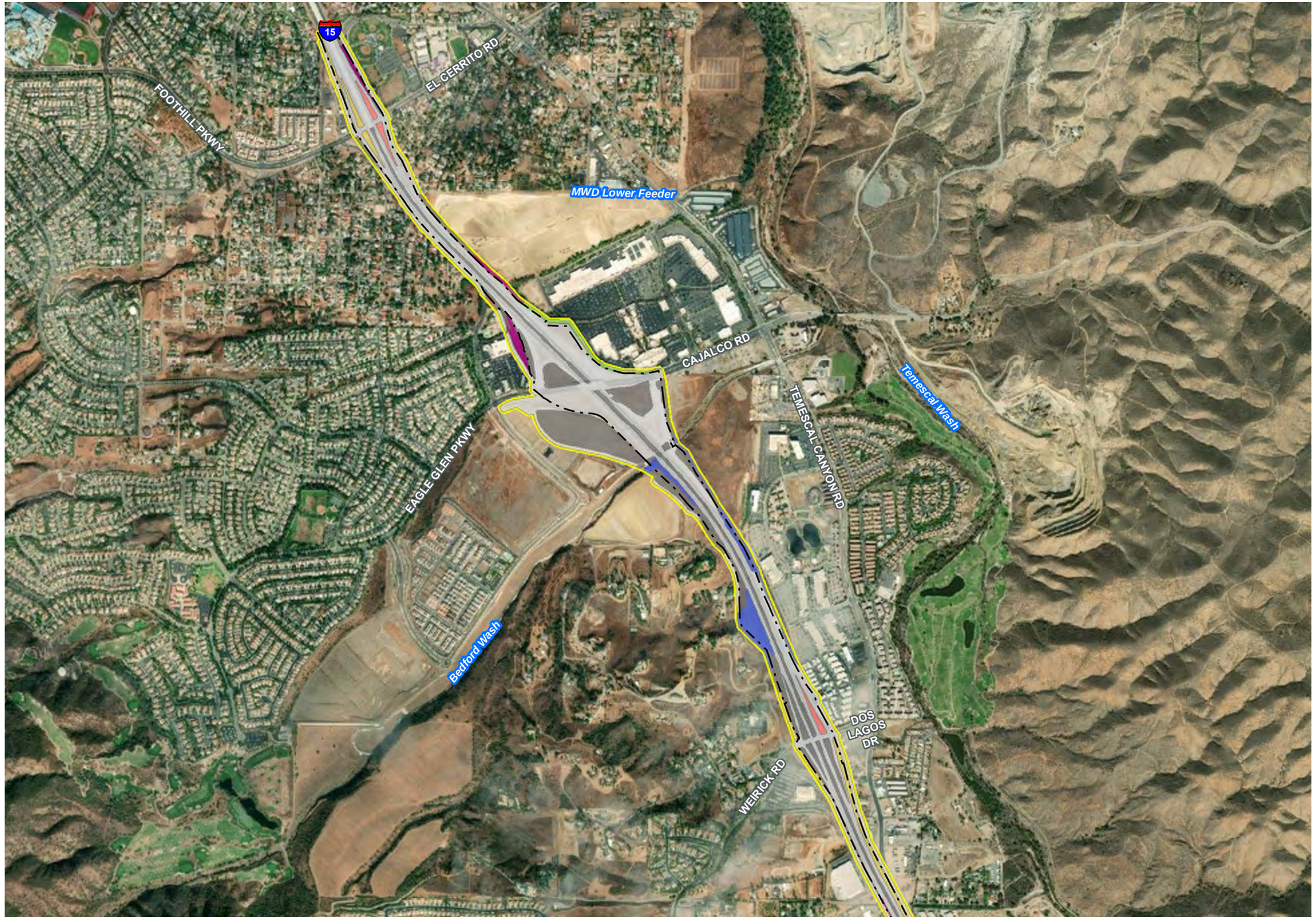
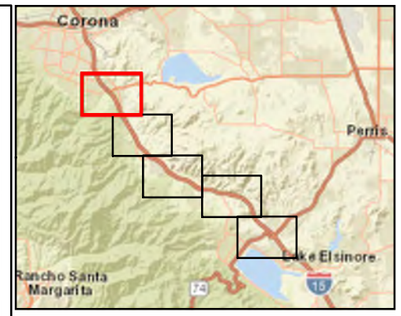
Sheet 4 of 5
Vegetation Communities
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

- Limits of Disturbance

Survey Area

- 50-ft Buffer Jurisdictional Study Area

Vegetation Communities

- Brittle Bush Scrub (BBS)
- California Buckwheat Scrub (CBS)
- California Sagebrush - Black Sage Scrub (CS-BSS)
- Developed (DEV)
- Disturbed (DIS)
- Fremont Cottonwood Forest and Woodland (FCFW)
- Gooding's Willow-Red Willow Riparian Woodland and Forest (GW-RWRWF)
- Upland Mustards or Star-Thistle Fields (UMSTF)
- Wild Oats and Annual Brome Grasslands (WO ABG)

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0 750 1,500 Feet

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Sheet 5 of 5
Vegetation Communities
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

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Appendix B. Wetland Determination Data Forms

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WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Riverside Sampling Date: 8/13/20

Applicant/Owner: State: CA Sampling Point: 24.3-2 01

Investigator(s): A. Engelson, S. Barrera, R. Schartau, A. Newto Section, Township, Range:

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

Subregion (LRR): C Lat: 33.716424 Long: -117.362746 Datum:

Soil Map Unit Name: Lodo Rocky Loam, 25 to 50 percent slopes, eroded NWI classification: PFO/EM1C

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

No soil pit conducted due to standing water and OBL vegetation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Schoenoplectus sp.	80	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Only plant in wet portion of channel is schoenoplectus.

SOIL

Sampling Point: 24.3-2 01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

Per 1987 manual, 100% dominance by OBL plants and standing water = wetland, no soil pit needed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 4"

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Standing water in channel bottom.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Riverside Sampling Date: 8/13/20

Applicant/Owner: State: CA Sampling Point: 24.3-2 02

Investigator(s): A. Engleson, S. Barrera Section, Township, Range:

Landform (hillslope, terrace, etc.): Bank Local relief (concave, convex, none): Convex Slope (%): n/a

Subregion (LRR): C Lat: Long: Datum:

Soil Map Unit Name: Lodo Rocky Loam, 25 to 50 percent slopes, eroded NWI classification: PFO/EM1C

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Bank

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	60	Y	FACW
2.			
3.			
4.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Baccharis salicifolia	30	Y	FACW
2.			
3.			
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Willows and mulefat rooted in banks.

SOIL

Sampling Point: 24.3-2 02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

Unable to dig-very hard packed with 3-4" gravel. Appears to be fill with some reinforcement. Very dry.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks:

Steep bank on edge of wet creek channel. Hydrology quickly changes. Distinct change in vegetation between channel, banks, and upland. NNG on upland.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/26/20

Applicant/Owner: Caltrans State: CA Sampling Point: 26.2-1 01

Investigator(s): A. Engelson, A. Newton Section, Township, Range:

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

Subregion (LRR): C Lat: 33.7290962 Long: -117.3877576 Datum:

Soil Map Unit Name: TwC NWI classification: PSSC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

PSSC = Palustrine, scrub-shrub, seasonally flooded

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x15)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarisk	25	Y	FAC
2. Salix gooddinggii	30	Y	FACW
3.			
4.			
	55	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: 5x5)			
1. Polypogon monspeliensis	30	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

All polypogon monspeliensis is dead. However, survey conducted in dry season, which is to be expected of this annual. Hirchfeldia incana has moved in (20%) but not counted due to survey timing.

SOIL

Sampling Point: 26.2-1 01

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 2/2	100	-	-	-	-	Clay loam	No redox

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Compact soils

Depth (inches): 6

Hydric Soil Present? Yes ____ No ✓

Remarks:

Soils rocky, dry, and compact. Redox obs. in profile (0-6").

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Hydrologic indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/26/20

Applicant/Owner: Caltrans State: CA Sampling Point: 26.2-1 02

Investigator(s): A. Engelson, A. Newton Section, Township, Range:

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

Subregion (LRR): C Lat: 33.729169428 Long: -117.38807475 Datum:

Soil Map Unit Name: TbF2, TwC NWI classification: PSSC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Pit located at outer boundary of large basin. PSSC = Palustrine, shrub-scrub, consolidated bottom

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x15)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	25	Y	FACW
2. Salix gooddinggii	25	Y	FACW
3. Tamarisk	30	Y	FAC
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

A few tamarisk within the plot have previously been cut but are sprouting from the stumps

SOIL

Sampling Point: 26.2-1 02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 2/1	100	-	-	-	-	Clay loam	No redox
5-10	10 YR 4/4	100	-	-	-	-	Clay loam	Bottom layer very dry and unconsolidated/crumbly. no redox present

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No redox present. Does not meet any criteria for hydric soils. Soils very compcat.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Hydrologic indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Riverside Sampling Date: 8/27/20

Applicant/Owner: State: CA Sampling Point: 26.4-1 01

Investigator(s): I. Eich, S. Barrera, R. Schartau Section, Township, Range:

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave Slope (%):

Subregion (LRR): Lat: 33.73088 Long: -117.39161 Datum:

Soil Map Unit Name: Tujunga Gravelly Loamy Sand, 0 to 8 percent slopes NWI classification: PFOA

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

Are Vegetation _____, Soil _____, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Basin collects water in southwest corner from culvert coming from under I-15. Outlets in northwest corner to drain connected to Temescal Wash. Point conducted in drier portion of basin with cracked soils, but less vegetation than where water enters. PFOA = Palustrine, forested, temporarily flooded

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 30')			
1. Salix gooddingii	20	Y	FACW
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust _____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 26.4-1 01

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
1-16	10 YR 3/2	50	7.5 YR 5/6	50			Clay	Striated
0-1	10 YR 3/2	99	7.5 YR 5/6	1			Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

Consistent soils across basin.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Riverside Sampling Date: 8/27/20

Applicant/Owner: State: CA Sampling Point: 26.4-1 02

Investigator(s): I. Eich, S. Barrera, R. Schartau Section, Township, Range:

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): convex Slope (%): <1

Subregion (LRR): C Lat: 33.730661 Long: -117.390012 Datum:

Soil Map Unit Name: Tujunga gravelly loamy sand, 0 to 8 percent slopes NWI classification: PFOA

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Pit conducted in wetter portion of basin, with cattails and willow overstory. Basin has clear boundary of vegetation and topography defined by large boulder rip-rap banks, therefore no paired pit neededt pit.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix goodingii	40	Y	FACW
2.			
3.			
4.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30x30)			
1. Salix goodingii	45	Y	FACW
2.			
3.			
4.			
5.			
	45	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Typha sp.	40	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust 100

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Pit located at northern edge of cattail thickets - areas to south consist of thick cattail cover

SOIL

Sampling Point: 26.4-1 02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 3/2	9	7.5 YR 5/8	10	C	PL,M	Clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks:

Algal crust. Hydrogen sulfide smelled throughout basin.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/26/20

Applicant/Owner: Caltrans State: CA Sampling Point: 27.2-1 01

Investigator(s): A. Engelson, A. Newton Section, Township, Range:

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C Lat: 33.73227397 Long: -117.40430724 Datum:

Soil Map Unit Name: HnC NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Pit located in basin which drains through partially clogged culvert under Temescal Rd. Basin located between frontage road and hwy berm.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Distichlis spicata	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation dominant

SOIL

Sampling Point: 27.2-1 01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	99	2.5 YR 4/8	1	C	M	Silty clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Compact soils

Depth (inches): >8"

Hydric Soil Present? Yes ____ No ✓

Remarks:

Soils very compact. Does not meet the criteria for hydric soils. Not enough redox for F6.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Hydrologic indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Riverside Sampling Date: 8/11/20

Applicant/Owner: State: CA Sampling Point: 27.9-1 01

Investigator(s): A. Engelson, A. Newton, S. Barrera, R. Schartz Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Convex Slope (%): n/a

Subregion (LRR): C Lat: 33.734016 Long: -117.414485 Datum:

Soil Map Unit Name: Gorgonio loamy sand, 0 to 8 percent slopes NWI classification: PSSA

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

Are Vegetation _____, Soil _____, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Isolated area mapped on NWI as wetlands. Very slight depressional area. Supports soil cracks,

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5x5)			
1. Ricinus communis	5	Y	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Pulicaria paludosa	90	Y	FAC
2. Urtica dioica	5	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 27.9-1 01

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 5/4	99	5YR 5/8	1	C	PL	Silty clay	silty clay loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks:

Slight depressional area with surface soil cracks in some of the lower areas. Biotic crust present in same areas as well.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/11/20

Applicant/Owner: Caltrans State: CA Sampling Point: 27.9-1 (AEAN

Investigator(s): A. Engelson, S. Barrera, R. Schartau, A. Newto Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat ponded area (dry) Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C Lat: 33.734013115 Long: -117.41448099 Datum:

Soil Map Unit Name: GhC NWI classification: Freshwater forested/sh

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Pit located in flat (dry) ponded area

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Juncus mexicanus	25	Y	FACW
2. Heliotropium curassavicum	20	Y	FACU
3. Polypogon monspeliensis (dead)	15	Y	FACW
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 27.9-1 (AE

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-13	2.5 Y 3/3	100	-	-	-	-	Sandy loa	No redox

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

Alkaline soils (salt crust, salt tolerant plants), however, soil chroma too high to consider possible hydric with problematic alkaline soils

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/11/20

Applicant/Owner: Caltrans State: CA Sampling Point: 27.9-1 02

Investigator(s): A. Engelson, S. Barrera, R. Schartau, A. Newto Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat ponded area (dry) Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C Lat: 33.734013115 Long: -117.41448099 Datum:

Soil Map Unit Name: GhC NWI classification: Freshwater forested/sh

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Pit located in flat (dry) ponded area

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Juncus mexicanus	25	Y	FACW
2. Heliotropium curassavicum	20	Y	FACU
3. Polypogon monspeliensis (dead)	15	Y	FACW
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 27.9-1 02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-13	2.5 Y 3/3	100	-	-	-	-	Sandy loam	No redox

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Alkaline soils (salt crust, salt tolerant plants), however, soil chroma too high to consider possible hydric with problematic alkaline soils

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/11/20

Applicant/Owner: Caltrans State: CA Sampling Point: 28.1-1 01

Investigator(s): A. Engleson, A. Newton Section, Township, Range:

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

Subregion (LRR): C Lat: 33.7337693 Long: -117.4167109 Datum:

Soil Map Unit Name: GhC NWI classification: PFOC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Patch of hydrophytic veg within main channel. PFOC = Palustrine, forested, seasonally flooded

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15x15)			
1. Salix lasiolepis	40	Y	FACW
2. Salix lucita ssp. lasiandra (cf)	15	Y	FACW
3. Populus fremontii	15	Y	FAC
4.			
5.			
	70 = Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Schoenoplectus acutus	30	Y	OBL
2. Pulicaria paludosa	15	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	45 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust 5

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Dominance of hydrophytic vegetation

SOIL

Sampling Point: 28.1-1 01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

Muck layer and hydrogen sulfide odor detected

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 0

Water Table Present? Yes ✓ No _____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 0

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

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

Remarks:

Hydrologic criteria met

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/11/20

Applicant/Owner: Caltrans State: CA Sampling Point: 28.1-1 02

Investigator(s): A. Engleson, S. Barrera, R. Schartau, A. Newto Section, Township, Range:

Landform (hillslope, terrace, etc.): Streambank Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR): C Lat: 33.7326892 Long: -117.414177905 Datum:

Soil Map Unit Name: GhC NWI classification: PFOC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Bank height 2', flattens out in uplands. Pit located at edge of streambank.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Pulicaria paludosa	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 28.1-1 02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: 2-4" cobble

Depth (inches): 2"

Hydric Soil Present? Yes _____ No ✓

Remarks:

Soils compact with restrictive cobble layer at 2"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Does not have 2 secondary indicators

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/11/20

Applicant/Owner: Caltrans State: CA Sampling Point: 28.1-1

Investigator(s): A. Engleson, S. Barrera, R. Schartau, A. Newto Section, Township, Range:

Landform (hillslope, terrace, etc.): Streambank Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR): C Lat: 33.7326892 Long: -117.414177905 Datum:

Soil Map Unit Name: GhC NWI classification: PFOC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Bank height 2', flattens out in uplands. Pit located at edge of streambank.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Pulicaria paludosa	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 28.1-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: 2-4" cobble

Depth (inches): 2"

Hydric Soil Present? Yes _____ No ✓

Remarks:

Soils compact with restrictive cobble layer at 2"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Does not have 2 secondary indicators

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/11/20

Applicant/Owner: Caltrans State: CA Sampling Point: 28.1-03

Investigator(s): A. Engleson, A. Newton Section, Township, Range:

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

Subregion (LRR): C Lat: 33.7327169 Long: -117.4141793 Datum:

Soil Map Unit Name: GhC NWI classification: PFOC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Oxidized rhizospheres. Pit located in depression/channel at base of freeeway and on toe of slope

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x10)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix goodinggii	60	Y	FACW
2.			
3.			
4.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15x10)			
1. Salix gooddinggii	60	Y	FACW
2.			
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: 5x5)			
1. Pulicaria paludosa	2	Y	FAC
2. Schoenoplectus acutus	25	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	27	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 70 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 28.1-03

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5Y 3/2	93	2.5 YR 3/6	7			Silty clay	
4-10	2.5Y 3/2	80	2.5 YR 3/6	20	C	PL,M	Silty clay	Redox is prominent
10-14	2.5 Y 2.5/1	70	Gley 2 2.5/1	38			Silty clay	Muck/forming organic matter
			2.5 YR 4/4	2				

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soils meet for F6

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

Soils damp but not saturated

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Rierside Sampling Date: 8/11/20

Applicant/Owner: Caltrans State: CA Sampling Point: 28.1-1 04

Investigator(s): A. Engleson, S. Barrera, R. Schartau, A. Newto Section, Township, Range:

Landform (hillslope, terrace, etc.): Outer floodplain bank Local relief (concave, convex, none): Convex Slope (%): 2

Subregion (LRR): C Lat: 33.732679 Long: -117.4155480 Datum:

Soil Map Unit Name: GhC NWI classification: PFOC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	100	Y	FACW
2.			
3.			
4.			
	100 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Location supports a dominance of hydrophytic vegetation.

SOIL

Sampling Point: 28.1-1 04

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Cobble/rock

Depth (inches): 3"

Hydric Soil Present? Yes _____ No ✓

Remarks:

No redox or other hydric soil criteria observed

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Dense leaf litter in understory. No hydrologic indicators present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/11/20

Applicant/Owner: Caltrans State: CA Sampling Point: 28.1-1 05

Investigator(s): A. Engleson, S. Barrera, R. Schartau, A. Newto Section, Township, Range:

Landform (hillslope, terrace, etc.): low floodplain terrace Local relief (concave, convex, none): Convex Slope (%): 2

Subregion (LRR): C Lat: 33.732658755 Long: -117.415595 Datum:

Soil Map Unit Name: GhC NWI classification: PFOC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Terrace adjacent to active channel but within outer floodplain bank.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	70	Y	FACW
2.			
3.			
4.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Pulicaria palvdosa	50	Y	FAC
2. Schoenoplectus acutus	10	N	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 28.1-1 05

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-111	2.5 Y 3/2	86	5 YR 5/8	10	C	M, PL	Clay loam	4% organic matter in top layer
11-14	Gley 1 10 Y 2.5/1							
								Redox is prominent

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soils meet for F6

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

Hydrologic indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/26/20

Applicant/Owner: Caltrans State: CA Sampling Point: 28.6-1 01

Investigator(s): A. Engelson, A. Newton Section, Township, Range:

Landform (hillslope, terrace, etc.): Swale at culvert inlet Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C Lat: 33.737630 Long: -117.426840 Datum:

Soil Map Unit Name: GhC, TeG NWI classification: Riverine

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Pit located in swale at culvert inlet. Vegetation did not meet, therefore no soil profile needed.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x20)	Absolute % Cover	Dominant Species?	Indicator Status
1. Sambucus nigra	40	Y	FACU
2. Salix gooddinggii	30	Y	FACW
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Dense leaf litter on ground

SOIL

Sampling Point: 28.6-1 01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

Site does not support a dominance of hydrophytic vegetation or hydrologic indicators, therefore a soil profile was not needed

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks:

Faint bed and bank right at culvert inlet, no other indicators

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/25/20

Applicant/Owner: Caltrans State: CA Sampling Point: 29.6-1 01

Investigator(s): A. Engelson, A. Newton Section, Township, Range:

Landform (hillslope, terrace, etc.): Channel bottom at culvert inl Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C Lat: 33.74358844 Long: -117.4405262 Datum:

Soil Map Unit Name: TeG NWI classification: PUSCh

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Problematic sandy soils. Review historic aerials to confirm drainage. PUSCh = Palustrine, unconsolidated shore, seasonally flooded, diked/impounded

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15x10)			
1. Populus fremontii	75	Y	FACW
2.			
3.			
4.			
5.			
	75 = Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Mimulus guttatus	10	Y	OBL
2. Mimulus cardinalis	5	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 29.6-1 01

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5Y 4/2	10	-	-	-	-	Loamy sand	Coarse sand, no true matrix color as 90% of matrix are coarse sand multi colored

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Given flows are present in the middle of the dry season and no precip events have occurred recently. Assuming hydric soils. Likely that coars sand substrate drains too quickly to develop redox.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 0

Water Table Present? Yes ___ No ✓ Depth (inches): >18

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

Hydrologic indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/25/20

Applicant/Owner: Caltrans State: CA Sampling Point: 29.6-1 02

Investigator(s): A. Engelson, A. Newton Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR): C Lat: 33.7435977 Long: -117.440349523 Datum:

Soil Map Unit Name: TeG NWI classification: PUSCh

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

No surface water

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15x10)			
1. Populus fremontii	10	Y	FACW
2. Baccharis salicifolia	2	Y	FAC
3.			
4.			
5.			
	12 = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 29.6-1 02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5 Y 5/3	10	-	-	-	-	Loamy sa	Coarse multi-colored snad. No true "matrix color"

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Pit is located outside of active channel. No surface water at site.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 9

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/25/20

Applicant/Owner: Caltrans State: CA Sampling Point: 30.2-1 01

Investigator(s): A. Engleson, A. Newton Section, Township, Range:

Landform (hillslope, terrace, etc.): Stream channel, dry Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): C Lat: 33.74760129 Long: -117.44901559 Datum:

Soil Map Unit Name: TeG NWI classification: Riverine

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x20)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata (cf)	70	Y	FACW
2.			
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15x15)			
1. Baccharis salicifolia	50	Y	FAC
2.			
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

ART CAL, HIR INC on banks

SOIL

Sampling Point: 30.2-1 01

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 4/2	100	-	-	-	-	Clay	No redox
10-12	10 YR 4/2	10	-	-	-	-	Loamy sa	Coarse sand predominant with 10% fines as binder

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No redox present. Does not meet criteria for hydric soils

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Hydrologic indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/25/20

Applicant/Owner: Caltrans State: CA Sampling Point: 30.2-1 02

Investigator(s): A. Engelson, A. Newton Section, Township, Range:

Landform (hillslope, terrace, etc.): Culvert outlet, floodplain terr Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR): C Lat: 33.7475376 Long: -117.4491517 Datum:

Soil Map Unit Name: TeG NWI classification: Riverine

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Ponded water at culvert outlet with algae. FAC plants on sandy terrace adjacent to ponded area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5x15)			
1. Pulicaria paludosa	40	Y	FAC
2.			
3.			
4.			
5.			
	40 = Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Urtica dioica	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation dominant

SOIL

Sampling Point: 30.2-1 02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10 YR 3/3	50	-	-	-	-	Sandy cla	50% coarse multicolored sand
9-13	5 Y 2.5/1	60	2.9 Y 4/4	1	C	PL	Clay/muc	
	10 YR 3/4	39	-	-	-	-		
13-16	2.5 Y 3/2	100	-	-	-	-	Sandy cla	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Redox occurs only along root channels at 1% of matrix. Not enough redox to meet for F6

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/25/20

Applicant/Owner: Caltrans State: CA Sampling Point: 30.2-1 03

Investigator(s): A. Engelson, A. Newton Section, Township, Range:

Landform (hillslope, terrace, etc.): Dry channel Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C Lat: 33.7475548 Long: -117.44911899 Datum:

Soil Map Unit Name: TeG NWI classification: Riverine

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Pit located downstream of open water (culvert outlet). Signs of ponding

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Urtica dioica	50	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation dominant

SOIL

Sampling Point: 30.2-1 03

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 4/3	50	-	-	-	-	Silty clay	No redox
	10 YR 2/1	50	-	-	-	-		
10-16	10 YR 3/1	100	-	-	-	-	Clay loam	No redox

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

Soils do not meet criteria for hydric soils

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks:

Hydrologic indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/25/20

Applicant/Owner: Caltrans State: CA Sampling Point: 30.3-1 01

Investigator(s): A. Engelson, A. Newton Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain at culvert outlet Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C Lat: 33.749055 Long: -17.4510836 Datum:

Soil Map Unit Name: CnC NWI classification: Riverine

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	70	Y	FACW
2. Salix lasiolepis (cf, hybrid?)	30	Y	FACW
3. Tamarisk	5	N	FAC
4.			
	135 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Medium dense leaf filter in understory

SOIL

Sampling Point: 30.3-1 01

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5 Y 4/2	100	-	-	-	-	Sandy loa	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Soils very dry. No redox. Hydric soils not present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Sorted sediment and shallow braided swales

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 8/25/20

Applicant/Owner: Caltrans State: CA Sampling Point: 30.3-1 2

Investigator(s): A. Engelson, A. Newton Section, Township, Range:

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

Subregion (LRR): C Lat: 33.749010056 Long: -117.450982 Datum:

Soil Map Unit Name: CnC NWI classification: Riverine

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Channel originates from another culvert (cmp 48")

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x15)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddinggii	75	Y	FACW
2. Tamarisk	20	Y	FAC
3.			
4.			
	95 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15x15)			
1. Ricinus communis	50	Y	FACU
2.			
3.			
4.			
5.			
	50 = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Tree stratum only includes trees rooted within adjacent running stream

SOIL

Sampling Point: 30.3-1 2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	-	-	-	-	-	-	Silty clay	Abundant root material in top la
4-9	5 Y 4/1	28	5 YR 3/4	2	C	PL	Silty clay	Redox along living root channels
Muck	5Y 2.5/1	70	-	-	-	-		
9-14	-	-	-	-	-	-	Loamy Sa	Very coarse sand, no matrix color

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soils meet for all

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

Soils very moist. Pit conducted about 6" from running water in channel

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE - Feature 30.8-1 City/County: Riverside Sampling Date: 8/26/20

Applicant/Owner: State: CA Sampling Point: 30.8-1 01

Investigator(s): S. Barrera, R. Schartau Section, Township, Range:

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%):

Subregion (LRR): C Lat: 33.7536 Long: -117.4577 Datum:

Soil Map Unit Name: Altamont Clay, 15 to 25 percent slopes, eroded NWI classification: PSSCh

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Water flowing into culvert in a valley between hills. Surface water present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	30	Y	FACW
2.			
3.			
4.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Salix laevigata	60	Y	FACW
2.			
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Cyperus eragrostis	4	N	FACW
2. Typha sp.	20	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	24 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 30.8-1 01

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5 YR 2.5/1	100					Clay loam	A lot of roots
4-14	5 Y 4/1	100					Clay loam	A lot of roots

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Roots

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Saturated soils with a lot of roots. Difficult to dig.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

Surface water present in August. Perennial feature.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Riverside Sampling Date: 8/26/20

Applicant/Owner: State: CA Sampling Point: 31.5-2 01

Investigator(s): S. Barrera, R. Schartau Section, Township, Range:

Landform (hillslope, terrace, etc.): Hilltop Local relief (concave, convex, none): Convex Slope (%):

Subregion (LRR): C Lat: 33.7596 Long: -117.467061 Datum:

Soil Map Unit Name: Ramona sandy loam, 0 to 5 percent slopes, severely eroded NWI classification: PEM1Cx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Located in created mitigation area. No permission to dig pit - soils assumed hydric. PEM1Cx = Palustrine, emergent, persistent, seasonally flooded, excavated

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix goodinggi	45	Y	FACW
2. Salix laevigata	45	Y	FACW
3.			
4.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 6x8)			
1. Typha sp.	100	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 31.5-2 01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

No permission to dig - soils assumed hdyric based on NWI mapping as wetlands

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 2"

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? **Yes** ✓ **No** ___

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

Remarks:

Water collected at culvert. Dry upstream of typha patch.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Riverside Sampling Date: 8/13/20

Applicant/Owner: State: CA Sampling Point: 32.6-2 01

Investigator(s): S. Barrera, R. Schartau Section, Township, Range:

Landform (hillslope, terrace, etc.): Swale/depression Local relief (concave, convex, none): Concave Slope (%):

Subregion (LRR): C Lat: 33.7691538526333 Long: -117.481581464467 Datum:

Soil Map Unit Name: altamont clay, 5 to 15 percent slopes NWI classification: None

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

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

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

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

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

Remarks:

Swale/depression collecting water from hillsides to the west. Culvert blocked, likely resulting in some water retention at culvert. No water present at time of survey.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Distichlis spicata	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 32.6-2 01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5 YR 3/5	75						about 25% small pebbles

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Soil too rocky to dig >6"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Veg flattened in direction of presumed flow, area maintained. OHWM barely visible upstream, not consistent. Vegetation likely only supported at culvert due to blocked culvert holding water at some point.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Riverside Sampling Date: 8/12/20

Applicant/Owner: State: CA Sampling Point: 33.8-1 01

Investigator(s): S. Barrera, R. Schartau Section, Township, Range:

Landform (hillslope, terrace, etc.): Earthen channel Local relief (concave, convex, none): Concave Slope (%):

Subregion (LRR): C Lat: 33.7843370662 Long: -117.492502405133 Datum:

Soil Map Unit Name: Garretson gravelly very fine sandy loam, 2 to 8 percent slopes NWI classification: PSSA

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

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

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

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

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

Remarks:

Dry channel with leaf debris in bottom. No hydrophytic vegetation so no soil pit was dug. PSSA = Palustrine, scrub-shrub, temporary flooded

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarisk aphylla (cf)	20	Y	FAC
2. Sambucus nigra	25	Y	FACU
3.			
4.			
	45	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1. Mulefat	15	Y	FAC
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: ____)			
1. Artemisia californica	30	Y	UPL
2. Hirschfeldia incana	20	Y	UPL
3. Pseudognaphalium californicum	10	N	UPL
4.			
5.			
6.			
7.			
8.			
	60	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____	= Total Cover	

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species 35	x 3 =	105
FACU species 25	x 4 =	100
UPL species 60	x 5 =	300
Column Totals: 120 (A)		505 (B)

Prevalence Index = B/A = 4.20

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

Tamarisk, mulefat, CA sagebrush, Sambucus nigra, Hirschfeldia incana in channel. Hirschfeldia incana on adjacent upland slopes.

SOIL

Sampling Point: 33.8-1 01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

Rocky, cobbley substrate. No soil pit.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Dry ephemeral channel. Appears to have been channelized upstream, so no longer supports natural hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Corona/Riverside Sampling Date: 08/12/20

Applicant/Owner: State: CA Sampling Point: 33.8-3 01

Investigator(s): S. Barrera, R. Schartau Section, Township, Range:

Landform (hillslope, terrace, etc.): Concrete channel Local relief (concave, convex, none): Slope (%):

Subregion (LRR): C Lat: 33.78469 Long: -117.492955 Datum:

Soil Map Unit Name: Concrete NWI classification: None

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

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

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

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

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

Remarks:

Due to dominance of OBL vegetation, no pit needed. Surface water in channel, cannot see depth of water or soil.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Typha domingensis (cf)	95	Y	OBL
2. Salix lasiolepis (on banks outside of channel)	3	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	98 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

Prevalence Index is ≤3.0[1]

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

Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

Almost completely Typha dominated (cf).

SOIL

Sampling Point: 33.8-3 01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

No pit due to concrete lining, no access, presence of OBL vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): at least 2

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

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

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

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

Remarks:

Can't tell depth for certain due to lack of access and dense vegetation cover.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Riverside Sampling Date: 8/12/20

Applicant/Owner: State: CA Sampling Point: 35.7-1 01

Investigator(s): S. Barrera, R. Schartau Section, Township, Range:

Landform (hillslope, terrace, etc.): Culvert Local relief (concave, convex, none): Concave Slope (%):

Subregion (LRR): C Lat: 33.80488 Long: -117.508958 Datum:

Soil Map Unit Name: Placentia cobbly fine sandy loam, 8 to 25 percent slopes NWI classification: R4SBA

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

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Culvert inlet with standing water. Large rock rip-rap on banks, 48" cmp at culvert. Rip-rap in bottom, too. R4SBA = Riverine, Intermittent, Streambed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Lepidium latifolium	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

100% pepperweed in incised channel inlet.

SOIL

Sampling Point: 35.7-1 01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

8" standing water, no soil pit conducted. Large rock rip-rap in bottom, cannot dig.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 8

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

Upland veg is dead NNG-can't ID. Transitions to no veg/duckweed upstream. Upstream of standing water is sunflower in channel.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Riverside Sampling Date: 8/25/20

Applicant/Owner: State: CA Sampling Point: 37.2-1 01

Investigator(s): S. Barrera, R. Schartau Section, Township, Range:

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave Slope (%):

Subregion (LRR): C Lat: Long: Datum:

Soil Map Unit Name: Cortina Gravelly Coarse Sandy Loam, 2 to 8 percent slopes NWI classification: N/A

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

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

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

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

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

Remarks:

Pit conducted in cattail patch at bottom of basin.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix goodingii	30	Y	FACW
2. Tamarix aphylla (c.f.)	30	Y	FACW
3.			
4.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Typha sp. (dead)	90	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

Prevalence Index is ≤3.0[1]

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

Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

Basin support OBL vegetation at lowest elevation.

SOIL

Sampling Point: 37.2-1 01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 YR 3/4	100					Loamy sa	Mulch mixed in
2-5	7.5 YR 3/4	50	7.5 YR 4/4	50			Loamy sa	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

Very compacted soil, hard to dig.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Check historic aerials for when basin was created and seasonal surface water.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-15 ELPSE City/County: Riverside Sampling Date: 8/25/20

Applicant/Owner: State: CA Sampling Point: 37.2-1 02

Investigator(s): S. Barrera, R. Schartau Section, Township, Range:

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave Slope (%):

Subregion (LRR): C Lat: 33.824816 Long: -117.523675 Datum:

Soil Map Unit Name: Cortina Gravelly Coarse Sandy Loam, 2 to 8 percent slopes NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Pit conducted in area just outside of cattail patch where herbaceous layer transitions to upland species.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix goodingii	30	Y	FACW
2. Tamarix aphylla (c.f.)	30	Y	FACW
3.			
4.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Ricinus communis	25	Y	UPL
2.			
3.			
4.			
5.			
	25	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Bromus madritensis	30	Y	UPL
2. Centaurea melatensis	30	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	60	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Paired point conducted in dry area outside of cattail patch. Vegetation quickly transitions to upland species, with same tree canopy.

SOIL

Sampling Point: 37.2-1 02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 4/3	100					Loamy sa	Mulch mixed in

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Very compacted soil, hard to dig. No redox

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Check historic aerials for when basin was created and seasonal surface water.

Appendix C. Jurisdictional Delineation Results Table

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Table A: Details of Jurisdictional Delineation Results and Potential Resource Agency Jurisdiction

Feature ID	Substrate	Flow Regime	Constructed in Uplands?	USACE (Section 404)					RWQCB (Section 401/Porter-Cologne)					CDFW (Section 1602)					Notes
				Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	Bank-to-Bank Width (feet)	Area (Acres)			
						Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Potential Streambed	Potential Riparian	
21.5-1 (Wasson Canyon Wash)	Earthen and Concrete	Ephemeral		Jurisdictional	2-40	_	0.408	_	Jurisdictional	2-40	_	0.408	_	Jurisdictional	17-106	_	0.822	_	Earthen channel with some Arundo between SB and NB bridges. Enters JSA on east side as braided channels in sandy substrate. Transitions to concrete towards west side of JSA.
22.5-1	Concrete	Ephemeral		Jurisdictional	7	_	0.061	_	Jurisdictional	7	_	0.061	_	Jurisdictional	7	_	0.061	_	Ephemeral concrete channel
22.6-1 (Arroyo Del Toro West Segment)	Concrete	Ephemeral		Jurisdictional	14	_	0.104	_	Jurisdictional	14	_	0.104	_	Jurisdictional	14	_	0.104	_	Ephemeral concrete box channel. Unvegetated.
22.6-2 (Arroyo Del Toro)	Earthen	Ephemeral		Jurisdictional	68	_	0.214	_	Jurisdictional	68	_	0.214	_	Jurisdictional	68	_	0.214	_	Ephemeral concrete box channel. Unvegetated
23.0-1	Earthen and Rock Rip-rap	Ephemeral		Jurisdictional	2-4	_	0.005	_	Jurisdictional	2-4	_	0.005	_	Jurisdictional	4-6	_	0.006	_	Culvert from slope conveys flows across short area in shoulder and into culvert that conveys flows under freeway
23.1-1	Concrete	Ephemeral		Jurisdictional	2	_	0.004	_	Jurisdictional	2	_	0.004	_	Jurisdictional	6	_	0.004	_	Ephemeral concrete chanel.
23.2-1	Concrete	Ephemeral		Jurisdictional	3	_	0.003	_	Jurisdictional	3	_	0.003	_	Jurisdictional	4	_	0.004	_	Culvert from high school, no water stains visible on concrete. OHWM based on width of low-flow channel in concrete.
23.3-1	Concrete	Ephemeral		Jurisdictional	2	_	0.001	_	Jurisdictional	2	_	0.001		Jurisdictional	4	_	0.001	_	Ephemeral concrete channel.
23.3-2	Concrete	Ephemeral		Jurisdictional	2	_	0.001	_	Jurisdictional	3	_	0.001	_	Jurisdictional	3	_	0.002	_	Ephemeral concrete channel
23.4-1	Earthen	Ephemeral		Jurisdictional	4-16	_	0.039	_	Jurisdictional	4-16	_	0.039	_	Jurisdictional	43	_	0.094	_	Ephemeral channel with alluvial fan sagescrub and sandy soil. Flows enter 16x6 ft. box culvert.
24.0-1	Earthen	Ephemeral		Jurisdictional	2	_	0.002	_	Jurisdictional	2	_	0.002	_	Jurisdictional	4-20	_	0.017	_	Concrete apron at culvert inlet. Culvert outlet turns into sheet flow.
24.2-1	Concrete	Ephemeral	X	Non-jurisdictional	2	0.036	_	_	Non-jurisdictional	2	0.036	_	_	Non-jurisdictional	3	0.054	_	_	Ephemeral concrete V-ditch. Unvegetated. Constructed in uplands
24.2-2	Earthen	Ephemeral		Jurisdictional	1	_	0.002	_	Jurisdictional	1	_	0.002	_	Jurisdictional	1-2	_	0.005	_	Culvert obscured by large rock rip rap. Earthen channel. Conveys flows from freeway directly into Temescal Creek
24.3-1	Earthen	Ephemeral		Jurisdictional	2-5	_	0.004	_	Jurisdictional	2-5	_	0.004	_	Jurisdictional	3-5	_	0.006	_	Epemeral unvegetated streambed, bedrock stream channel at inlet. Outlet sandy with small rocks, channel flows directly to creek across access road. Collects flows from Feature 24.3-3
24.3-2 (Temescal Wash)	Earthen	Perennial		Jurisdictional	0	_	_	0.895	Jurisdictional	0	_	_	0.895	Jurisdictional	40	_	_	0.895	Channel runs parallel to freeway between MM 24.3-24.6
24.3-3	Earthen	Ephemeral		Jurisdictional	2	_	0.006	_	Jurisdictional	2	_	0.006	_	Jurisdictional	_	_	0.016	_	Bedrock stream channel.hannel at bottom of canyon. substrate is bedrock with dry herbaceous sparse coverage. not sure if usace. approx 2' wide channel bottom based on shape of channel. Connects under freeway with 24.3-1
24.5-1	Earthen	Ephemeral		Jurisdictional	5	_	0.003	_	Jurisdictional	5	_	0.003	_	Jurisdictional	5	_	0.015	_	Feature drains across road and into Temescal Wash. Unvegetated, gravely soils in access road. Ponding area along road outlets to Temescal Creek
24.6-1	Earthen	Ephemeral		Jurisdictional	3	_	0.005	_	Jurisdictional	3	_	0.005	_	Jurisdictional	3	_	0.023	_	Culvert outlet has rocky cobble, sandy gravel with upland veg. Connection with 24.6-2. Drains into Temescal Creek
24.6-2	Earthen	Ephemeral		Jurisdictional	2	_	0.004	_	Jurisdictional	2	_	0.004	_	Jurisdictional	3	_	0.006	_	Upland veg, perennial and herbs on banks. Dead herbs in channel.Connection with 24.6-1
24.7-1	Earthen	Ephemeral		Jurisdictional	2	_	0.004	_	Jurisdictional	2	_	0.004	_	Jurisdictional	4	_	0.008	_	Channel comes out of culvert, soil and rock substrate. Dense RSS, upland veg, dead NNG and mustard along banks. 1ft BH. Drains into Temescal Creek
24.8-1	Earthen	Ephemeral	X	Non-jurisdictional	1	0.011	_	_	Non-jurisdictional	1	0.011	_	_	Non-jurisdictional	3	0.032	_	_	Excavated earthen channel constructed in uplands to direct stormwater flows from reaching hwy. See hydro data. Completely vegetated by upland shrubs Drains upland runoff.
25.1-1	Earthen	Ephemeral		Jurisdictional	6	_	0.013	_	Jurisdictional	6	_	0.013	_	Jurisdictional	11-15	_	0.030	_	Ephemeral channel. Culvert outlet has upland veg, dead NNG with coarse soil and rocky gravel. Motorcycle tracks in channel. Connected to 25.1-2.

Table A: Details of Jurisdictional Delineation Results and Potential Resource Agency Jurisdiction

Feature ID	Substrate	Flow Regime	Constructed in Uplands?	USACE (Section 404)					RWQCB (Section 401/Porter-Cologne)					CDFW (Section 1602)					Notes
				Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	Bank-to-Bank Width (feet)	Area (Acres)			
						Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Potential Streambed	Potential Riparian	
25.1-2	Earthen	Ephemeral		Jurisdictional	3-4	_	0.004	_	Jurisdictional	3-4	_	0.004	_	Jurisdictional	18-20	_	0.017	_	Cobble earthened bottom. Upland herbs and shrubs. See hydro data. 3-4 ft OHWM, break in veg in ordinary channel. Connected to 25.1-1
25.2-1 (Temescal Wash)	Earthen	Perennial		Jurisdictional	15	_	_	0.028	Jurisdictional	15	_	_	0.028	Jurisdictional	30	_	_	0.073	Match CDFW boundary to veg poly exent.
25.3-1	Eathern	Ephemeral		Jurisdictional	3-7	_	0.010	_	Jurisdictional	3-7	_	0.010	_	Jurisdictional	3-15	_	0.014	_	Ephemeral channel. Culvert outlet has upland veg, dead NNG and coarse sandy, small cobble. 7x5ft culvert.Connection with 25.3-2
25.3-2	Earthen	Ephemeral		Jurisdictional	4-7	_	0.012	_	Jurisdictional	4-7	_	0.012	_	Jurisdictional	6-12	_	0.036		Ephemeral channel. Culvert inlet has upland veg. with dead NNG and sandy cobble. Connection with 25.3-1
25.3-3	Earthen	Ephemeral	X	Non-jurisdictional	5	0.011	_	_	Non-jurisdictional	5	0.011	_	_	Non-jurisdictional	6	0.032	_	_	Upland vegetation. Coarse sand, cobble.Lack of veg in channel, no noticedable bed and bank
25.3-4	Earthen	Ephemeral		Jurisdictional	4	_	0.007	_	Jurisdictional	4	_	0.007	_	Jurisdictional	7	_	0.012		Ephemeral channel. Culvert inlet has dead NNG with small rocky cobble, coarse sand. Connects to 25.3-3
25.5-1	Earthen	Ephemeral		Jurisdictional	9-17	_	0.138	_	Jurisdictional	9-17	_	0.138	_	Jurisdictional	17-47	_	0.464	_	Ephemeral channel. Generally unvegetated with coarse sand and cobble. Unvegetated under bridge with grouted riprap.
25.6-1	Concrete	Ephemeral	X	Non-jurisdictional	4.5	0.006	_	_	Non-jurisdictional	4.5	0.006	_	_	Non-jurisdictional	_	0.031	_	_	Concrete apron at culvert inlet. Constructed in uplands, no connectivity with culvert downstream
25.8-1 (Temescal Wash)	Earthen	Perennial		Jurisdictional	20	_	_	0.279	Jurisdictional	20	_	_	0.279	Jurisdictional	75	_	_	1.934	Riparian channel running along freeway between 25.8-26.1 Fence, no access from ROW. Veg at toe of hwy slope Bac pil, Salix, Palm, Nettle. Map CDFW to canopy.
26.2-1	Earthen	Intermittent (Basin)		Jurisdictional	85	_	1.656	_	Jurisdictional	10	_	1.656	_	Jurisdictional	10	_	_	2.396	Basin supporting willow cottonwood forest with some eucs. Connects to Temescal Wash
26.4-1	Earthen	Intermittent (Basin)		Jurisdictional	105	_	_	1.710	Jurisdictional	105	_	_	1.710	Jurisdictional	120	_	_	2.978	Basin that collects flows from Feature 26.2-1 via a culvert at south end. Connects to Temescal Wash via culvert at north end.
26.7-1	Earthen	Ephemeral		Jurisdictional	3-12	_	0.024	_	Jurisdictional	12	_	0.024	_	Jurisdictional	5-24	_	0.056	_	Ephemeral channel. Mostly unvegetated with some sunflower and Euc saplings. Silty overlaying some small riprap potentially. Second ephemeral joins main channel from culvert. Also mostly unvegetated with some sunflower and Euc saplings. Silty overlaying some small riprap potentially. Flows into Temescal Wash
27.0-1	Concrete	Ephemeral	X	Non-jurisdictional	.5	0.001	_	_	Non-jurisdictional	.5	0.001	_	_	Non-jurisdictional	3	0.007	_	_	Ephemeral concrete v-ditch constructed in uplands. V-ditch has sediment and dead non-native weeds and sparse veg.
27.1-1	Earthen	Ephemeral		Jurisdictional	10	_	0.013	_	Jurisdictional	10	_	0.013	_	Jurisdictional	10-15	_	0.021	_	Sparse veg, dead NNG. Sandy cobble. Flows end at Temescal Canyon road and pick up on the otherside. 10x6ft culvert. Connected to 27.1-2
27.1-2	Concrete	Ephemeral		Jurisdictional	10	_	0.033	_	Jurisdictional	10	_	0.033	_	Jurisdictional	10-15	_	0.202	_	Ephemeral channel. Concrete channel inlet and banks. Sediment in channel inlet with rock riprap along banks. Connected to 27.1-1.
27.2-1	Earthen	Ephemeral	X	Non-jurisdictional	1-24	0.099	_	_	Non-jurisdictional	1-24	0.099	_	_	Non-jurisdictional	1-24	0.119	_	_	Small basin with evidence of ponding based on cracked soils and sediment deposition between fwy and frontage road. No defined channel. Possible connection to adjacent feature. wrack against fence line. 10x20ft wide ponded area. NNG at culvert outlet, upland veg.
27.4-1	Earthen	Ephemeral		Jurisdictional	14-18	_	0.034	_	Jurisdictional	14-18	_	0.034	_	Jurisdictional	35-45	_	0.096	_	Ephemeral channel. Upland veg with sandy soils and riprap at outlet with remnant grouted riprap. Individuals of mulefat, 2% cover of the drainage.Construction occurring adjacent to site with silt fence in place.
27.8-1	Earthen	Ephemeral	X	Non-jurisdictional	1	0.004	_	_	Non-jurisdictional	1	0.004	_	_	Non-jurisdictional	4	0.017	_	_	Ephemeral 36" culvert. Vegetated with buckwheat, mustard and thistle. Constructed in uplands to drain runoff from freeway slope and side of Temescal Canyon Road

Table A: Details of Jurisdictional Delineation Results and Potential Resource Agency Jurisdiction

Feature ID	Substrate	Flow Regime	Constructed in Uplands?	USACE (Section 404)					RWQCB (Section 401/Porter-Cologne)					CDFW (Section 1602)					Notes
				Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	Bank-to-Bank Width (feet)	Area (Acres)			
						Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Potential Streambed	Potential Riparian	
27.9-1	Earthen	Ephemeral		Non-jurisdictional (Isolated)	40	0.168	–	–	Jurisdictional (Isolated Riparian)	40	–	–	0.168	Jurisdictional	40	–	–	0.168	Thistle, nettle, willow, woody perennial veg. palm. Roadside ponding area with wetland hydrology. No connection to any other waters.
28.1-1 (Temescal Wash)	Earthen	Perennial		Jurisdictional	4-130	–	1.330	0.218	Jurisdictional	4-130	–	1.330	0.218	Jurisdictional	15-450	–	–	4.957	Temescal Wash with wetland and non-wetland areas. Dense riparian canopy. North edge of USACE braided with shelving, debris, wrack, Active channel under bridge, unvegetated with coarse, sandy cobble bottom.
28.2-1	Earthen	Ephemeral		Non-jurisdictional (Isolated)	1-4	0.002	–	–	Non-jurisdictional (Isolated)	1-4	0.002	–	–	Non-jurisdictional (Isolated)	4-6	0.010	–	–	Ephemeral. Perennial RSS species throughout channel, sandy bottom. Evidence of mowing and vehicles in channel, loses ordinary high, turns to sheet flow. Isolated
28.4-1	Earthen	Ephemeral		Jurisdictional	7-27	–	0.067	–	Jurisdictional	7-27	–	0.067	–	Jurisdictional	14-65	–	0.229	–	Ephemeral channel. Unvegetated with sand, rocky cobble. Can't follow to outlet on east side of I-15, but likely connects to Temescal Wash.
28.6-1	Earthen	Ephemeral		Jurisdictional	2	–	0.004	–	Jurisdictional	2	–	0.004	–	Jurisdictional	4	–	0.007	–	dry sandy channel at toe of hwy berm. fence prohibits access. 2 elderberry and 1 possible willow, upland herbacous layer on banks. Mapped based on topographic lines due to lack of access. Appears to connect to Temescal Wash via underground storm drain.
28.9-1	Concrete	Ephemeral		Jurisdictional	6	–	0.007	–	Jurisdictional	6	–	0.007	–	Jurisdictional	25	–	0.026	–	Ephemeral concrete box culvert. Unvegetated. Appears to connect to Temescan Cyn Wash via underground.
29.1-1	Earthen	Ephemeral		Jurisdictional	15-54	–	0.324	–	Jurisdictional	15-54	–	0.324	–	Jurisdictional	45-110	–	1.127	–	Ephemeral channel. Mostly unvegetated, coarse sand, medium cobble and rock bottom, riprap banks. Conducts flow under I-15, active channel shows signs of flow throughout floodplain.
29.6-1	Earthen	Ephemeral		Jurisdictional	2-9	–	0.003	–	Jurisdictional	2-9	–	0.003	–	Jurisdictional	10-19	–	0.009	–	Ephemeral channel with coarse sand bottom. Cottonwood saplings growing on outlet apron. 72" corrugated metal culvert conducts flow under I-15.
30.0-1 (Indian Wash)	Earthen	Ephemeral		Jurisdictional	14-52	–	0.452	–	Jurisdictional	14-52	–	0.452	–	Jurisdictional	14-92	–	0.898	–	Some RAFSS species, non native tree tabacco and castor bean along channel edge with coarse sand. Riprap along banks under bridge.
30.2-1	Earthen	Ephemeral		Jurisdictional	3.5-4	–	0.008	–	Jurisdictional	3.5-4	–	0.008	–	Jurisdictional	4	–	0.075	–	Disturbed area with riparian vegetation (mulefat, stinging nettle and one willow tree). Channel is higher elevation then adjacent pit. Soil hard compact. Sloped.
30.2-2	Earthen/Concrete	Ephemeral		Jurisdictional	1-6	–	0.138	–	Jurisdictional	1-6	–	0.138	–	Jurisdictional	3-8	–	0.163	–	Ephemeral concrete v-ditch runs parallel to I-15 southbound onramp between 30.2-30.4, receives runoff from a shopping center. Wrack pushed up against culvert grate. Bio engineered mesh netting of soil with rock riprap.Typha on south end of culvert.
30.3-1	Earthen	Intermittent		Jurisdictional	6-10	–	–	0.033	Jurisdictional	6-10	–	–	0.033	Jurisdictional	7-92	–	–	0.218	Area fed by several culverts, one of which is intermittent, supporting wetlands and riparian vegetation. Connects to Temescal Wash.
30.4-1	Earthen	Ephemeral		Jurisdictional	12	–	0.049	–	Jurisdictional	12	–	0.049	–	Jurisdictional	25	–	0.976	–	Ephemeral within JSA, running water just upstream of JSA, but water must percolate into sandy soil before reaching JSA.
30.4-2	Asphalt	Ephemeral	X	Non-jurisdictional	1	0.001	–	–	Non-jurisdictional	1	0.001	–	–	Non-jurisdictional	3	0.002	–	–	Ephemeral, asphalt ditch conveying runoff from freeway.
30.4-3	Earthen	Ephemeral	X	Non-jurisdictional	2	0.004	–	–	Non-jurisdictional	2	0.004	–	–	Non-jurisdictional	4	0.008	–	–	Ephemeral. Constructed earthen swale collecting runoff from slope next to freeway and conveying into culvert. No OHWM indicators, width based on width of bottom of swale. Upland NNG vegetation
30.5-1	Earthen and Rip rap	Ephemeral		Jurisdictional	4	–	0.008	–	Jurisdictional	4	–	0.008	–	Jurisdictional	10	–	0.020	–	Ephemeral. Rip rap at culvert and 12' upstream, then earthen. Upland vegetation NNG in upstream portion of channel. Measure rip rap/CDFW on aerial.
30.8-1	Earthen	Intermittent		Non-Jurisdictional (Isolated Wetland)	6	0.038	–	–	Jurisdictional (Isolated Wetland)	6	–	–	0.038	Jurisdictional (Isolated Riparian)	30	–	–	0.404	Willow sp, bulrush in portion of channel in ROW. Wetlands mapped for channel beyond fence due to lack of access. CDFW boundary extends to edge of riparian vegetation

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				Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	Bank-to-Bank Width (feet)	Area (Acres)			
						Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Potential Streambed	Potential Riparian	
30.9-1	Earthen	Ephemeral	X	Non-jurisdictional	2	0.008	_	_	Non-jurisdictional	2	0.008	_	_	Non-jurisdictional	2	0.008	_	_	Earthen roadside swale constructed in uplands, conveying roadside runoff into drop drain.
31.0-1	Earthen	Ephemeral	X	Non-jurisdictional	5	0.006	_	_	Non-jurisdictional	5	0.006	_	_	Non-jurisdictional	7	0.008	_	_	No veg in channel, buckwheat on banks. Created channel, to keep irrigation from reaching freeway (likely irrigation from mitigation area)
31.0-2	Earthen	Ephemeral		Jurisdictional	2	_	0.003	_	Jurisdictional	2	_	0.003	_	Jurisdictional	6	_	0.008	_	Ungrouted rock rip rap. Deep channel originating at culvert, meanders out of JSA into concrete culvert. Conveys flows into Temescal Wash. Upland vegetation, NNG, buckwheat, ca sagebrush.
31.0-3	Earthen	Ephemeral	X	Non-jurisdictional	1-2	0.006	_	_	Non-jurisdictional	1-2	0.006	_	_	Non-jurisdictional	3	0.014	_	_	Swale on slope drains into "depression" area with multiple drop drains but no OHWM to the north. Constructed in uplands.
31.2-1	Earthen	Ephemeral	X	Non-jurisdictional	2	0.002	_	_	Non-jurisdictional	2	0.002	_	_	Non-jurisdictional	4	0.003	_	_	Short roadside swale that flows into drop drain
31.2-2	Concrete	Ephemeral	X	Non-jurisdictional	1-4	0.011	_	_	Non-jurisdictional	1-4	0.011	_	_	Non-jurisdictional	3-8	0.029	_	_	Ephemeral concrete ditch constructed in uplands. Only draining roadside runoff and runoff from irrigation on slope above ditch. Channel widens here before ending in drop drain. OHWM ID by water staining on concrete.
31.3-1	Earthen	Ephemeral	X	Non-jurisdictional	.5-1	0.017	_	_	Non-jurisdictional	.5-1	0.017	_	_	Non-jurisdictional	1-4	0.053	_	_	Earthen brow ditch constructed in uplands with erosion rill coming off irrigated hillside in upland area.
31.3-2	Earthen and Concrete	Ephemeral	X	Non-jurisdictional	1	0.002	_	_	Non-jurisdictional	1	0.002	_	_	Non-jurisdictional	3	0.005	_	_	Tamariskon banks and in “depression” at bottom of slope. Point collected where transitions from concrete to earthen. Earthen ditch conveys flows into drop drain
31.4-1	Concrete	Ephemeral	X	Non-jurisdictional	1	0.012	_	_	Non-jurisdictional	1	0.012	_	_	Non-jurisdictional	3	0.036	_	_	Conveying flows from slope/concrete lined v-ditch on slope to drop drain.
31.4-2	Earthen	Ephemeral		Jurisdictional	3-18	_	0.063	_	Jurisdictional	3-18	_	0.063	_	Jurisdictional	6-20	_	0.075	_	No vegetation in channel, buckwheat, coyotebush, nicotiana, mule fat, tamarisk on slopes. Mule fat and tamarisk are not dominants. Lined with boulder rip rap. No culvert visible at top of features
31.5-1	Earthen	Ephemeral	X	Non-jurisdictional	1.5-2	0.012	_	_	Non-jurisdictional	1.5-2	0.012	_	_	Non-jurisdictional	4	0.027	_	_	Earthen brow ditch constructed in uplands draining to bottom of slope by freeway
31.5-2	Earthen	Intermittent		Jurisdictional	8	_	_	0.034	Jurisdictional	8	_	_	0.034	Jurisdictional	16	_	0.068	_	Earthen channel with Cattails 6’x8’ at culvert. No vegetation in channel south of cattails. Arroyo willow on lower banks. Buckwheat scrub (buckwheat, black sage, encelia farinosa) on upland banks
31.5-3	Earthen	Ephemeral		Jurisdictional	1	_	0.002	_	Jurisdictional	1	_	0.002	_	Jurisdictional	3	_	0.006	_	Pipe culvert from irrigated slope outlets into JSA. Flows are conveyed into pipe and under I-15 into Feature 31.6-2.
31.5-4	Earthen	Ephemeral		Jurisdictional	1	_	0.003	_	Jurisdictional	1	_	0.003	_	Jurisdictional	3	_	0.010	_	Earthen, incised channel with non-native grasses and buckwheat scrub vegetation. No culvert found at top. Flows into concrete culvert outside of JSA and is eventually tributary to Temescal Wash. Portions mapped using aerial and topographic lines due to lack of access.
31.6-1	earthen	Ephemeral		Jurisdictional	2	_	0.008	_	Jurisdictional	2.000	_	0.008	_	Jurisdictional	6	_	0.023	_	Earthen channel conveys water from hillside into culvert near I-15. Connects to 31.7-1 at culvert
31.6-2	Earthen	Ephemeral		Jurisdictional	2	_	0.005	_	Jurisdictional	2	_	0.005	_	Jurisdictional	4	_	0.012	_	2 channels converge, conveying runoff from hillside and freeway.
31.6-3	Earthen	Ephemeral		Jurisdictional	2	_	0.007	_	Jurisdictional	2	_	0.007	_	Jurisdictional	5	_	0.018	_	Deeply incised channel with upland vegetation (CSS). No visible culvert but hillside eroded to show 3-4” pvc pipe under channel.
31.7-1	Concrete	Ephemeral	X	Non-jurisdictional	1-3	0.015	_	_	Non-jurisdictional	1-3	0.015	-	-	Non-jurisdictional	3-6	0.036	_	_	Concrete brow ditch constructed in uplands. Conveys flows into channel at north end.

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				Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	Bank-to-Bank Width (feet)	Area (Acres)			
						Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Potential Streambed	Potential Riparian	
31.7-2	Earthen	Ephemeral		Jurisdictional	4	_	0.007	_	Jurisdictional	4	_	0.007	_	Jurisdictional	19	_	0.087	_	Originates in south as incised channel with dry soils, no vegetation in channel. Tamarisk and willow at fence. Tamarisk only downstream of point. OHWM by water staining, shelving, wrack. Connects to concrete v-ditch collecting hillside runoff originating at top of this hill and conveying into culvert at bottom. 31.6-1 flows into channel near culvert
31.7-3	Earthen	Ephemeral		Jurisdictional	2	_	0.004	_	Jurisdictional	2	_	0.004	_	Jurisdictional	3	_	0.021	_	Ephemeral, unvegetated features flows into 36" culvert. Trash and vegetation debris in channel.
31.7-4	Earthen and Rock Rip-rap	Ephemeral		Jurisdictional	16	_	0.034	_	Jurisdictional	16	_	0.034	_	Jurisdictional	32	_	0.077	_	Earthen and rock rip-rap lined channel with upland vegetation in dry channel
31.8-1	Earthen	Ephemeral		Jurisdictional	1-4	_	0.054	_	Jurisdictional	Varies	_	0.054	_	Jurisdictional	4-115	_	0.053	0.107	Earthen feature with riparian canopy, transitioning to swale at toe of concrete slope. Culvert and pipes convey flow from I-15 into swale. Flows across Temescal Cyn road on northeast side of fwy and joins Mayhew Wash outside of JSA
31.8-2	Earthen	Ephemeral		Jurisdictional	2	_	0.005	_	Jurisdictional	2	_	0.005	_	Jurisdictional	8	_	0.019	_	Mustard, nng, sagebrush in channel/slopes. sambucus at culvert. Willows and mule fat downstream of jsa
31.9-1	Earthen	Intermittent		Jurisdictional	10	_	0.036	_	Jurisdictional	10	_	0.036	_	Jurisdictional	10	_	_	0.086	Constructed channel with dense cover of mulefat. Wetland Data Point conducted near culvert. Flows into Mayhew Wash near southbound I-15 Bridge
31.9-2 (Mayhew Wash)	Earthen	Ephemeral		Jurisdictional	4-8	_	0.201	_	Jurisdictional	4-8	_	0.201	_	Jurisdictional	45-165	_	1.407	_	Large earthen channel with several braids and terraces. Separated from Mayhew Wash by high terrace. Joins Mayhew Wash near I-15 Bridge. Wetland data point conducted on low terrace under bridge.
32.1-1	Earthen and Concrete	Ephemeral		Jurisdictional	4	_	0.026	_	Jurisdictional	4	_	0.026	_	Jurisdictional	22	_	0.078	_	Earthen channel at JSA boundary, transitioning to concrete with large concrete headwall and culvert under I-15. Connects to Feature 32.1-2 on NB side of I-15.
32.2-1	Earthen	Ephemeral		Jurisdictional	6	_	0.019	_	Jurisdictional		_	0.019	_	Jurisdictional	18	_	0.046	_	Added as separate drainage label from 32.1-1 to keep with convention used in rest of map
32.3-1	Earthen and Grouted Rip-Rap	Ephemeral		Jurisdictional	1	_	0.002	_	Jurisdictional	1	_	0.002	_	Jurisdictional	5	_	0.011	_	Culvert inlets into grouted rip rap channel, transitioning to earthen downstream of JSA
32.3-2	Earthen and Boulder Rip-Rap	Intermittent		Jurisdictional	4	_	0.010	_	Jurisdictional	4	_	0.010	_	Jurisdictional	6	_	0.069	_	Wet channel, boulder rip rap with upland vegetation in channel (coyote brush, telegraph weed, hirschfeldia incana)
32.5-1	Earthen	Ephemeral	X	Non-jurisdictional	1	0.003	_	_	Non-jurisdictional	1	0.003	_	_	Non-jurisdictional	3	0.009	_	_	Swale starts at top of slope and conveys hillside runoff into ditch by culvert
32.6-1	Earthen and Concrete	Ephemeral		Jurisdictional	2-3	_	0.005	_	Jurisdictional	2-3	_	0.005	_	Jurisdictional	4-6	_	0.011	_	Unvegetated channel. 6x10 mulefat on upper banks, Outside channel.Concrete upstream, transitioning to earthen. Flows under freeway in pipe, outletting into earthen channel with upland vegetation
32.6-2	Earthen	Ephemeral		Jurisdictional	2	_	0.001	_	Jurisdictional	2	_	0.001	_	Jurisdictional	7	_	0.005	_	Depression collecting water from surrounding hillsides with Distichlis spicata at culvert. Flows into conrete culvert with headwall, connecting via underground drain to feature 32.6-1. Conducted Wetland Sample Point, Non-wetland.
32.6-3	Earthen	Ephemeral		Jurisdictional	2	_	0.006	_	Jurisdictional	2	_	0.006	_	Jurisdictional	4	_	0.013	_	12" culvert conveys flows from other side of freeway into earthen channel with upland vegetation
32.8-1	Earthen	Ephemeral	X	Non-jurisdictional	0.5	0.002	_	_	Non-jurisdictional	0.5	0.002	_	_	Non-jurisdictional	1	0.004	_	_	Roadside swale collecting runoff from freeway slope and conveying into drop drain to north
32.9-1 (Coldwater Wash)	Earthen	Ephemeral		Jurisdictional	8-30	_	0.457	_	Jurisdictional	8-30	_	0.457	_	Jurisdictional	66-283	_	2.086	_	Large, sandy wash with multiple braids. Continues under I-15 and eventually tributary to Temescal Wash. Channel mostly unvegetated, but some eucalyptus and castor bean on terrace on NB side of I-15.
33.0-1	Earthen	Ephemeral	X	Non-jurisdictional	2	0.021	_	_	Non-jurisdictional	2	0.021	_	_	Non-jurisdictional	4	0.041	_	_	Unvegetated earthen swale running adjacent to chainlink fence
33.2-1		Ephemeral	X	Non-jurisdictional	1	0.013	_	_	Non-jurisdictional	1.000	0.013	_	_	Non-jurisdictional	8	0.102	_	_	Concrete ditch draining hillside meets with 33.3-1 and drains into 36” cmp

Table A: Details of Jurisdictional Delineation Results and Potential Resource Agency Jurisdiction

Feature ID	Substrate	Flow Regime	Constructed in Uplands?	USACE (Section 404)					RWQCB (Section 401/Porter-Cologne)					CDFW (Section 1602)					Notes
				Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	Bank-to-Bank Width (feet)	Area (Acres)			
						Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Potential Streambed	Potential Riparian	
33.3-1	Earthen	Ephemeral	X	Non-jurisdictional	3	0.011	_	_	Non-jurisdictional	3	0.011	_	_	Non-jurisdictional	6	0.023	_	_	Earthen swale draining hillside into 36” cmp
33.3-2	Earthen	Ephemeral	X	Non-jurisdictional	1	0.013	_	_	Non-jurisdictional	1	0.013	_	_	Non-jurisdictional	1	0.013	_	_	Roadside erosion rill flowing into drop drain. collecting water from roadside runoff. Non-jd
33.4-1	Concrete	Ephemeral	X	Non-jurisdictional	.5	0.006	_	_	Non-jurisdictional	.5	0.006	_	_	Non-jurisdictional	2	0.026	_	_	Concrete brow ditch.
33.5-1	Earthen	Ephemeral		Jurisdictional	3	_	0.002	_	Jurisdictional	3	_	0.002	_	Jurisdictional	6	_	0.005	_	Feature conveyed into CMP at fence at boundary of JSA. 4'/8' upstream of JSA. Only jurisdictional between CMP and headwall near I-15 where 3'/6'
33.5-2	Earthen	Ephemeral		Jurisdictional	1	_	0.003	_	Jurisdictional	1	_	0.003	_	Non-jurisdictional	1	_	0.003	_	Ephemeral, earthen channel with upland vegetation on banks.
33.6-1	Earthen and Rip-Rap	Ephemeral		Jurisdictional	1-6	_	0.004	_	Jurisdictional	1-6	_	0.004	_	Jurisdictional	3-12	_	0.011	_	Earthen channel with some buried boulder rip rap. 30” and 12” cmp in concrete head wall
33.6-2	Earthen	Intermittent		Jurisdictional	6	_	0.014	_	Jurisdictional	6	_	0.014	_	Jurisdictional	Varies	_	_	0.098	No vegetation in channel. Riparian vegetation (fan palm, cottonwood, willows) on banks. CDFW width to edge of riparian veg. Rectangular concrete culvert conveys flows under freeway.
33.6-3	Earthen	Intermittent		Jurisdictional	6	_	0.014	_	Jurisdictional	6	_	0.014	_	Jurisdictional	Varies	_	_	0.082	Collects flows from 33.6-2. CDFW riparian canopy with sandy gravel in channel.
33.8-1	Earthen	Intermittent		Jurisdictional	2	_	0.005		Jurisdictional	2	_	0.005	_	Jurisdictional	Varies	_	_	0.055	Riparian vegetation mapped to edge of canopy.
33.8-2	Earthen	Ephemeral		Jurisdictional	10-17	_	0.023	_	Jurisdictional	10-17	_	0.023	_	Jurisdictional	18-40	_	0.059	_	Enters JSA on SB side of I-15 as 40' wide channel with earthen bottom and ungrouted rip-rap sides. Flows conveyed into culvert under I-15, connecting to 33.8-4 on northbound side of I-15.
33.8-3	Earthen	Ephemeral / Perennial		Jurisdictional	6	_	0.014	0.019	Jurisdictional	6	_	0.014	0.019	Jurisdictional	10	_	0.023	0.032	Rectangular concrete channel with standing water and 100% cover of cattails.
33.8-4	Earthen	Ephemeral		Jurisdictional	2-6	_	0.008	_	Jurisdictional	2-6	_	0.008	_	Jurisdictional	7-24	_	0.028	_	Collects flows from Feature 33.8-2. Deeply incised channel with vertical sides on south bank. Encelia on banks.
33.9-1	Concrete	Ephemeral	X	Non-jurisdictional	0.5	0.002	_	_	Non-jurisdictional	0.5	0.002	_	_	Non-jurisdictional	2	0.008	_	_	V-ditch conveying freeway runoff into swale at bottom of slope
34.0-1	Concrete	Ephemeral	X	Non-jurisdictional	1	0.014	_	_	Non-jurisdictional	1	0.014	_	_	Non-jurisdictional	1	0.014	_	_	Concrete brow ditch
34.0-2	Earthen and Boulder rip-rap	Ephemeral		Jurisdictional	2	_	0.004	_	Jurisdictional	2	_	0.004	_	Jurisdictional	4	_	_	0.023	Culvert not visible, buried under vegetation. CDFW riparian here to edge of tree canopy. Tamarisk, mule fat, willow
34.1-1	Concrete	Ephemeral	X	Non-jurisdictional	0.5	0.006	_	_	Non-jurisdictional	0.5	0.006	_	_	Non-jurisdictional	1	0.102	_	_	Concrete v-ditch collecting freeway irrigation and road runoff only. Conveys into larger channel to north. V-ditch filled with leaves, and unable to see direct connection to larger channel due to leaf litter
34.2-1	Concrete	Ephemeral	X	Non-jurisdictional	3	0.016	_	_	Non-jurisdictional	3	0.016	_	_	Non-jurisdictional	12	0.065	_	_	Concrete v-ditch collecting road runoff and freeway irrigation only. OHWM on SB side determined based on concrete staining. No OHWM visible on NB side.
34.2-2	Concrete	Ephemeral	X	Non-jurisdictional	1	0.005	_	_	Non-jurisdictional	1	0.005	_	_	Non-jurisdictional	4	0.020	_	_	Ditch conveying slope irrigation runoff only; isolated
34.2-3	Earthen	Ephemeral		Jurisdictional	3	_	0.026	_	Jurisdictional	3	_	0.026	_	Jurisdictional	22	_	0.034	_	Large box culvert with only faint OHWM. OHWM mapped to width of lower portion of box culvert. Streambed mapped to width of concrete. Conveyed into pipe on east end, which is under construction at time of survey.
34.4-1	Concrete	Ephemeral	X	Non-jurisdictional	1	0.028	_	_	Non-jurisdictional	1	0.028	_	_	Non-jurisdictional	3	0.083	_	_	Concrete ditch draining adjacent irrigated slope only
34.7-1 (McBride Canyon Creek)	Concrete	Perennial		Jurisdictional	6	_	0.038	_	Jurisdictional	6	_	0.038	_	Jurisdictional	20	_	0.140	_	Rectangular concrete channel with vertical sides. Water and sediment in channel at time of survey. OHWM determined based on water stains on concrete.
35.5-1	Earthen	Intermittent		Jurisdictional	9	_	0.027	_	Jurisdictional	9	_	0.027	_	Jurisdictional	27	_	0.048	_	Castor bean dominant, small amount of mule fat

Table A: Details of Jurisdictional Delineation Results and Potential Resource Agency Jurisdiction

Feature ID	Substrate	Flow Regime	Constructed in Uplands?	USACE (Section 404)					RWQCB (Section 401/Porter-Cologne)					CDFW (Section 1602)					Notes
				Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	Bank-to-Bank Width (feet)	Area (Acres)			
						Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Potential Streambed	Potential Riparian	
35.6-1	Earthen and Concrete	Ephemeral		Jurisdictional	2.5	-	0.006	_	Jurisdictional	2.5	-	0.006	_	Non-jurisdictional	8	_	0.018	_	Ephemeral roadside culvert. Concrete ditch conveying flows in from off ramp. No ohwm in basin upstream, maybe due to mowing/disturbance. NNG in swale.
35.6-2	Earthen and Concrete	Ephemeral		Jurisdictional	1-3	_	0.005	_	Jurisdictional	1-3	_	0.005	_	Jurisdictional	12-60	_	0.058	_	Two culverts convey flows into earthen channels with narrow ohwm which converge near eucalyptus into a single channel. Channel is grouted rip-rap and concrete lined at ROW. Drains into storm drain. CDFW streambed is extent of basin. Vegetation in basin and on banks is upland (sunflower, tocalote, bromus madritensis, avena sp, white sage)
35.6-3	Concrete	Ephemeral	X	Non-jurisdictional	1	0.004	_	_	Non-jurisdictional	1.000	0.004	_	_	Non-jurisdictional	3	0.011	_	_	Ephemeral v-ditch constructed in uplands. Conveys flows from slope towards drainage 35.6-2 to the south.
35.7-1	Earthen and Ungrouted Rip-Rap	Intermittent		Jurisdictional	2-8	_	_	0.010	Jurisdictional	2-8	_	_	0.010	Jurisdictional	2-8	_	_	0.013	Vegetated culvert (Polygonum lapathifolium) on SB side of freeway. Likely holds water as result of blocked culvert.
35.7-2	Concrete	Ephemeral	X	Non-jurisdictional	0.5	0.004	_	_	Non-jurisdictional	3	0.004	_	_	Non-jurisdictional	3	0.011	_	_	Concrete brow ditch constructed in uplands conveys flows into concrete channel at north end
35.7-3	Concrete	Ephemeral		Jurisdictional	2	_	0.004	_	Jurisdictional	2	_	0.004	_	Jurisdictional	16	_	0.029	_	Concrete v-ditch on NB side, collects flows from 35.7-1.
35.8-1	Concrete	Ephemeral	X	Non-jurisdictional	0.5	0.008	_	_	Non-jurisdictional	0.500	0.008	_	_	Non-jurisdictional	2	0.034	_	_	Brow ditch at top of slope, collecting only runoff from freeway and conveying into storm drain
35.9-1	Asphalt	Ephemeral	X	Non-jurisdictional	2	0.002	_	_	Non-jurisdictional	2	0.002	_	_	Non-jurisdictional	3	0.003	_	_	Roadside runoff only. No indicators of OHWM, width based on bottom of channel
35.9-2	Concrete	Ephemeral	X	Non-jurisdictional	1	0.025	_	_	Non-jurisdictional	1	0.025	_	_	Non-jurisdictional	3	0.075	_	_	Brow ditch at top of slope. Not accessible due to fence/steep slope. Drains freeway only
36.1-1	Earthen	Ephemeral		Jurisdictional	1-5	_	0.007	_	Jurisdictional	1-5	_	0.007	_	Jurisdictional	1-8	_	0.012	_	One culvert conveys runoff from south into small, unvegetated earthen channel. 2nd culvert conveys runoff from street to west and outlets at base of pepper trees into unvegetated earthen channel. Upland vegetation on banks. Two channels join and flow into 48" Concrete culvert conveying runoff under freeway from ditch into 36.1-2.
36.1-2	Concrete	Ephemeral	X	Non-jurisdictional	1	0.014	_	_	Non-jurisdictional	1	0.014	_	_	Non-jurisdictional	3	0.042	_	_	Concrete browditch. No visible ohwm, USACE width based on bottom of channel
36.4-1	Concrete	Ephemeral	X	Non-jurisdictional	1	0.077	_	_	Non-jurisdictional	1	0.077	_	_	Non-jurisdictional	4	0.077	_	_	Concrete v-ditch on side of freeway. Constructed in uplands.
36.5-1 (Bedford Wash)	Earthen	Ephemeral		Jurisdictional	4'-40'	_	0.297	_	Jurisdictional	4'-40'	_	0.297	_	Jurisdictional	30'-105'	_	1.164	_	Bedford Wash. Ephemeral, sandy channel with braids. OHWM based on shelving. Channel mostly unvegetated with some brittlebush scrub on terraces/islands. Mustard/Disturbed and Brittlebush scrub on banks.
36.7-1	Concrete and Grouted riprap	Ephemeral	X	Non-jurisdictional	1-2	0.010	_	_	Non-jurisdictional	1-2	0.010	_	_	Non-jurisdictional	12-254	0.631	_	_	Recently constructed swale to convey upland road runoff into storm drains.
36.8-1	Concrete	Ephemeral	X	Non-jurisdictional	.5	0.005	_	_	Non-jurisdictional	.5	0.005	_	_	Non-jurisdictional	3	0.032	_	_	Concrete brow ditch with three v-ditches draining roadside runoff from Cajalco Road into drop drains in parking lot.
37.0-1	Earthen and Gravel	Ephemeral	X	Non-jurisdictional	1-2	0.019	_	_	Non-jurisdictional	1-2	0.019	_	_	Non-jurisdictional	1-4	0.035	_	_	Feature originates as earthen swale at north end of gore area. Swale has concrete wash-out in it. Roadside runoff is collected via the swale into a gravel area at bottom of gore. Two culverts convey freeway (I-15) and road runoff (Cajalco Road) into gravel basin.
37.0-2	Concrete	Ephemeral	X	Non-jurisdictional	0.5	0.005	_	_	Non-jurisdictional	0.5	0.005	_	_	Non-jurisdictional	2	0.020	_	_	Dry brow ditch conveys flows into road shoulder. Isolated, no apparent flows aside from direct rainfall
37.0-3	Concrete	Ephemeral	X	Non-jurisdictional	0.5	0.008	_	_	Non-jurisdictional	0.5	0.008	_	_	Non-jurisdictional	3	0.048	_	_	Slope drain draining irrigated, planted slopes between freeway and shopping center. 4" wide water stain in middle of v-ditch. Use hydro lines for ditches at top of slope
37.1-1	Earthen	Ephemeral	X	Non-jurisdictional	6	0.007	_	_	Non-jurisdictional	6	0.007	_	_	Non-jurisdictional	12	0.016	_	_	Basin area with two drop drains, collects runoff from freeway shoulder. Isolated, disturbed vegetation only
37.1-2	Asphalt	Ephemeral	X	Non-jurisdictional	1	0.016	_	_	Non-jurisdictional	1.000	0.016	_	_	Non-jurisdictional		0.097	_	_	Roadside swale collecting runoff from freeway to protect slope to east

Table A: Details of Jurisdictional Delineation Results and Potential Resource Agency Jurisdiction

Feature ID	Substrate	Flow Regime	Constructed in Uplands?	USACE (Section 404)					RWQCB (Section 401/Porter-Cologne)					CDFW (Section 1602)					Notes
				Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	OHWM Width (feet)	Area (Acres)			Likely Jurisdictional Status	Bank-to-Bank Width (feet)	Area (Acres)			
						Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Non-wetland	Wetland			Non-Jurisdictional	Potential Streambed	Potential Riparian	
37.1-3	Concrete	Ephemeral	X	Non-jurisdictional	2	0.031	_	_	Non-jurisdictional	2	0.031	_	_	Non-jurisdictional	3	0.046	_	_	Constructed in uplands. Draining freeway only; ohwm visible by water staining on concrete; map based on aerial/icf feature
37.2-1	Earthen	Intermittent		Jurisdictional	35	_	0.078	0.007	Jurisdictional	35	_	0.078	0.007	Jurisdictional	50	_	_	0.156	Detention Basin collecting flows from inlet on southwest corner. Flows conveyed under freeway into concrete feature on east side of I-15 (need to verify).Eventually tributary to Temescal Wash. Supports wetland area identified based on limits of cattails.
37.2-2	Concrete	Ephemeral		Jurisdictional	8	_	0.009	_	Jurisdictional	8	_	0.009	_	Jurisdictional	8	_	0.009	_	Rectangular concrete channel with vertical sides. No vegetation. Some concrete staining
37.2-3	Earthen	Intermittent		Jurisdictional	10	_	0.008	_	Jurisdictional	10	_	0.008	_	Jurisdictional	Varies			0.020	Earthen drainage with southern willow scrub riparian vegetation. Area fenced. Appears to be mitigation area. Use hydro line for usace, riparian vegetation for CDFW. Drainage not accessible to determine OHWM or view inlet.
37.9-1	Concrete	Ephemeral	X	Non-jurisdictional	0.5	0.012	_	_	Non-jurisdictional	0.500	0.012	_	_	Non-jurisdictional	2	0.046	_	_	Concrete brow ditch constructed on slope to drain runoff from irrigation into downslope v-ditches.
37.9-2	Concrete	Ephemeral	X	Non-jurisdictional	0.5	0.001	_	_	Non-jurisdictional	0.5	0.001	_	_	Non-jurisdictional	3	0.003	_	_	Concrete downslope v-ditch conveying irrigation water only.
38.0-1	Grouted Rip-Rap	Ephemeral	X	Non-jurisdictional	1	0.001	_	_	Non-jurisdictional	2	0.001	_	_	Non-jurisdictional	6	0.003	_	_	No sign of ohwm, trash in culvert, dead grasses collected in rip rap
38.0-2	Concrete	Ephemeral	X	Non-jurisdictional	.5	0.000	_	_	Non-jurisdictional	.5	0.000	_	_	Non-jurisdictional	3	0.002	_	_	Concrete downslope v-ditch conveying irrigation water only.
38.0-3	Earthen and Concrete	Ephemeral	X	Non-jurisdictional	1	0.001	_	_	Non-jurisdictional	1	0.001	_	_	Non-jurisdictional	4	0.004	_	_	Concrete downslope v-ditch conveying irrigation water into culvert at bottom of slope with gravel/sediment. Water with some vegetation (Mostly bare. Some hirschfeldia, some cheeseweed) at bottom of slope, resulting from irrigation of nearby grass fields. Culverts at toe of slope. North culvert drains irrigation runoff into larger culvert to south
TOTAL						**0.860**	**6.757**	**3.234**			**0.654**	**6.757**	**3.440**			**2.275**	**11.730**	**14.693**	

Appendix D. Jurisdictional Delineation Results Maps

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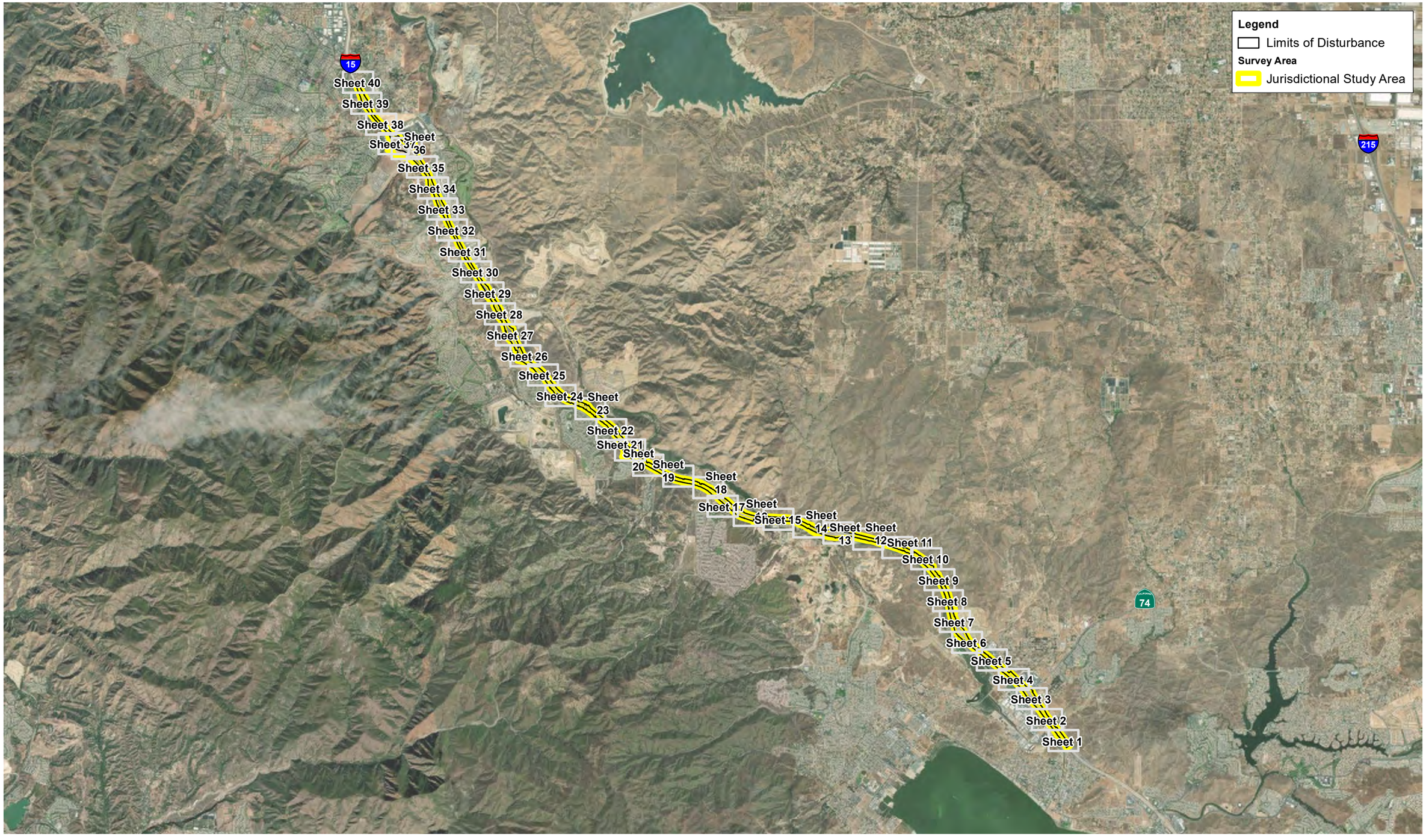

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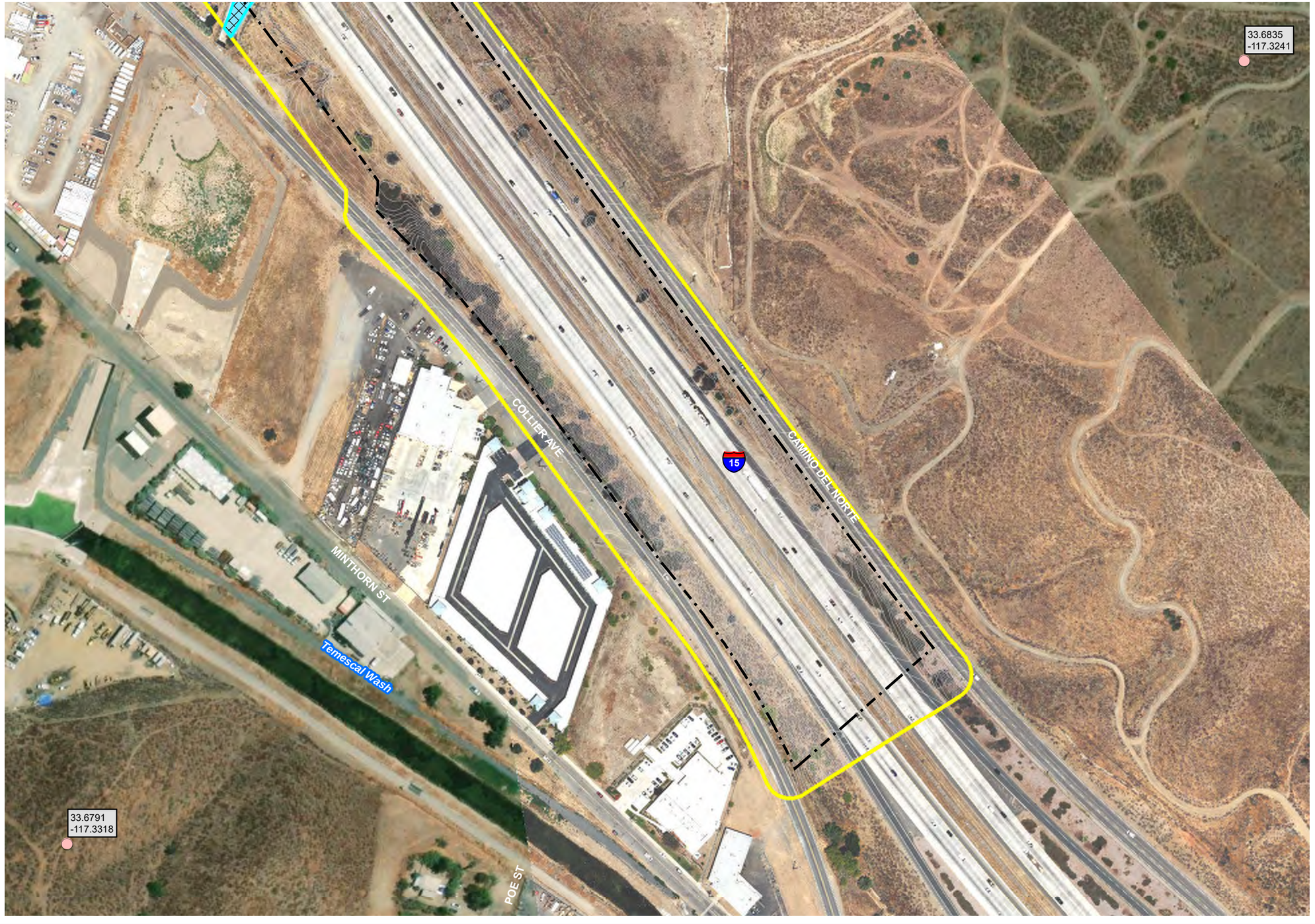
Index Sheet
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- OHWM (Ephemeral)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

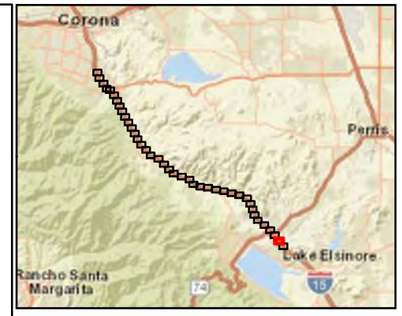
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 1 of 40

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

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- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

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- Streambed

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N

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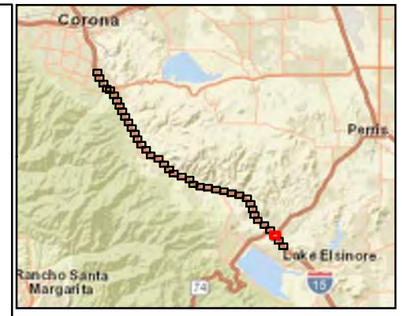
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 2 of 40

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

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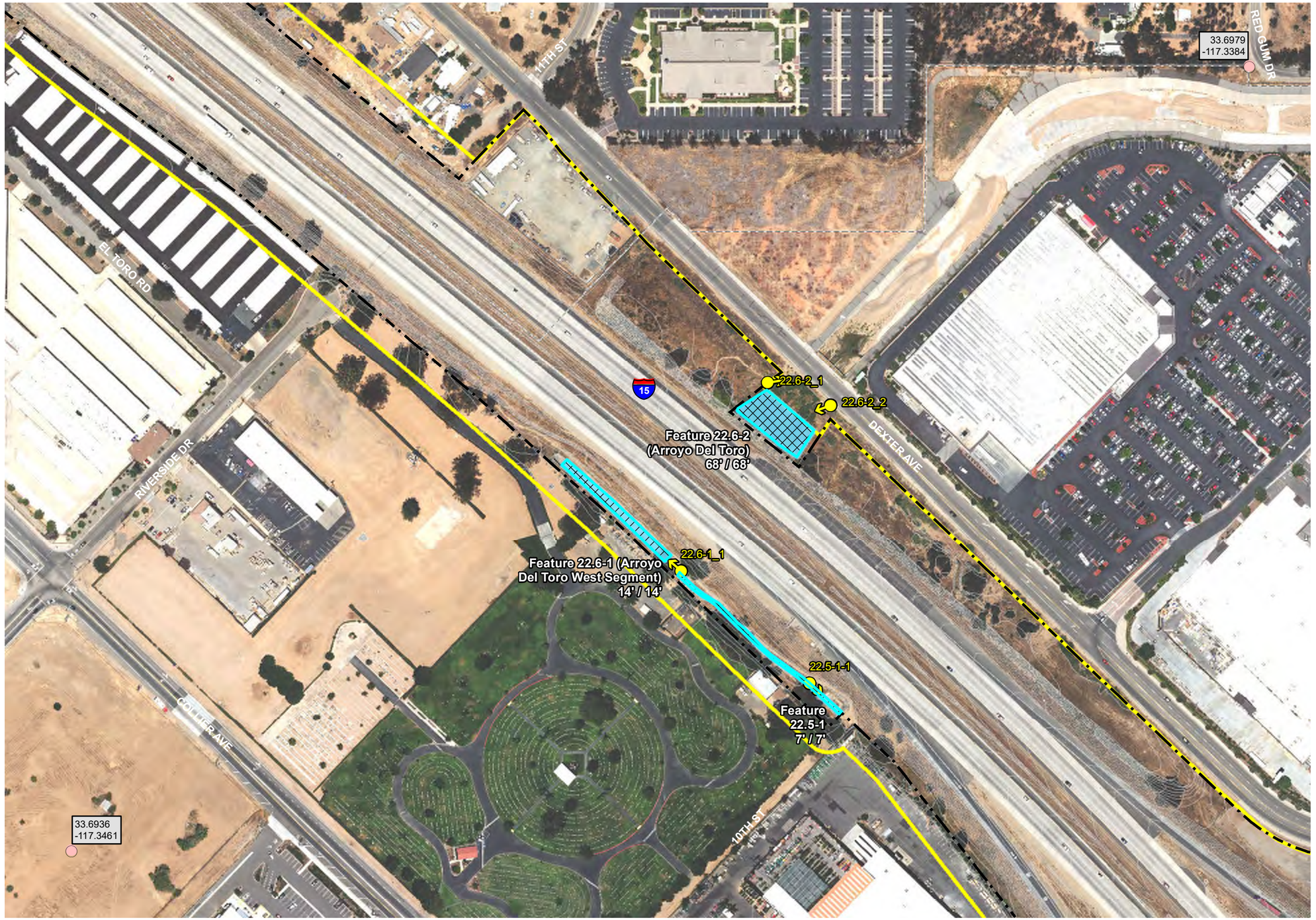
Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 3 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- OHWM (Ephemeral)
- Streambed

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N

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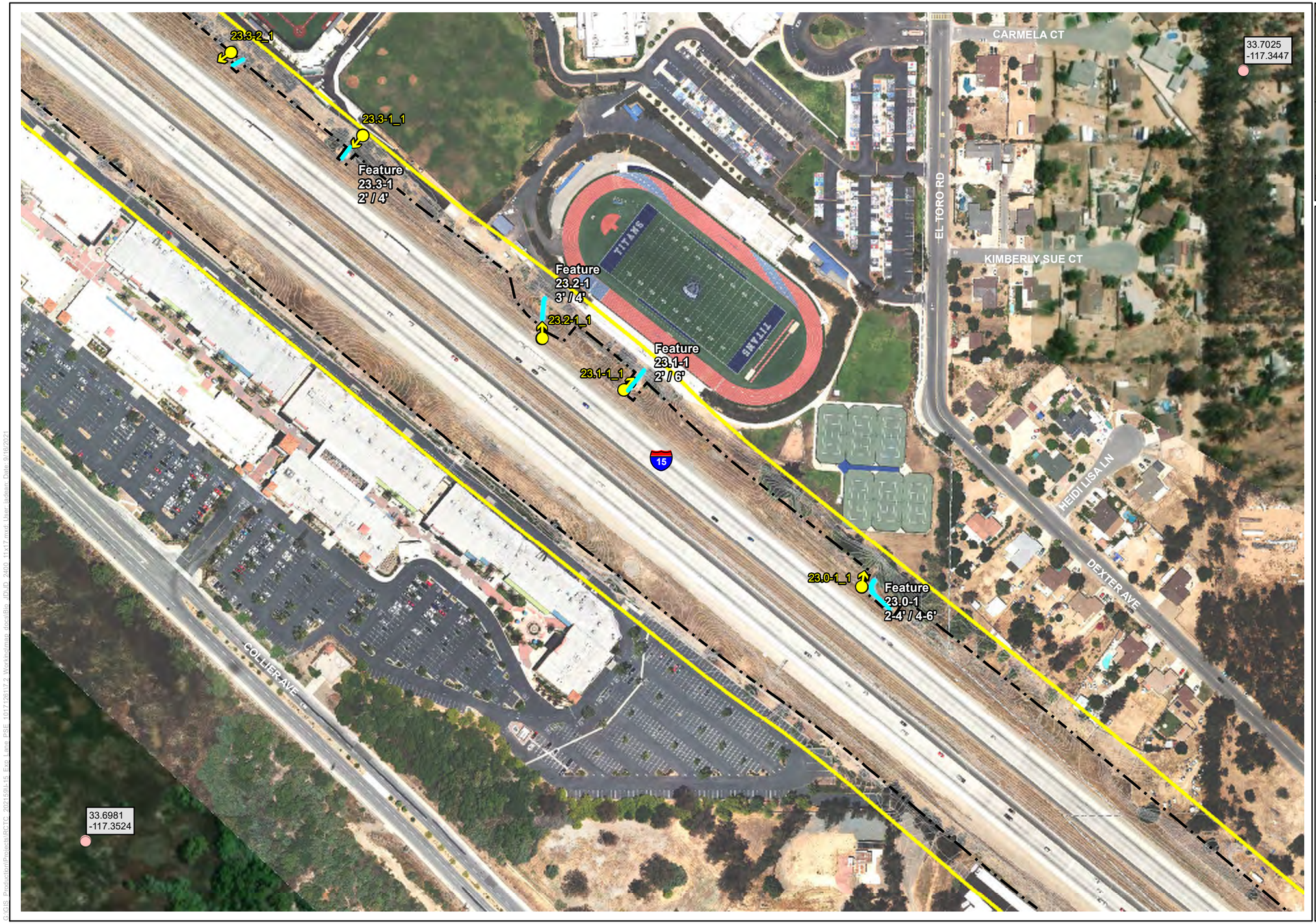
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 4 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- OHWM (Ephemeral)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 5 of 40

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- OHWM (Ephemeral)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 6 of 40

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- OHWM (Ephemeral)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

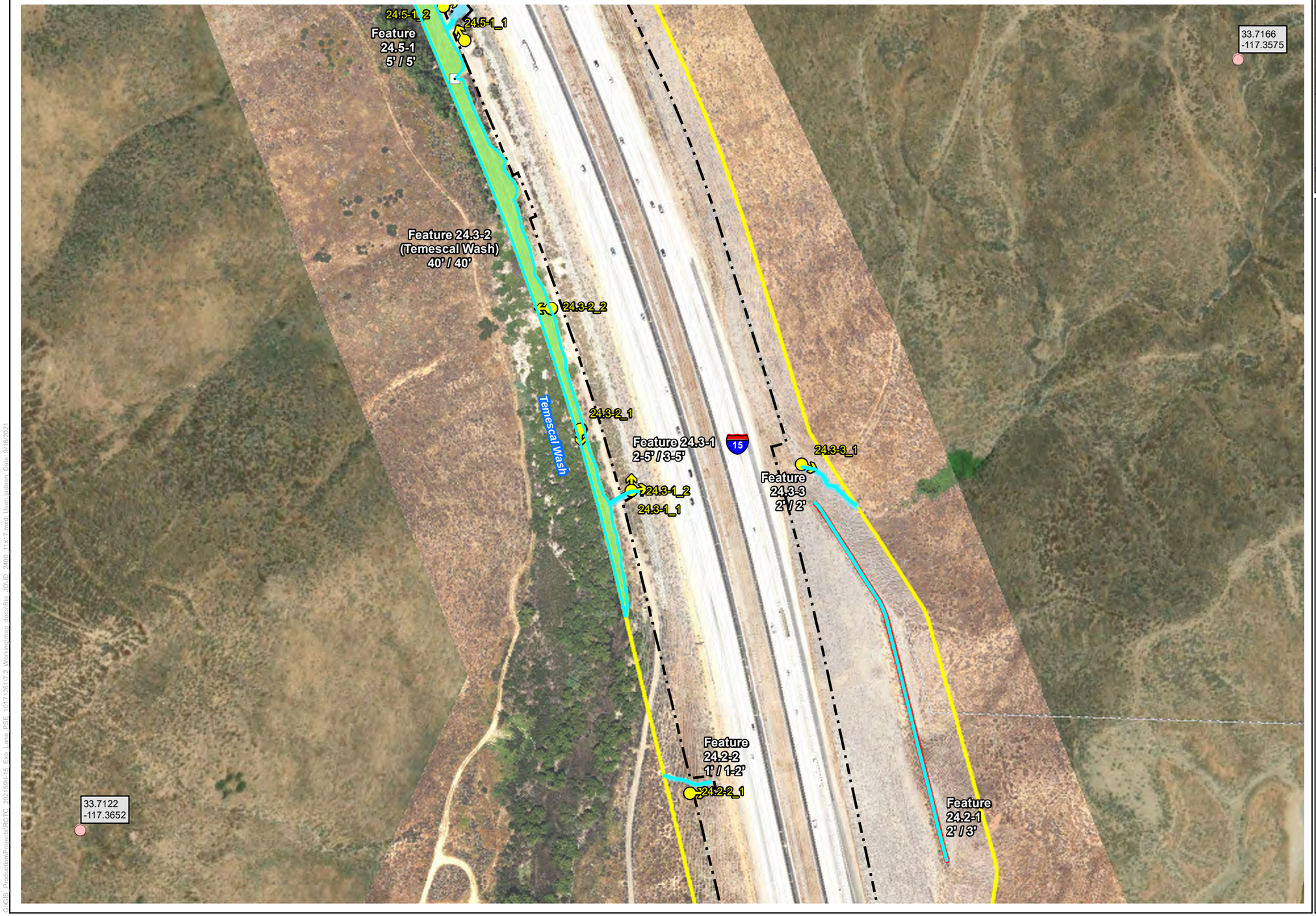
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 7 of 40

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Wetland
- Constructed in Uplands (Bed-and-Bank)
- Riparian
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 8 of 40

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Wetland
- Constructed in Uplands (Bed-and-Bank)
- Riparian
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 9 of 40

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Wetland
- Constructed in Uplands (Bed-and-Bank)
- Riparian
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 10 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Wetland
- Constructed in Uplands (Bed-and-Bank)
- Riparian
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 11 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- OHWM (Intermittent)
- Wetland
- Riparian

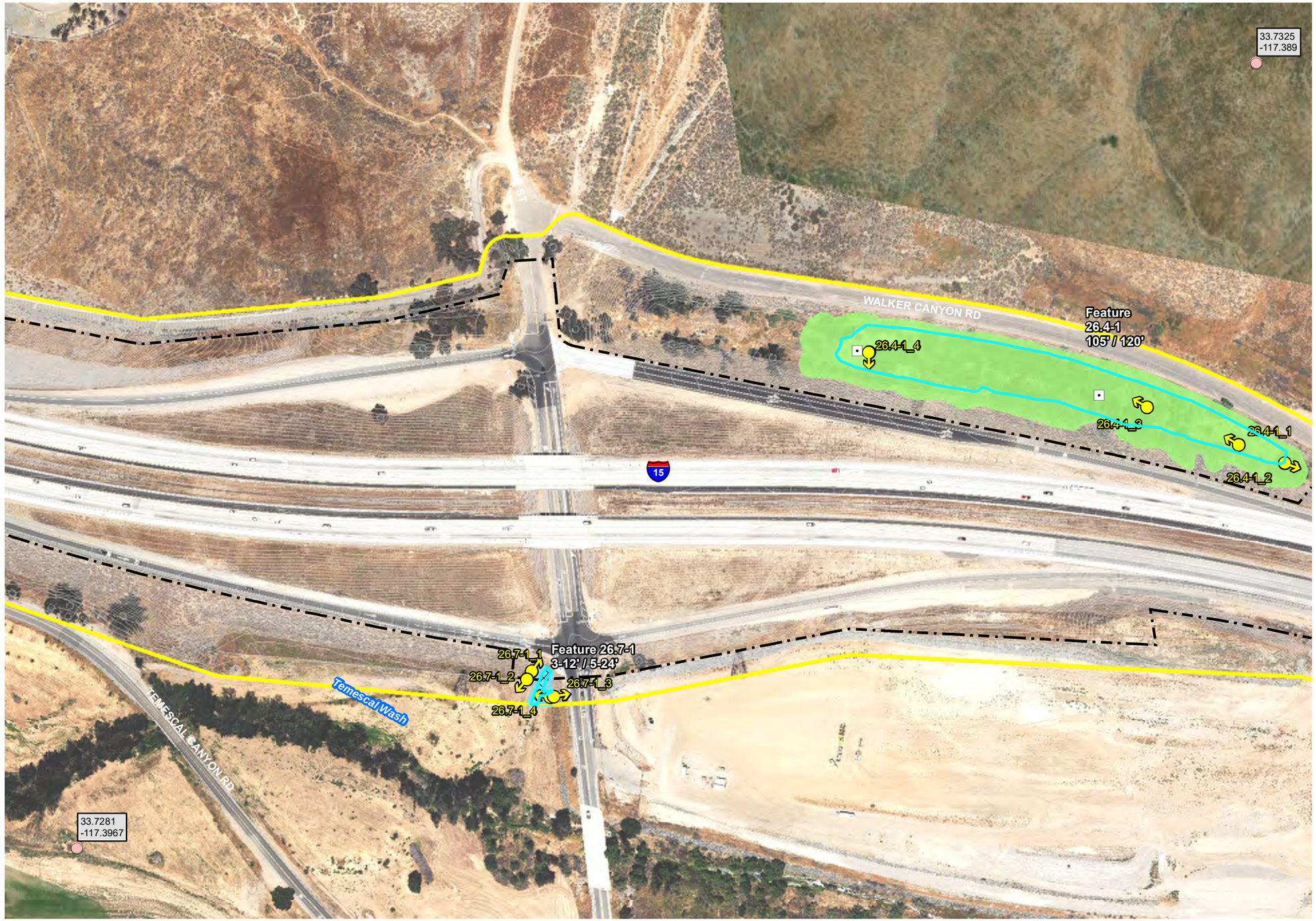
*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 12 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- OHWM (Ephemeral)
- Wetland
- Riparian
- Streambed

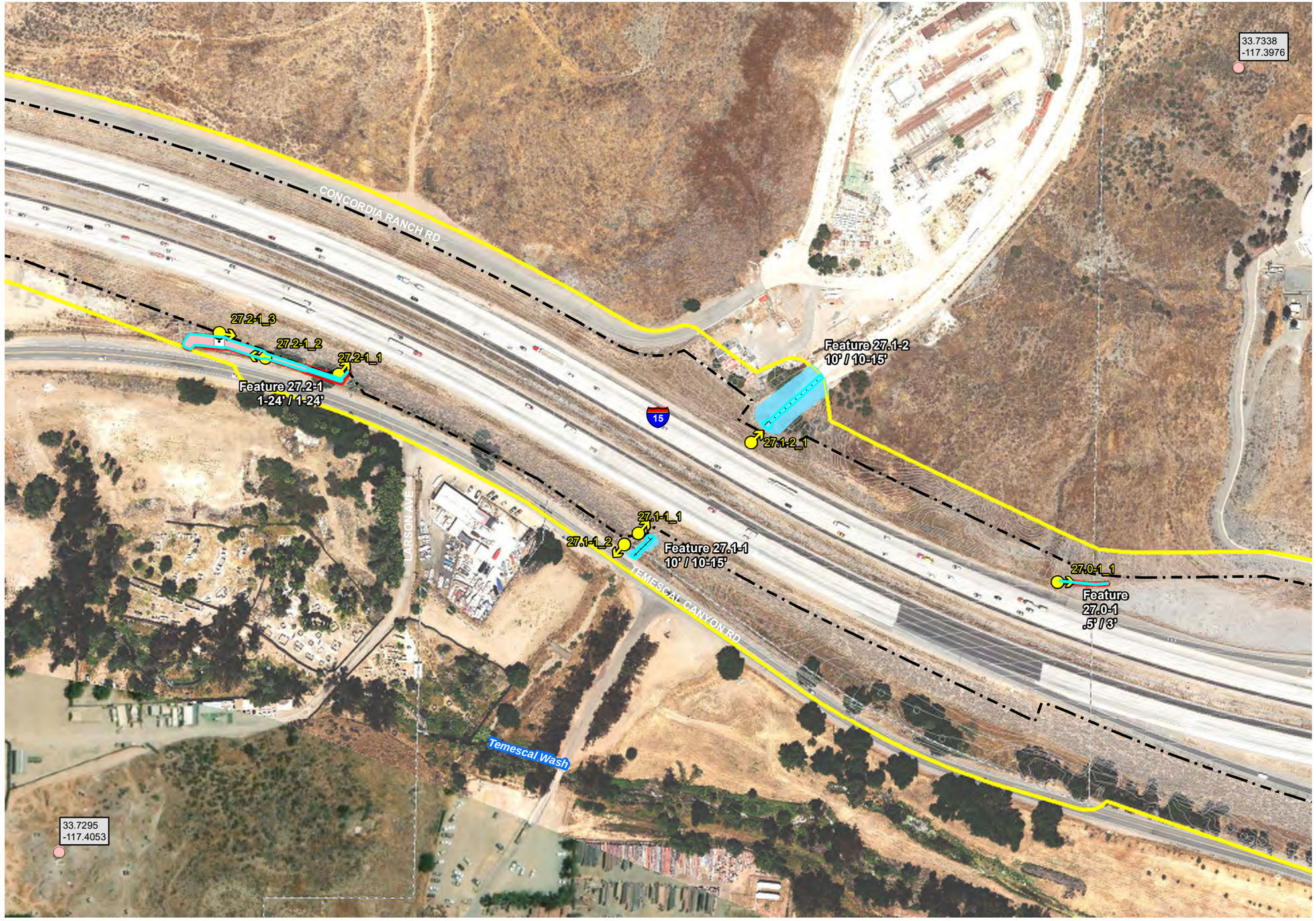
*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 13 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Constructed in Uplands (Bed-and-Bank)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Wetland
- Constructed in Uplands (Bed-and-Bank)
- Riparian
- Streambed

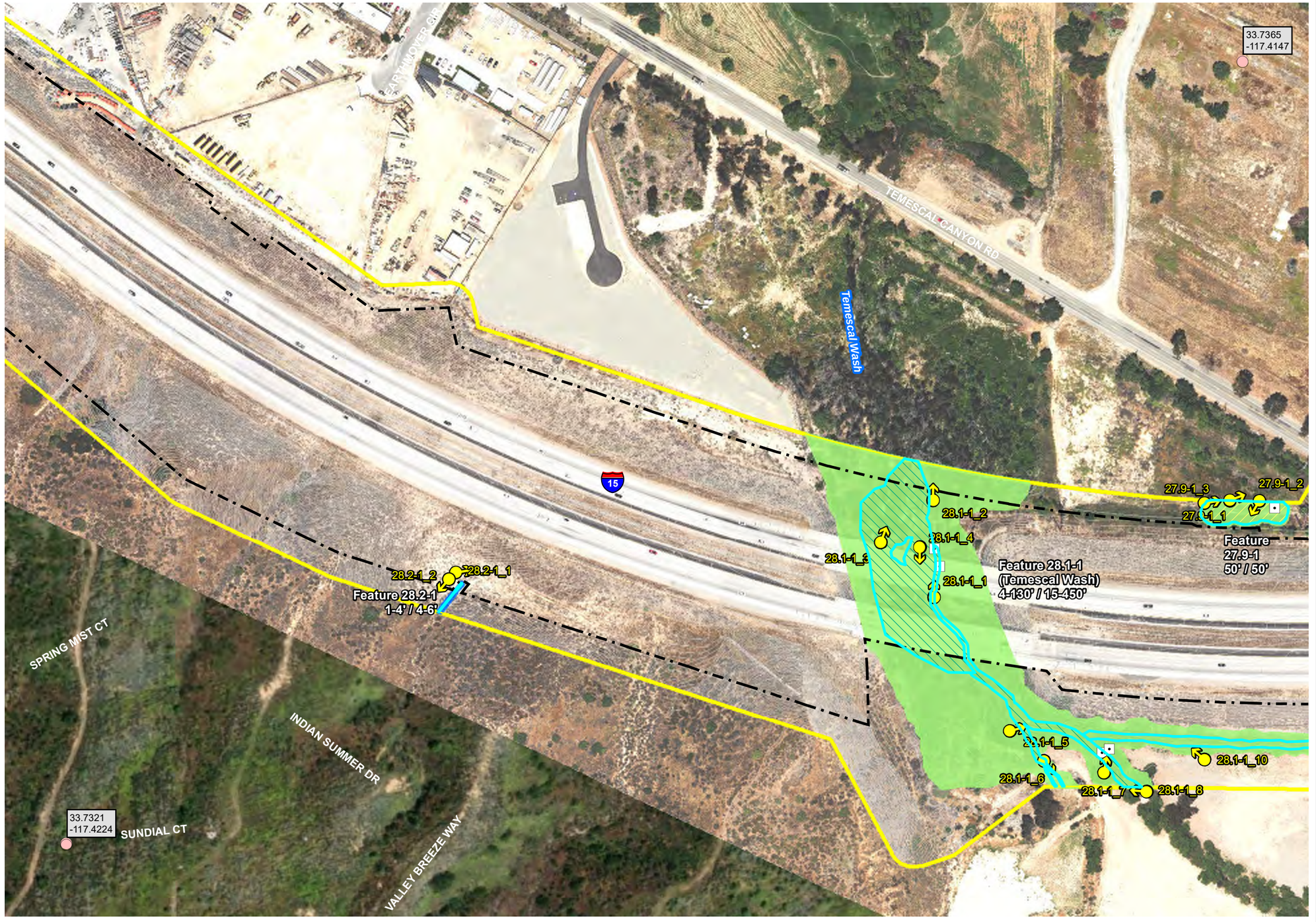
*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 15 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- OHWM (Isolated)
- OHWM (Perennial)
- Wetland
- Riparian
- Streambed (Isolated)

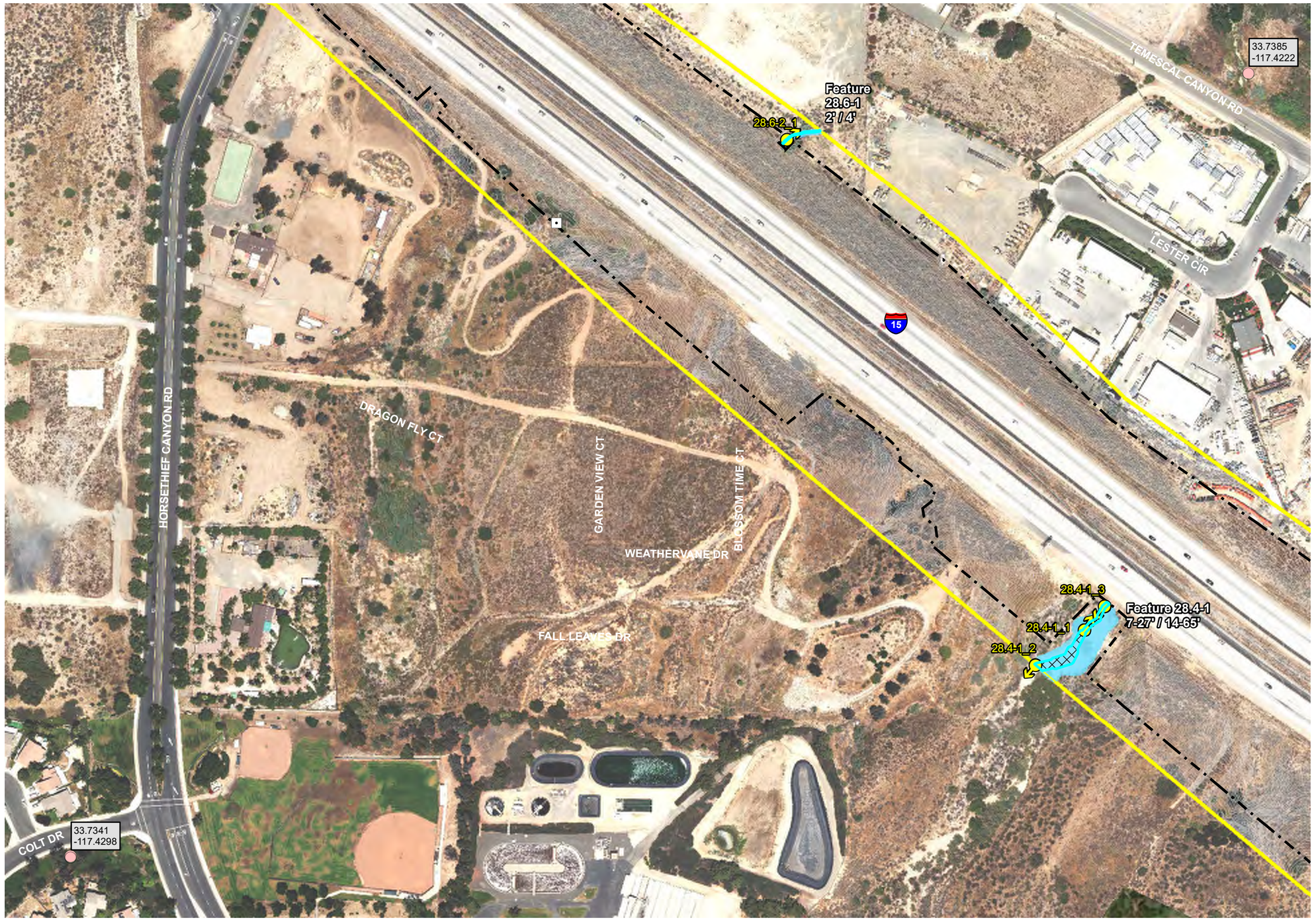
*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 16 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- OHWM (Ephemeral)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

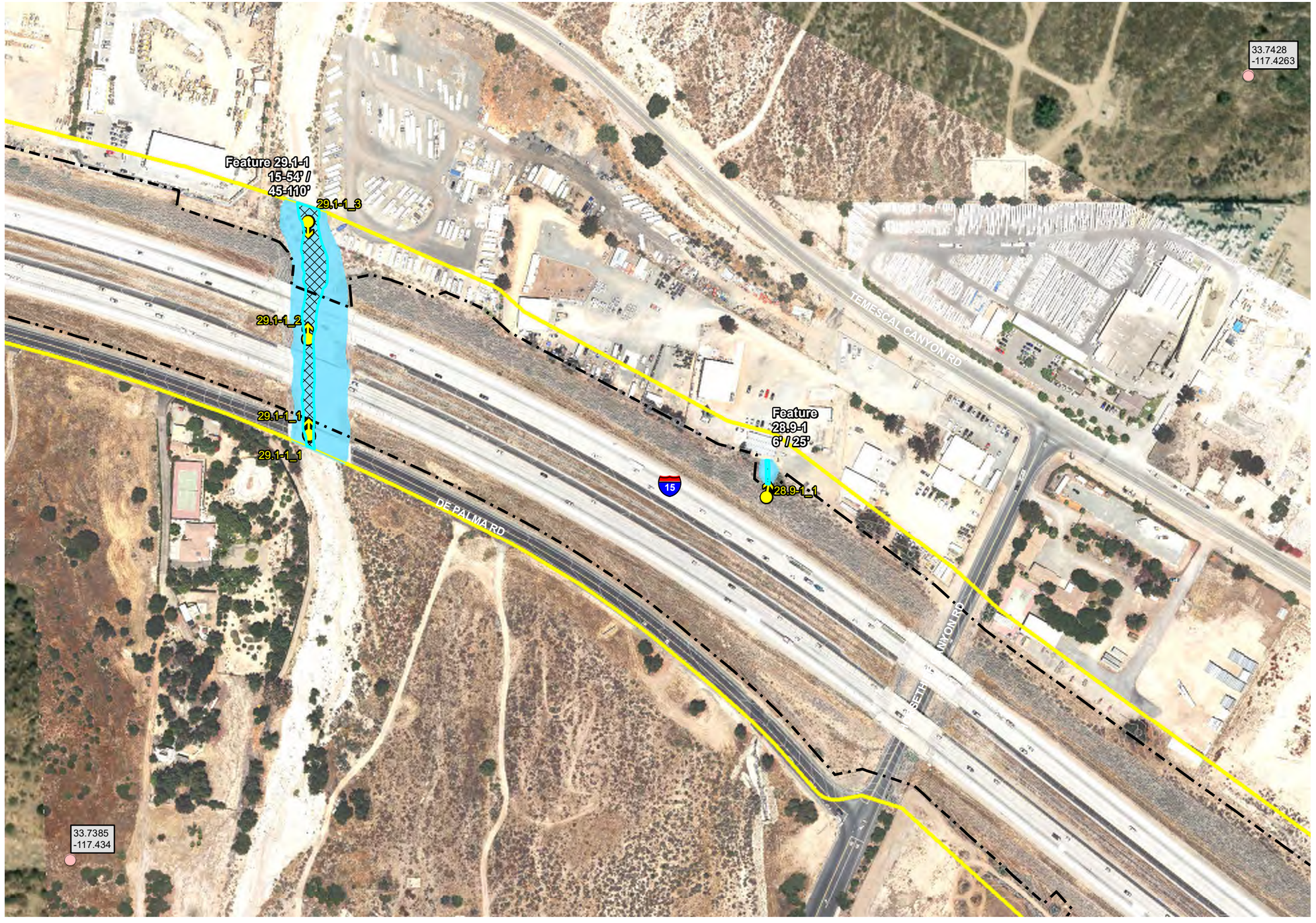
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 17 of 40

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- OHWM (Ephemeral)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

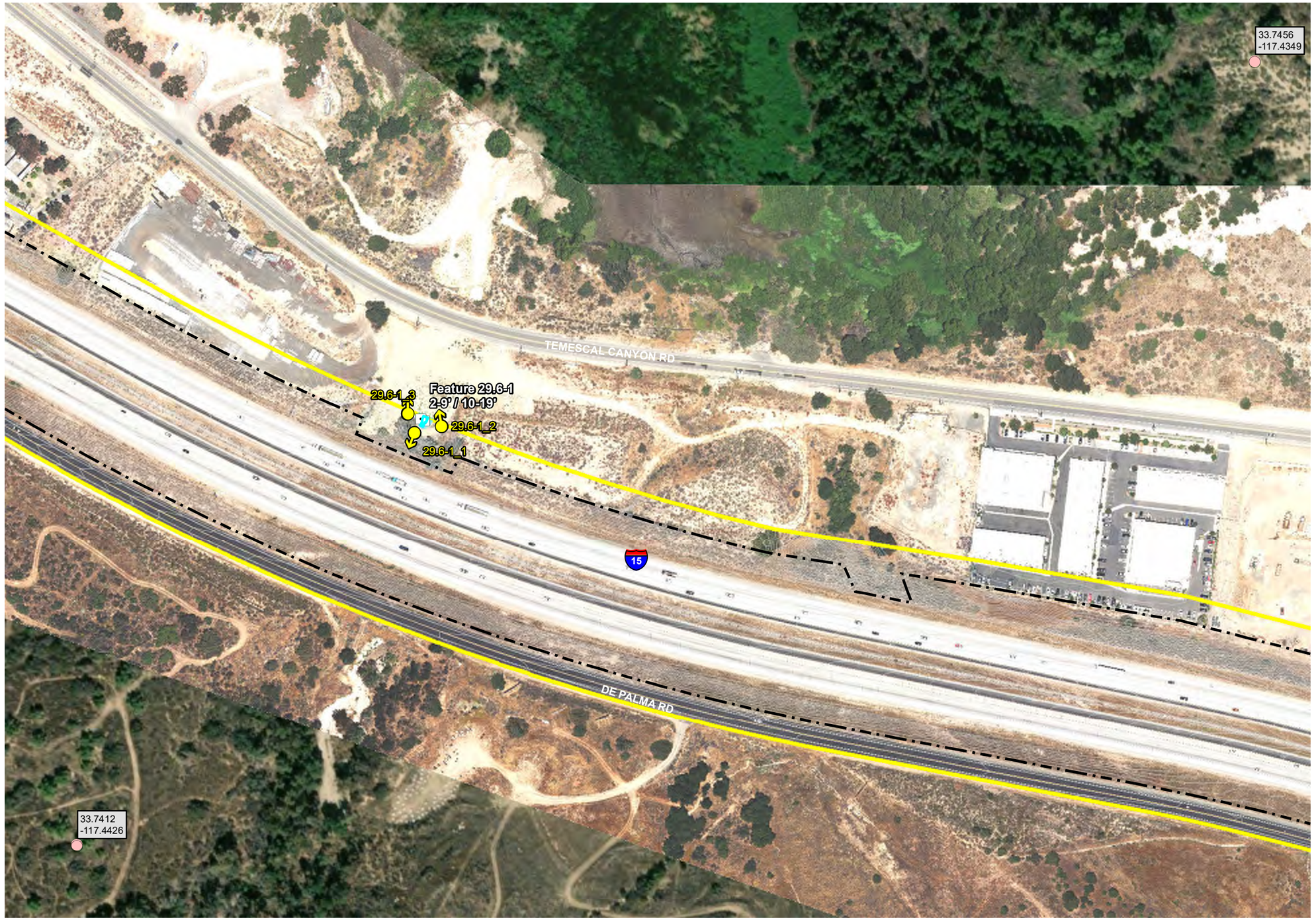
N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 18 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- OHWM (Ephemeral)
- Streambed

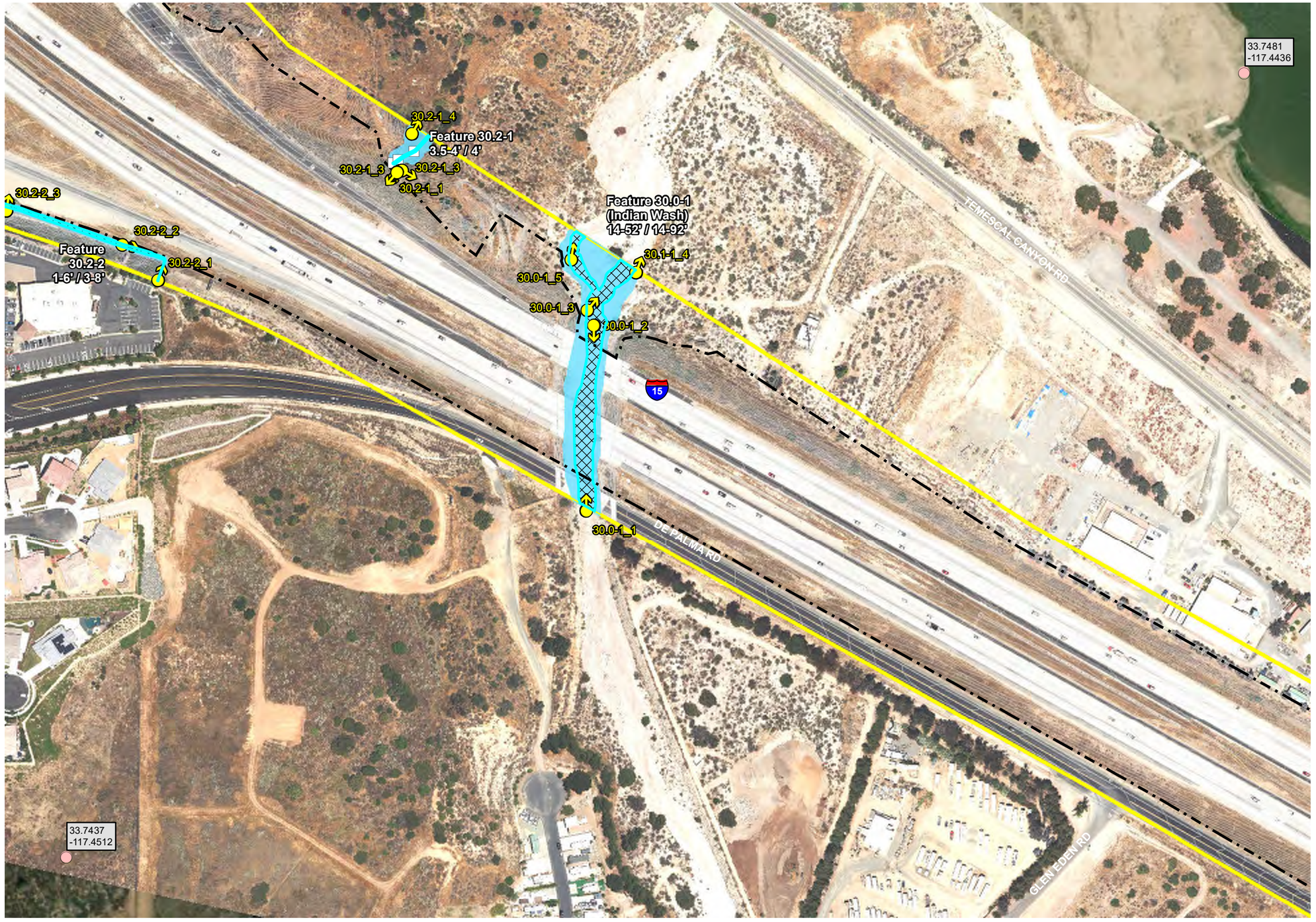
*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 19 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- OHWM (Ephemeral)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

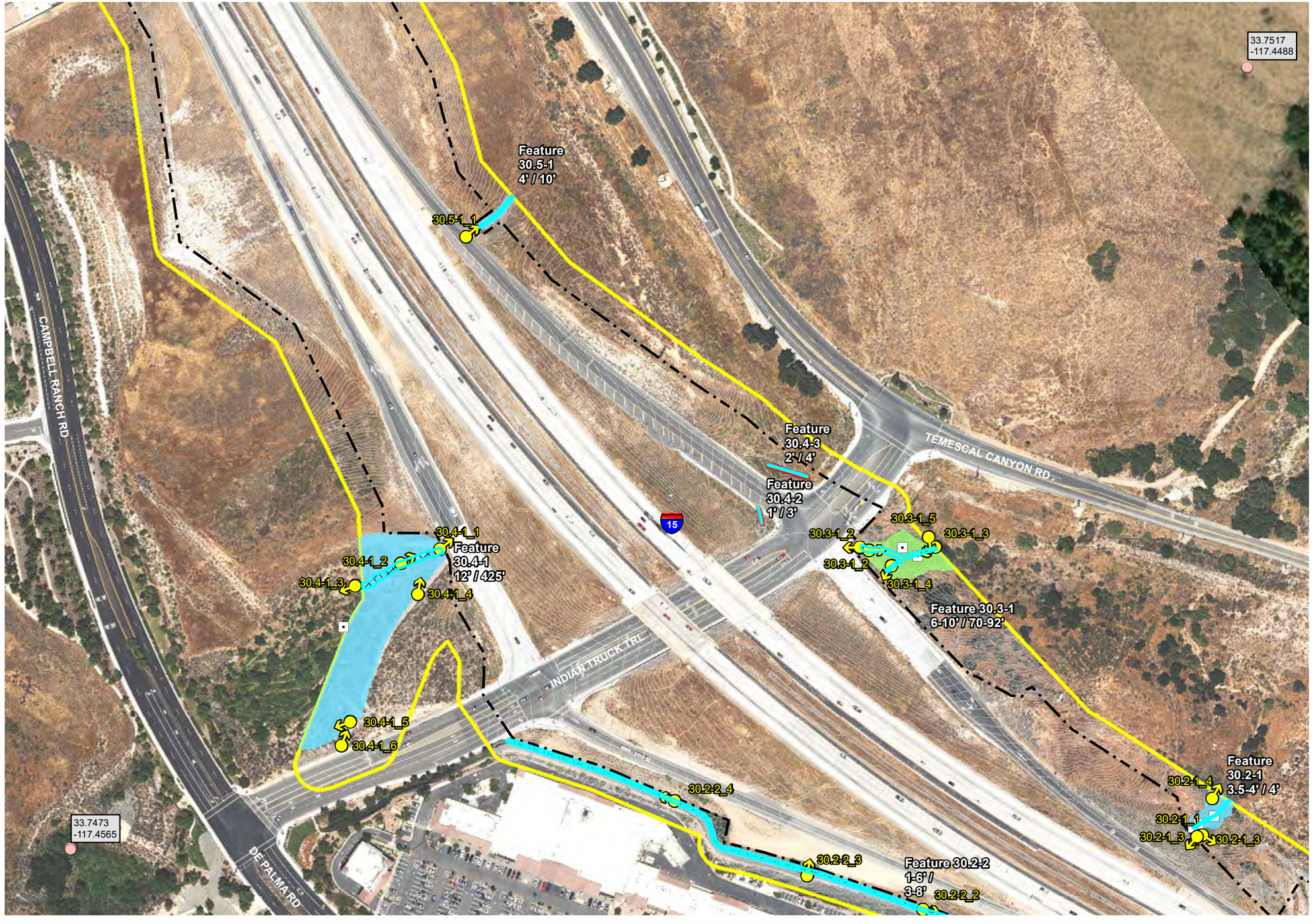
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 20 of 40

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Wetland
- Constructed in Uplands (Bed-and-Bank)
- Riparian
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

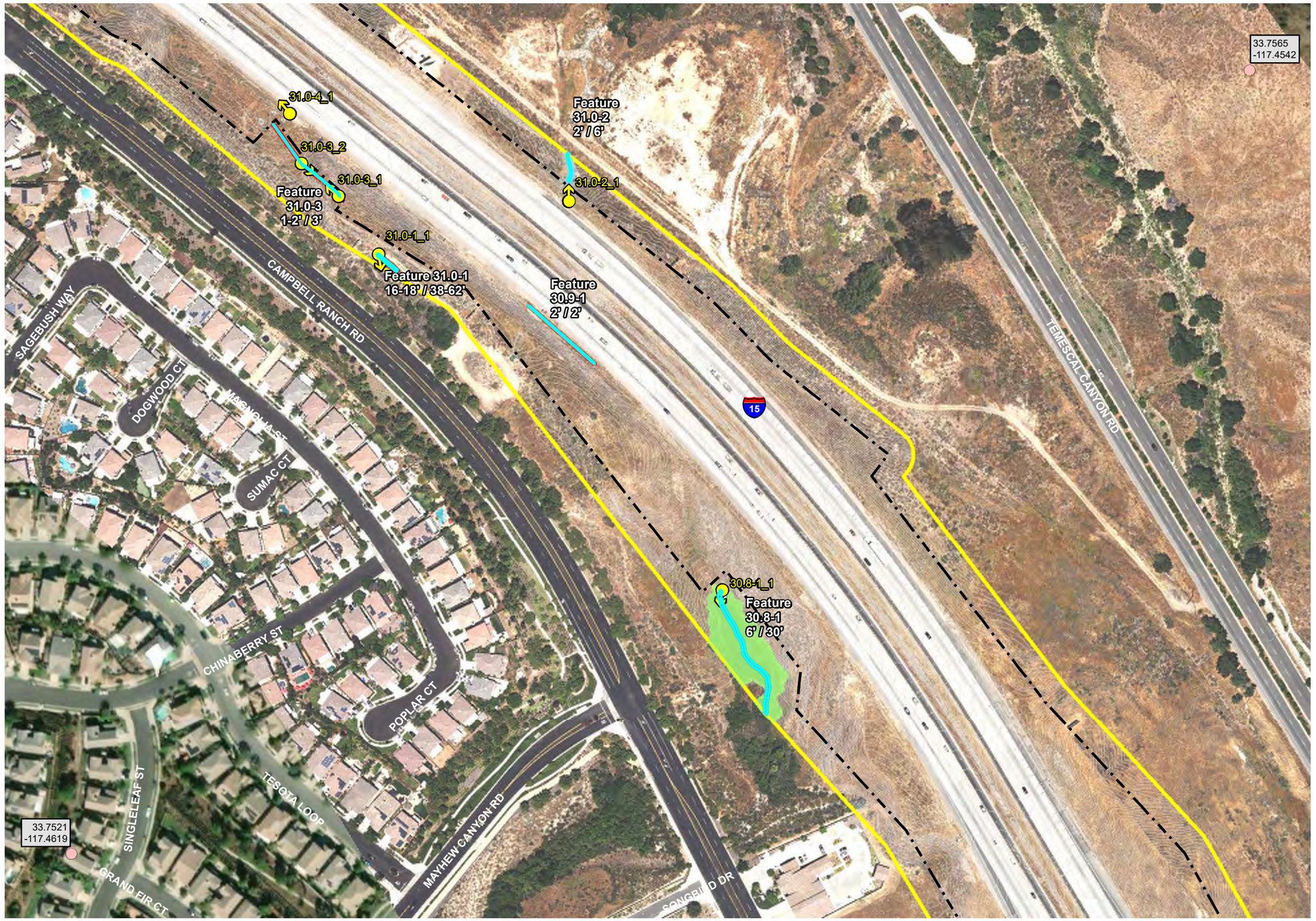
N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 21 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Wetland (Isolated)
- Constructed in Uplands (Bed-and-Bank)
- Riparian
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

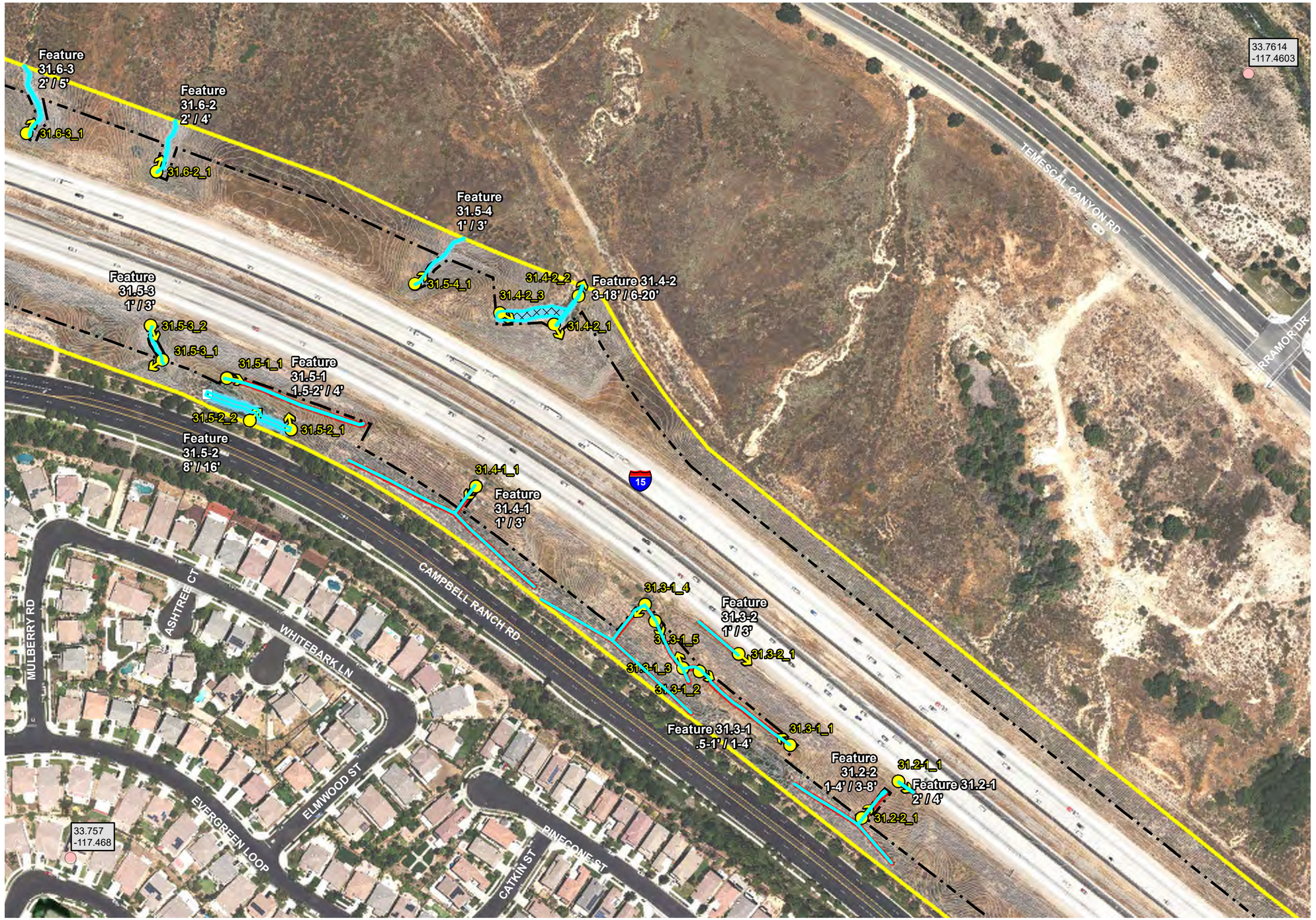
0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Wetland
- Constructed in Uplands (Bed-and-Bank)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

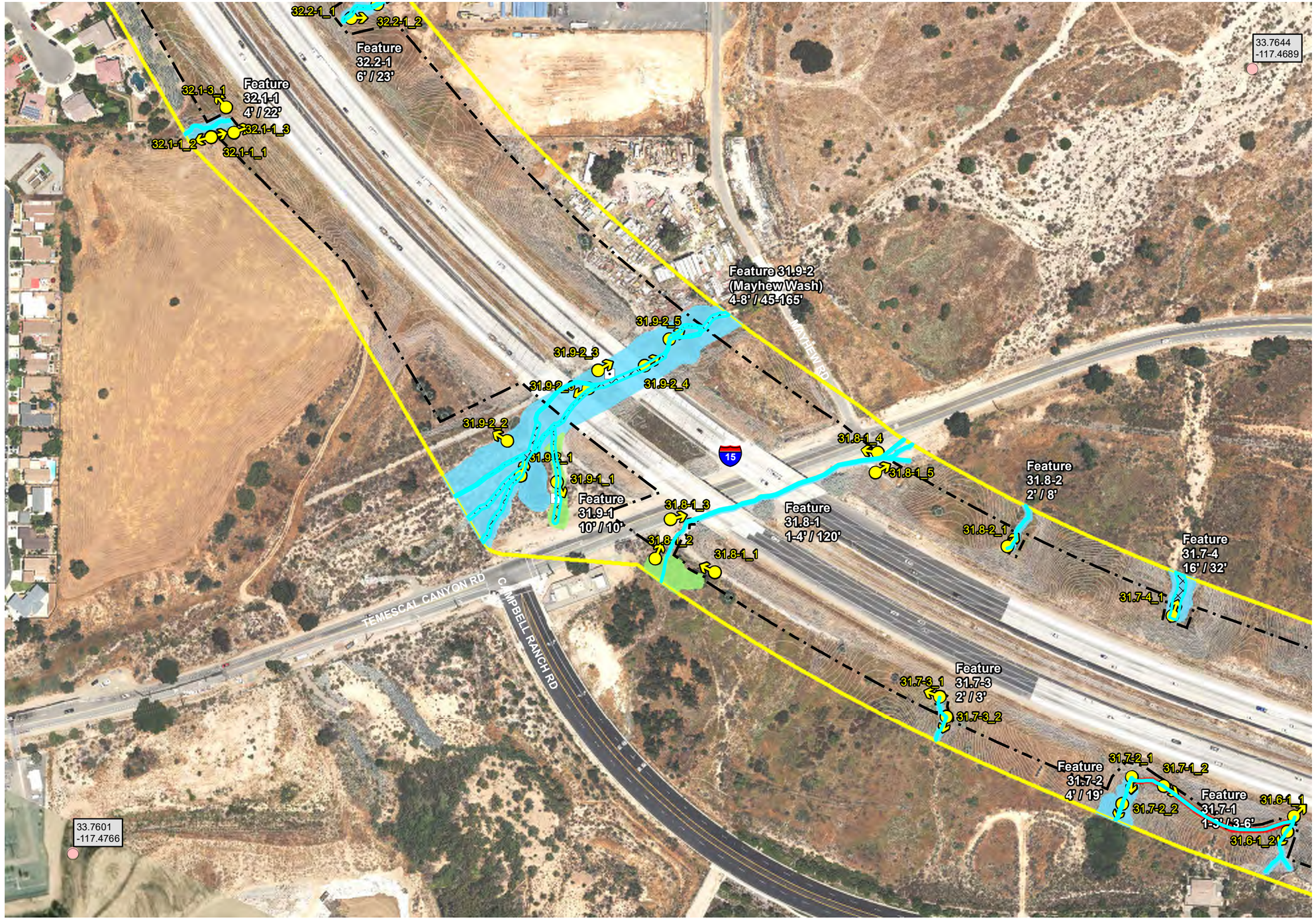
0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Constructed in Uplands (Bed-and-Bank)
- Riparian
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

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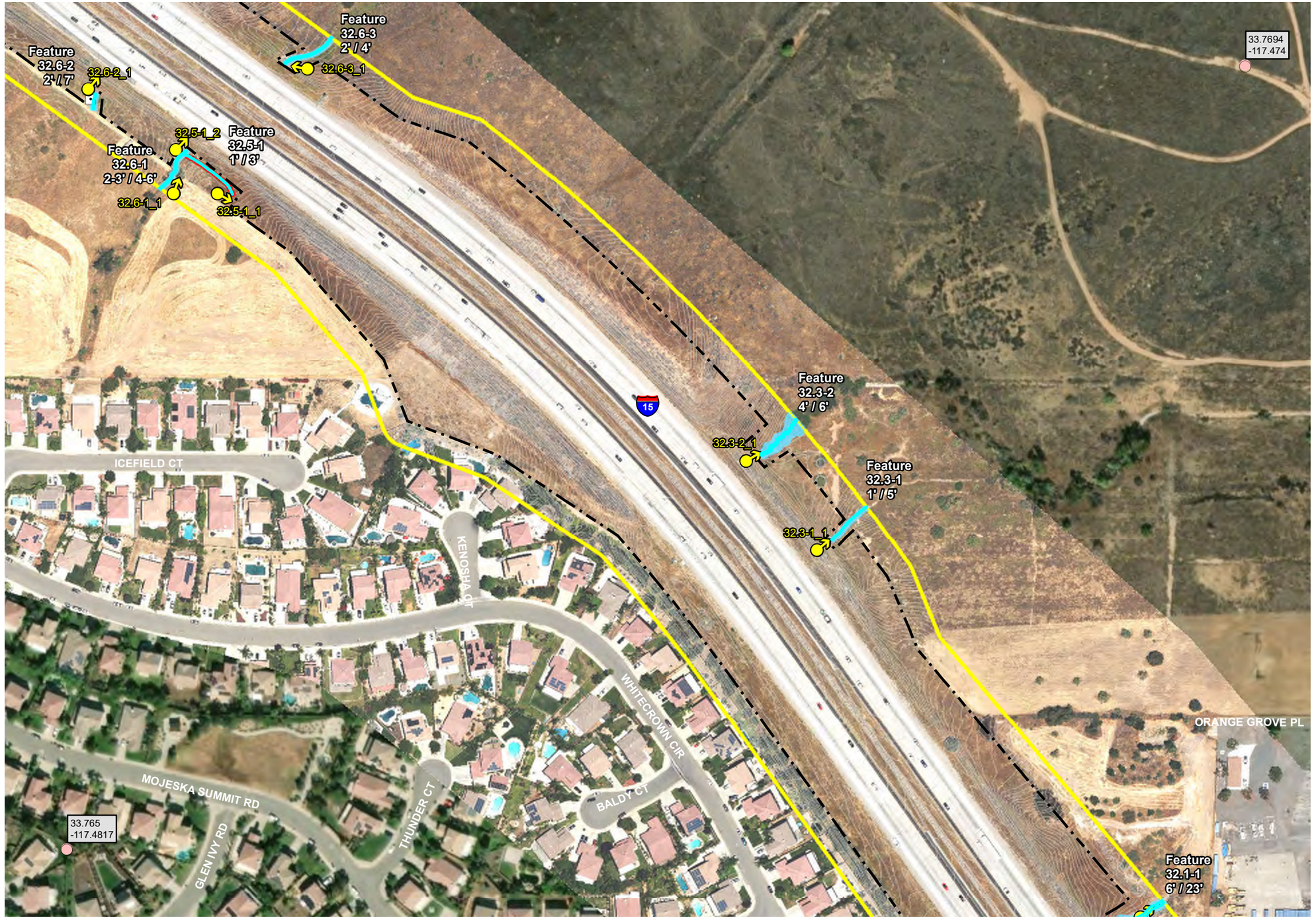
Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- OHWM (Intermittent)
- Constructed in Uplands (Bed-and-Bank)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

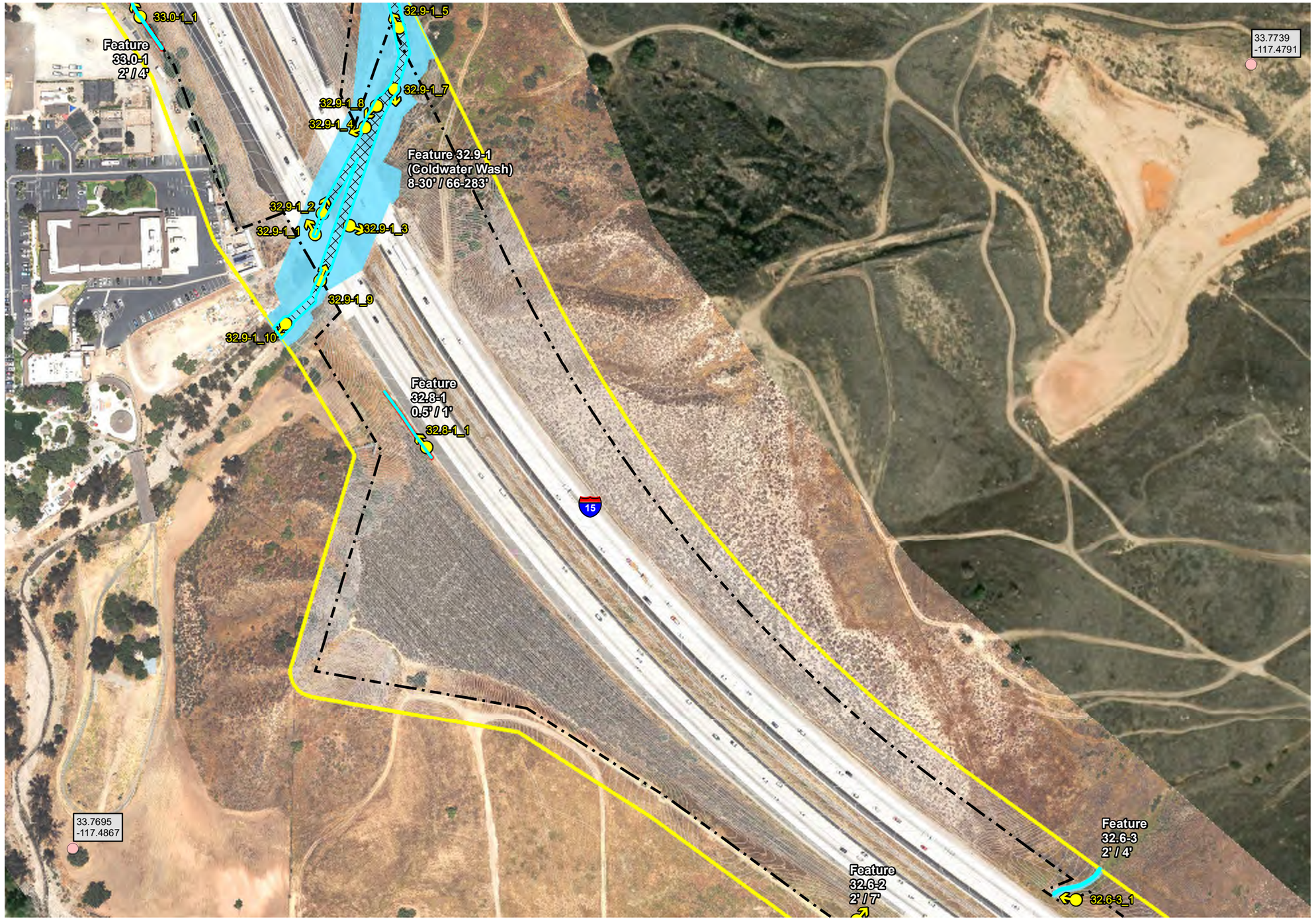
0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Constructed in Uplands (Bed-and-Bank)
- Streambed

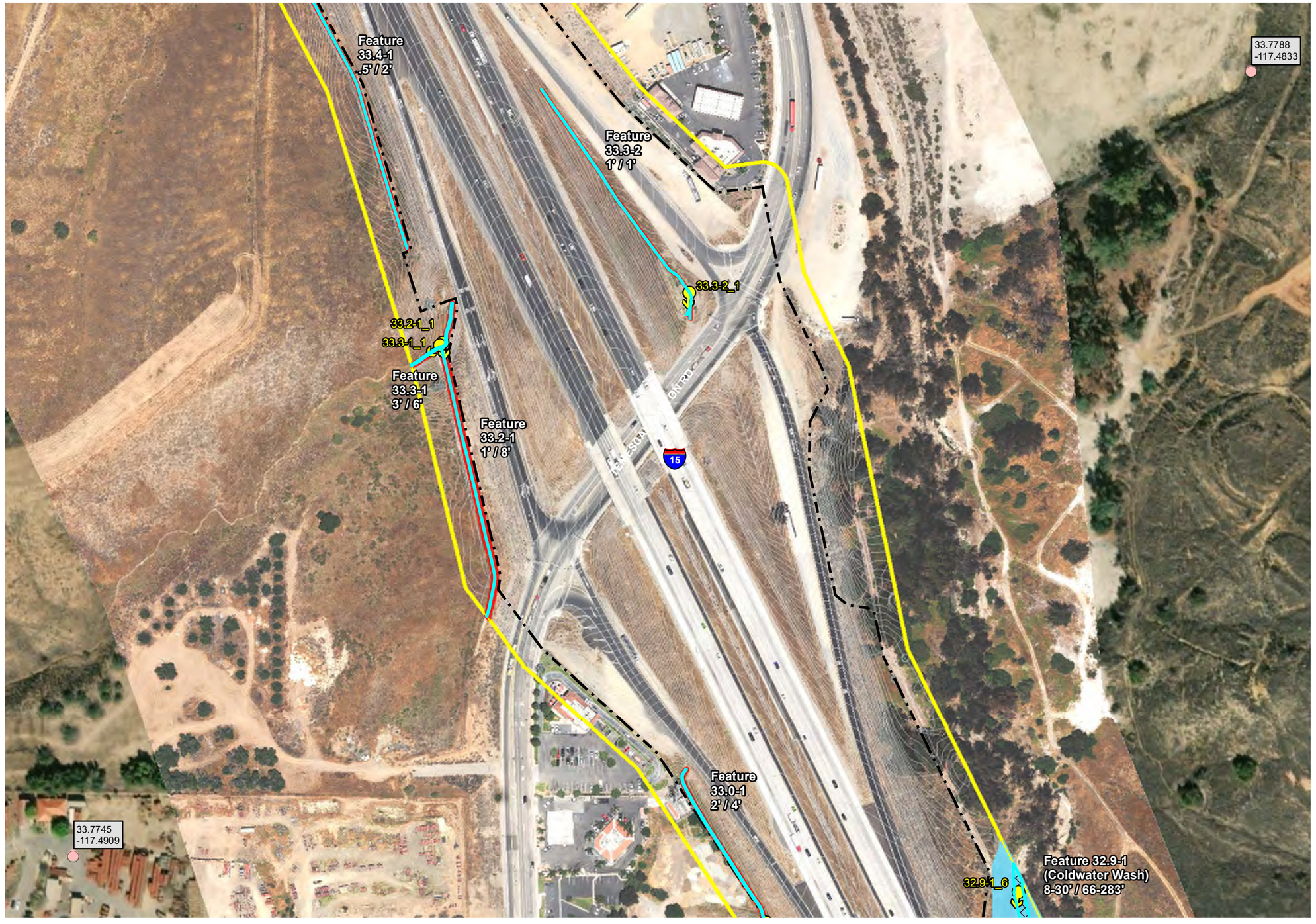
*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 26 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Constructed in Uplands (Bed-and-Bank)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 27 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- OHWM (Intermittent)
- Constructed in Uplands (Bed-and-Bank)
- Riparian
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 28 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- OHWM (Intermittent)
- Wetland
- Constructed in Uplands (Bed-and-Bank)
- Riparian
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

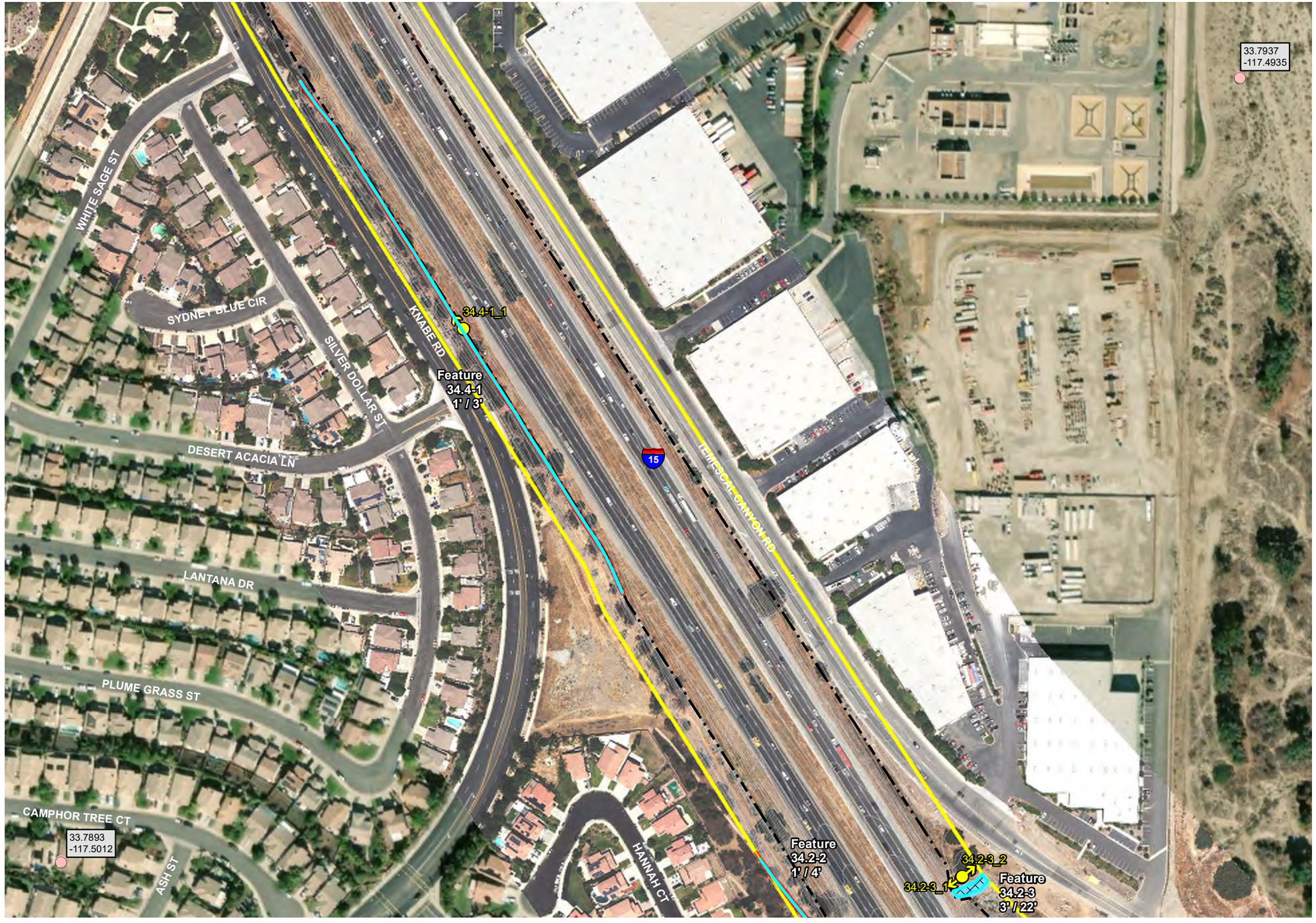
N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Constructed in Uplands (Bed-and-Bank)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

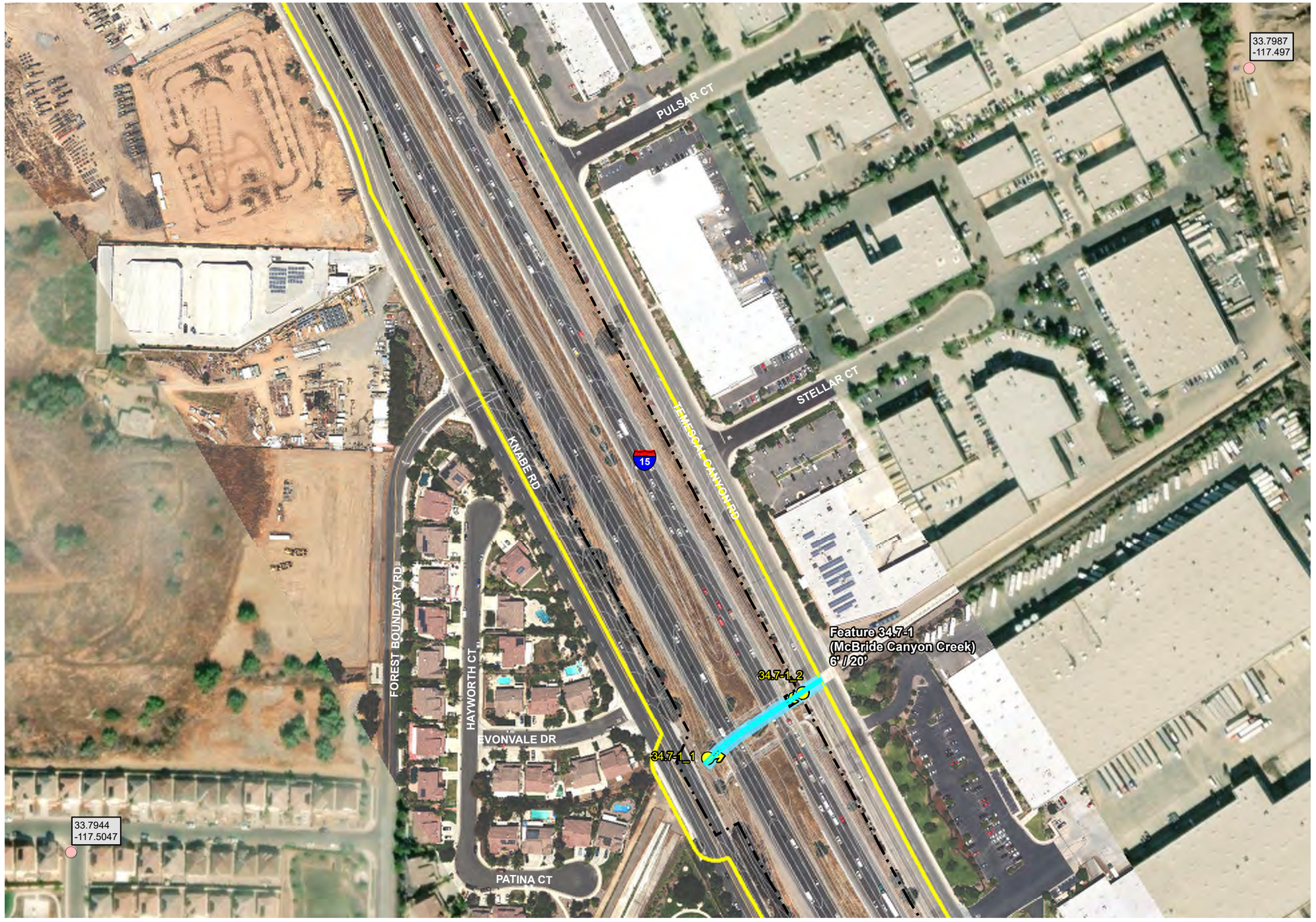
N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 30 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- OHWM (Perennial)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 31 of 40

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 32 of 40

Jurisdictional Resources Map

Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- OHWM (Intermittent)
- Wetland
- Constructed in Uplands (Bed-and-Bank)
- Riparian
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 33 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Constructed in Uplands (Bed-and-Bank)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 34 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
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Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
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- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
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Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- Constructed in Uplands (Bed-and-Bank)
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 36 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- Constructed in Uplands (Bed-and-Bank)

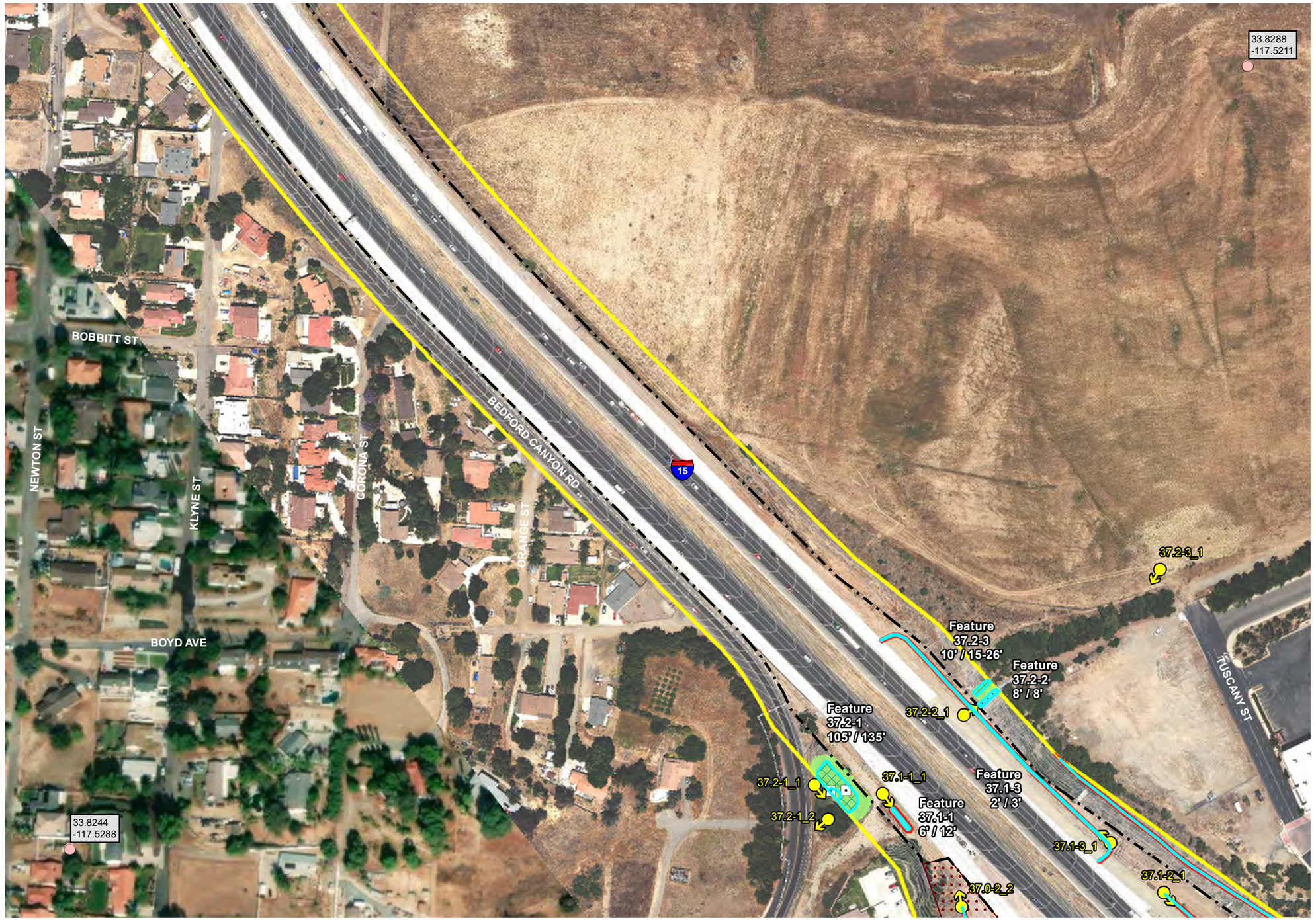
*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 37 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- OHWM (Ephemeral)
- OHWM (Intermittent)
- Wetland
- Constructed in Uplands (Bed-and-Bank)
- Riparian
- Streambed

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

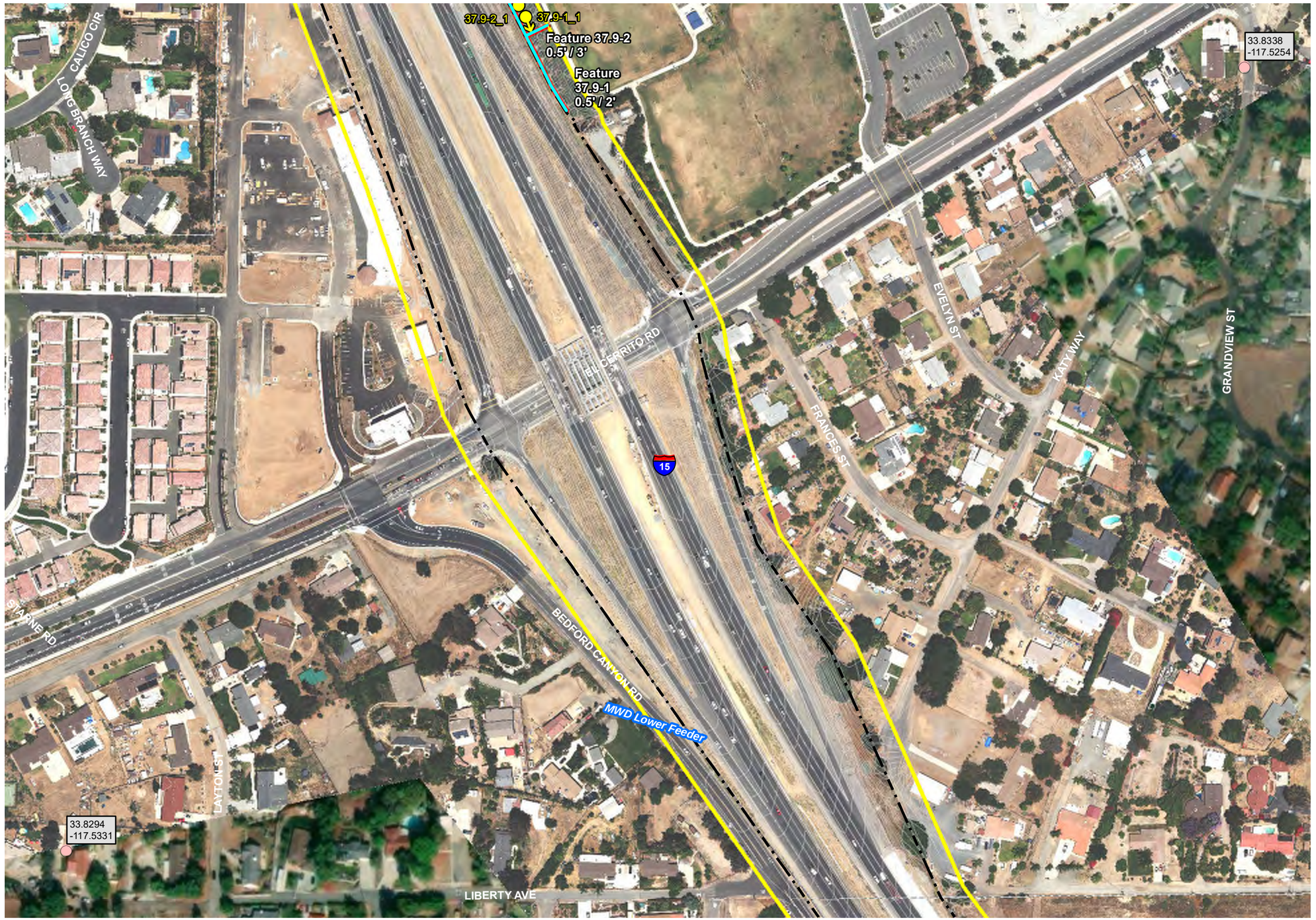
N

0 100 200 Feet

1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 38 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- Constructed in Uplands (Bed-and-Bank)

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 39 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Limits of Disturbance
- City/County Boundary
- Topo
- Map Reference Point
- Soil Pit Location
- Photo Points

Survey Area

- Jurisdictional Study Area
- Relinquished Areas*

Jurisdictional Resources

- Constructed in Uplands (OHWM)
- Constructed in Uplands (Bed-and-Bank)

*These areas have been relinquished by Caltrans and have therefore been removed from the Limits of Disturbance.

N

0 100 200 Feet
1:2,400

Aerial Source: ICF (2020)
Date Prepared: 9/16/2021
Map Prepared by: HDR

Sheet 40 of 40
Jurisdictional Resources Map
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

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Appendix E. Jurisdictional Delineation Photographs

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Table A: I-15 Express Lanes Project Southern Extension – Jurisdictional Delineation Photographs

Photograph	Information
	Photograph #: 21.5-1_1 Photo Date: 8/12/20 Feature Number: 21.5-1 (Wasson Canyon Wash) Direction: Northeast Notes: View of Wasson Canyon Wash showing giant reed (*Arundo donax*) in opening between SB and NB I-15 Bridges.
	Photograph #: 22.5-1_1 Photo Date: 8/29/19 Feature Number: 22.5-1 (Arroyo Del Toro Channel, Segment 1) Direction: Southeast Notes: View of Feature 22.5-1 towards upstream.
	Photograph #: 22.6-1 Photo Date: 8/30/19 Feature Number: 22.6-1 Direction: Northwest Notes: (Arroyo Del Toro Channel, Segment 2)

Photograph	Information
	Photograph #: 22.6-2_1 Photo Date: 8/29/19 Feature Number: 22.6-2 Direction: Northeast Notes: View of culvert under Dexter Road, connecting Arroyo del Toro with Caltrans basin adjacent to NB I-15.
	Photograph #: 22.6-2_2 Photo Date: 8/29/19 Feature Number: 22.6-2 Direction: Southwest Notes: View of Caltrans basin associated with Arroyo del Toro.
	Photograph #: 23.0-1_1 Photo Date: 8/29/19 Feature Number: 23.0-1 Direction: Northeast Notes: Feature 23.0-1, located in the shoulder east of NB I-15, where culvert outlets into the shoulder of I-15 NB, toward east. Culvert is obscured by Eucalyptus and Tamarisk trees.

Photograph	Information
	Photograph #: 23.1-1_1 Photo Date: 8/29/2019 Feature Number: 23.1-1 Direction: Northeast Notes: Feature 23.1-1 located in the shoulder east of NB I-15, where culvert pictured outlets into the shoulder of NB I-15, toward east.
	Photograph #: 23.2-1_1 Photo Date: 2/8/21 Feature Number: 23.2-1 Direction: North Notes: View of concrete lined channel, Feature 23.2-1.
	Photograph #: 23.3-1_1 Photo Date: 8/29/2019 Feature Number: 23.3-1 Direction: Southwest Notes: View of culvert, wet soils, and riparian vegetation in Feature 23.3-1.

Photograph	Information
	Photograph #: 23.3-2_1 Photo Date: 2/8/21 Feature Number: 23.3-2 Direction: Southwest Notes: View of concrete channel and culvert for Feature 23.3-2.
	Photograph #: 23.4-1_1 Photo Date: 8/12/20 Feature Number: 23.4-1 Direction: Southwest Notes: View of concrete channel headwall and earthen channel for Feature 23.4-1.
	Photograph #: 24.0-1_1 Photo Date: 8/12/20 Feature Number: 24.0-1 Direction: Northeast Notes: View of concrete channel outlet for Feature 24.0-1.

Photograph	Information
	Photograph #: 24.2-2_1 Photo Date: 8/13/20 Feature Number: 24.2-2 Direction: East Notes: View of earthen hillside channel for Feature 24.2-2.
	Photograph #: 24.3-1_1 Photo Date: 8/13/20 Feature Number: 24.3-1 Direction: East Notes: View of metal culvert for Feature 24.3-1.
	Photograph #: 24.3-2_1 Photo Date: 8/13/20 Feature Number: 24.3-2 Direction: South Notes: View of flowing open water and riparian vegetation for Feature 24.3-2.

Photograph	Information
	Photograph #: 24.3-2_2 Photo Date: 8/13/20 Feature Number: 24.3-2 Direction: Southwest Notes: View of open water and riparian vegetation for Feature 24.3-2.
	Photograph #: 24.3-3_1 Photo Date: 8/12/20 Feature Number: 24.3-3 Direction: Southeast Notes: View of bedrock stream channel for Feature 24.3-3.
	Photograph #: 24.5-1_1 Photo Date: 8/13/20 Feature Number: 24.5-1 Direction: Northeast Notes: View of culvert from NB side of I-15 that conveys flows into Feature 24.5-1.

Photograph	Information
	Photograph #: 24.6-1_1 Photo Date: 8/13/20 Feature Number: 24.6-1 Direction: Northeast Notes: View of metal culvert and earthen channel for Feature 24.6-1.
	Photograph #: 24.6-2_1 Photo Date: 8/12/20 Feature Number: 24.6-2 Direction: Northeast Notes: View of dead herbs lining the channel for Feature 24.6-2.
	Photograph #: 24.7-1_1 Photo Date: 8/13/20 Feature Number: 24.7-1 Direction: Northeast Notes: View of hillside culvert and riparian vegetation for Feature 24.7-1.

Photograph	Information
	Photograph #: 24.8-1_1 Photo Date: 8/12/20 Feature Number: 24.8-1 Direction: South Notes: View of concrete brow ditch adjacent to I-15 freeway NB for Feature 24.8-1.
	Photograph #: 25.1-1_1 Photo Date: 8/13/20 Feature Number: 25.1-1 Direction: Northeast Notes: View of earthen channel, concrete culvert and riparian vegetation for Feature 25.1-1.
	Photograph #: 25.1-2_1 Photo Date: 8/12/20 Feature Number: 25.1-2 Direction: Northwest Notes: View of concrete culvert, earthen channel, and corrugated pipe for Feature 25.1-2.

Photograph	Information
	Photograph #: 25.2-1_1 Photo Date: 8/13/20 Feature Number: 25.2-1 Direction: Northwest Notes: View of riparian and emergent vegetation for feature 25.2-1.
	Photograph #: 25.3-1_1 Photo Date: 8/13/20 Feature Number: 25.3-1 Direction: Northeast Notes: View of earthen channel, riparian vegetation, and concrete channel for Feature 25.3-1.
	Photograph #: 25.3-2_1 Photo Date: 8/13/20 Feature Number: 25.3-2 Direction: Southwest Notes: View of earthen channel and concrete channel for Feature 25.3-2.

Photograph	Information
	Photograph #: 25.3-3_1 Photo Date: 8/13/20 Feature Number: 25.3-3 Direction: Northeast Notes: View of gravel-bottomed channel, riparian vegetation, and concrete headwall for Feature 25.3-3.
	Photograph #: 25.3-4_1 Photo Date: 8/13/20 Feature Number: 25.3-4 Direction: Northeast Notes: View of the earthen-bottomed channel and culvert for Feature 25.3-4.
	Photograph #: 25.5-1_1 Photo Date: 8/13/20 Feature Number: 25.5-1 Direction: Northeast Notes: View of sandy unvegetated channel and riparian vegetation for Feature 25.5-1.

Photograph	Information
	Photograph #: 25.5-1_2 Photo Date: 8/13/20 Feature Number: 25.5-1 Direction: South Notes: View of rip-rap bottomed channel for Feature 25.5-1.
	Photograph #: 25.5-1_3 Photo Date: 8/13/20 Feature Number: 25.5-1 Direction: Southwest Notes: View of rocky bottomed channel and riparian vegetation for Feature 25.5-1.
	Photograph #: 25.6-1_1 Photo Date: 8/13/20 Feature Number: 25.6-1 Direction: Northeast Notes: .View of concrete channel for Feature 25.6-1.

Photograph	Information
	Photograph #: 25.8-1_1 Photo Date: 8/13/20 Feature Number: 25.8-1 Direction: Southwest Notes: View of riparian vegetation for Feature 25.8-1.
	Photograph #: 25.8-1_2 Photo Date: 8/13/20 Feature Number: 25.8-1 Direction: Southwest Notes: View of riparian vegetation for Feature 25.8-1.
	Photograph #: 26.2-1_1 Photo Date: 8/26/20 Feature Number: 26.2-1 Direction: Northeast Notes: View of culvert and riparian vegetation for Feature 26.2-1.

Photograph	Information
	Photograph #: 26.2-1_2 Photo Date: 8/26/20 Feature Number: 26.2-1 Direction: Southwest Notes: View of riparian vegetation and basin for Feature 26.2-1.
	Photograph #: 26.2-1_3 Photo Date: 8/26/20 Feature Number: 26.2-1 Direction: Southeast Notes: View of riparian vegetation and basin for Feature 26.2-1.
	Photograph #: 26.4-1_1 Photo Date: 8/27/20 Feature Number: 26.4-1 Direction: Northwest Notes: View of riparian vegetation for Feature 26.4-1.

Photograph	Information
	Photograph #: 26.4-1_2 Photo Date: 8/27/20 Feature Number: 26.4-1 Direction: Southeast Notes: View of concrete culvert for Feature 26.4-1.
	Photograph #: 26.4-1_3 Photo Date: 8/27/20 Feature Number: 26.4-1 Direction: Northwest Notes: View of riparian vegetation for Feature 26.4-1.
	Photograph #: 26.4-1_4 Photo Date: 8/27/20 Feature Number: 26.4-1 Direction: South Notes: View of riparian vegetation and bare ground for Feature 26.4-1.

Photograph	Information
	Photograph #: 26.7-1_1 Photo Date: 8/26/20 Feature Number: 26.7-1 Direction: Northeast Notes: View of earthen channel, riparian vegetation, and concrete headwall for Feature 26.7-1.
	Photograph #: 26.7-1_2 Photo Date: 8/26/20 Feature Number: 26.7-1 Direction: Southwest Notes: View of riparian vegetation and bare ground for Feature 26.7-1.
	Photograph #: 26.7-2_1 Photo Date: 8/26/20 Feature Number: 26.7-2 Direction: East Notes: View of concrete culvert for Feature 26.7-2.

Photograph	Information
	Photograph #: 26.7-2_2 Photo Date: 8/26/20 Feature Number: 26.7-2 Direction: Northwest Notes: View of riparian vegetation and bare ground for Feature 26.7-2.
	Photograph #: 27.0-1_1 Photo Date: 12/14/20 Feature Number: 27.0-1 Direction: East Notes: View of concre6e v-ditch for Feature 27.0-1.

Photograph	Information
	Photograph #: 27.1-1_1 Photo Date: 8/26/20 Feature Number: 27.1-1 Direction: Northeast Notes: View of concrete headwall and earthen channel for Feature 27.1-1.
	Photograph #: 27.1-1_2 Photo Date: 8/26/20 Feature Number: 27.1-1 Direction: Southwest Notes: View of earthen bottomed channel for Feature 27.1-1.
	Photograph #: 27.1-2_1 Photo Date: 8/11/20 Feature Number: 27.1-2 Direction: Northeast Notes: View of concrete channel and riparian vegetation for Feature 27.1-2.

Photograph	Information
	Photograph #: 27.2-1_1 Photo Date: 8/26/20 Feature Number: 27.2-1 Direction: Northeast Notes: View of earthen channel and concrete culvert for Feature 27.2-1.
	Photograph #: 27.2-1_2 Photo Date: 8/26/20 Feature Number: 27.2-1 Direction: Northwest Notes: View of earthen channel for Feature 27.2-1.
	Photograph #: 27.2-1_3 Photo Date: 8/26/20 Feature Number: 27.2-1 Direction: Southeast Notes: View of earthen channel and riparian vegetation for Feature 27.2-1.

Photograph	Information
	Photograph #: 27.4-1_1 Photo Date: 8/26/20 Feature Number: 27.4-1 Direction: Northwest Notes: View of earthen channel, riparian vegetation, and four concrete channel headwalls for Feature 27.4-1.
	Photograph #: 27.4-1_2 Photo Date: 8/26/20 Feature Number: 27.4-1 Direction: Southeast Notes: View of earthen channel and riparian vegetation for Feature 27.4-1.
	Photograph #: 27.8-1_1 Photo Date: 2/8/21 Feature Number: 27.8-1 Direction: Southeast Notes: View of earthen swale for Feature 27.8-1.

Photograph	Information
	Photograph #: 27.8-1_2 Photo Date: 2/8/21 Feature Number: 27.8-1 Direction: Northwest Notes: View of roadside swale for Feature 27.8-1.
	Photograph #: 27.8-1_3 Photo Date: 2/8/21 Feature Number: 27.8-1 Direction: Northeast Notes: View of earthen swale for Feature 27.8-1.
	Photograph #: 27.9-1_1 Photo Date: 8/11/20 Feature Number: 27.9-1 Direction: East Notes: View of riparian vegetation for Feature 27.9-1.

Photograph	Information
	Photograph #: 27.9-1_2 Photo Date: 8/11/20 Feature Number: 27.9-1 Direction: Southwest Notes: View of riparian vegetation for Feature 27.9-1.
	Photograph #: 27.9-1_3 Photo Date: 8/11/20 Feature Number: 27.9-1 Direction: Northeast Notes: View of riparian vegetation for Feature 27.9-1.
	Photograph #:28.1-1_1 Photo Date: 8/11/20 Feature Number: 28.1-1 Direction: North Notes: View of flowing water and riparian vegetation for Feature 28.1-1.

Photograph	Information
	Photograph #: 28.1-1_2 Photo Date: 8/11/20 Feature Number: 28.1-1 Direction: North Notes: View of incised banks and riparian vegetation for Feature 28.1-1.
	Photograph #: 28.1-1_3 Photo Date: 8/11/20 Feature Number: 28.1-1 Direction: Northeast Notes: View of wrack and unvegetated channel for Feature 28.1-1.
	Photograph #:28.1-1_4 Photo Date: 8/11/20 Feature Number: 28.1-1 Direction: South Notes: View of flowing water and riparian vegetation for Feature 28.1-1.

Photograph	Information
	Photograph #: 28.1-1_5 Photo Date: 8/11/20 Feature Number: 28.1-1 Direction: Northeast Notes: View of flowing water and riparian vegetation for Feature 28.1-1.
	Photograph #: 28.1-1_6 Photo Date: 8/11/20 Feature Number: 28.1-1 Direction: Southeast Notes: View of riparian vegetation for Feature 28.1-1.
	Photograph #: 28.1-1_7 Photo Date: 8/11/20 Feature Number: 28.1-1 Direction: Northeast Notes: View of flowing water and riparian vegetation for Feature 28.1-1.

Photograph	Information
	Photograph #: 28.1-1_8 Photo Date: 8/11/20 Feature Number: 28.1-1 Direction: Northwest Notes: View of concrete culvert, flowing water and riparian vegetation for Feature 28.1-1.
	Photograph # :28.1-1_9 Photo Date: 8/11/20 Feature Number: 28.1-1 Direction: South Notes: View of riparian vegetation for Feature 28.1-1.
	Photograph #: 28.1-1_10 Photo Date: 8/11/20 Feature Number: 28.1-1 Direction: Northwest Notes: View of riparian vegetation for Feature 28.1-1.

Photograph	Information
	Photograph #: 28.2-1_1 Photo Date: 8/26/20 Feature Number: 28.2-1 Direction: Northeast Notes: View of earthen swale for Feature 28.2-1.
	Photograph #: 28.2-1_2 Photo Date: 8/26/20 Feature Number: 28.2-1 Direction: Southwest Notes: View of upland vegetation and swale for Feature 28.2-1.
	Photograph #: 28.4-1_1 Photo Date: 8/26/20 Feature Number: 28.4-1 Direction: Northeast Notes: View of earthen channel and concrete channel culvert for Feature 28.4-1.

Photograph	Information
	Photograph #: 28.4-1_2 Photo Date: 8/26/20 Feature Number: 28.4-1 Direction: Southwest Notes: View of earthen, incised channel, and riparian vegetation for Feature 28.4-1.
	Photograph #: 28.4-1_3 Photo Date: 8/26/20 Feature Number: 28.4-1 Direction: Southwest Notes: View of earthen channel for Feature 28.4-1.

Photograph	Information
	Photograph #: 28.6-2_1 Photo Date: 8/13/20 Feature Number: 28.6-2 Direction: Northeast Notes: View of earthen channel and concrete culvert for Feature 28.6-2.
	Photograph #: 28.9-1_1 Photo Date: 8/13/20 Feature Number: 28.9-1 Direction: Northeast Notes: View of concrete culvert for Feature 28.6-2.

Photograph	Information
	Photograph #: 29.1-1_1 Photo Date: 8/13/20 Feature Number: 29.1-1 Direction: North Notes: View of earthen channel for Feature 29.1-1.
	Photograph #: 29.1-1_2 Photo Date: 8/13/20 Feature Number: 29.1-1 Direction: North Notes: View of earthen channel and riparian vegetation for Feature 29.1-1.
	Photograph #: 29.1-1_3 Photo Date: 8/13/20 Feature Number: 29.1-1 Direction: South Notes: View of earthen channel and riparian vegetation for Feature 29.1-1.

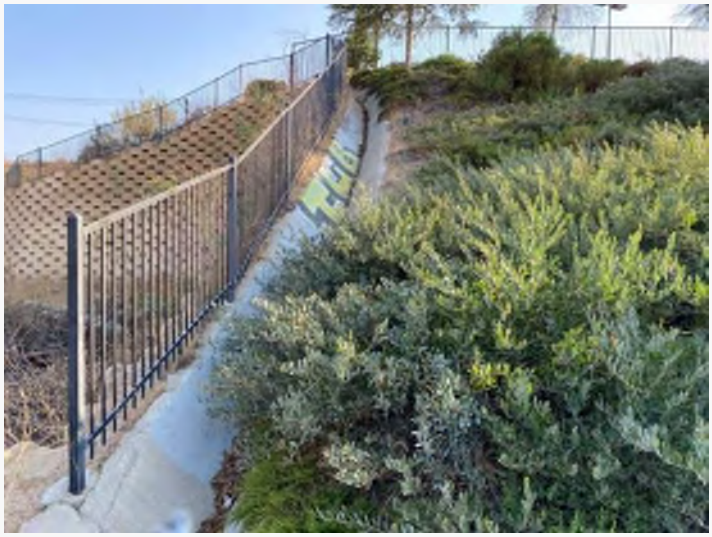
Photograph	Information
	Photograph #: 29.6-1_1 Photo Date: 8/25/20 Feature Number: 29.6-1 Direction: Southwest Notes: View of concrete headwall and culvert for Feature 29.6-1.
	Photograph #: 29.6-1_2 Photo Date: 8/25/20 Feature Number: 29.6-1 Direction: Northwest Notes: View of riparian vegetation for Feature 29.6-1.
	Photograph #: 29.6-1_3 Photo Date: 8/25/20 Feature Number: 29.6-1 Direction: North Notes: View of riparian vegetation and earthen channel for Feature 29.6-1.

Photograph	Information
	Photograph #: 30.0-1_1 Photo Date: 8/13/20 Feature Number: 30.0-1 Direction: North Notes: View of earthen channel and riparian vegetation for Feature 30.0-1.
	Photograph #: 30.0-1_2 Photo Date: 8/13/20 Feature Number: 30.0-1 Direction: South Notes: View of earthen channel for Feature 30.0-1.
	Photograph #: 30.0-1_3 Photo Date: 8/13/20 Feature Number: 30.0-1 Direction: Northeast Notes: View of earthen channel and basin for Feature 30.0-1.

Photograph	Information
	Photograph #: 30.0-1_4 Photo Date: 8/13/20 Feature Number: 30.0-1 Direction: Northeast Notes: View of earthen channel and basin for Feature 30.0-1.
	Photograph #: 30.0-1_5 Photo Date: 8/13/20 Feature Number: 30.0-1 Direction: North Notes: View of earthen channel and basin for Feature 30.0-1.
	Photograph #: 30.2-1_1 Photo Date: 8/13/20 Feature Number: 30.2-1 Direction: Southwest Notes: View of concrete culvert and standing water for Feature 30.2-1.

Photograph	Information
	Photograph #: 30.2-1_2 Photo Date: 8/13/20 Feature Number: 30.2-1 Direction: Southeast Notes: View of riparian vegetation and standing water for Feature 30.2-1.

Photograph	Information
	Photograph #: 30.2-1_3 Photo Date: 8/13/20 Feature Number: 30.2-1 Direction: Southwest Notes: View of riparian vegetation and concrete culvert for Feature 30.2-1.
	Photograph #:30.2-1_4 Photo Date: 8/13/20 Feature Number: 30.2-1 Direction: Northeast Notes: View of riparian vegetation for Feature 30.2-1.

Photograph	Information
	Photograph #: 30.2-2_1 Photo Date: 8/25/20 Feature Number: 30.2-2 Direction: Northeast Notes: View of concrete v-ditch for Feature 30.2-2.
	Photograph #: 30.2-2_2 Photo Date: 8/25/20 Feature Number: 30.2-2 Direction: Southeast Notes: View of concrete brow ditch for Feature 30.2-2.
	Photograph #: 30.2-2_3 Photo Date: 8/25/20 Feature Number: 30.2-2 Direction: North Notes: View of culvert for Feature 30.2-2.

Photograph	Information
	Photograph #: 30.2-2_4 Photo Date: 8/25/20 Feature Number: 30.2-2 Direction: Northwest Notes: View of concrete brow ditch for Feature 30.2-2.
	Photograph #: 30.3-1_1 Photo Date: 8/25/20 Feature Number: 30.3-1 Direction: East Notes: View of earthen channel for Feature 30.3-1.
	Photograph #: 30.3-1_2 Photo Date: 8/25/20 Feature Number: 30.3-1 Direction: West Notes: View of concrete channel with staining for Feature 30.3-1.

Photograph	Information
	Photograph #: 30.3-1_3 Photo Date: 8/25/20 Feature Number: 30.3-1 Direction: Southwest Notes: View of flowing water and riparian vegetation for Feature 30.3-1.
	Photograph #: 30.3-1_4 Photo Date: 8/25/20 Feature Number: 30.3-1_ Direction: Southwest Notes: View of flowing water and metal culvert for Feature 30.3-1.
	Photograph #: 30.3-1_5 Photo Date: 8/25/20 Feature Number: 30.3-1 Direction: Southeast Notes: View of flowing water and riparian vegetation for Feature 30.3-1.

Photograph	Information
	Photograph #: 30.4-1_1 Photo Date :2/8/21 Feature Number: 30.4-1 Direction: Northeast Notes: View of concrete channel for Feature 30.4-1.
	Photograph #: 30.4-1_2 Photo Date :2/8/21 Feature Number: 30.4-1 Direction: Northeast Notes: View of earthen channel and riparian vegetation for Feature 30.4-1.
	Photograph #: 30.4-1_3 Photo Date :2/8/21 Feature Number: 30.4-1 Direction: Southwest Notes: View of earthen, incised channel and riparian vegetation for Feature 30.4-1.

Photograph	Information
	Photograph #:30.4-1_4 Photo Date :2/8/21 Feature Number: 30.4-1 Direction: Northeast Notes: View of earthen channel, riparian vegetation, and rip-rap bank for Feature 30.4-1.
	Photograph #: 30.4-1_5 Photo Date :2/8/21 Feature Number: 30.4-1 Direction: West Notes: View of riparian vegetation for Feature 30.4-1
	Photograph #: 30.4-1_6 Photo Date :2/8/21 Feature Number: 30.4-1 Direction: Northeast Notes: View of earthen channel, riparian vegetation, and rip-rap bank for Feature 30.4-1.

Photograph	Information
	Photograph #: 30.5-1_1 Photo Date: 8/26/20 Feature Number: 30.5-1 Direction: Northeast Notes: View of earthen swale with rip-rap pad and concrete culvert for Feature 30.5-1.
	Photograph #: 30.8-1_1 Photo Date: 8/26/20 Feature Number: 30.8-1 Direction: Southwest Notes: View of flowing water and riparian vegetation for Feature 30.8-1.
	Photograph #: 31.0-1_1 Photo Date: 8/26/20 Feature Number: 31.0-1 Direction: Southeast Notes: View of riparian vegetation surrounding basin for Feature 31.0-1.

Photograph	Information
	Photograph #: 31.0-2_1 Photo Date: 8/26/20 Feature Number: 31.0-2 Direction: North Notes: View of earthen swale for Feature 31.0-2.
	Photograph #: 31.0-3_1 Photo Date: 8/26/20 Feature Number: 31.0-3 Direction: Northwest Notes: View of earthen hillside ditch adjacent to I-15 freeway SB for Feature 31.0-3.
	Photograph #: 31.0-3_2 Photo Date: 8/26/20 Feature Number: 31.0-3 Direction: Southeast Notes: View of earthen hillside ditch for Feature 31.0-3.

Photograph	Information
	Photograph #: 31.0-4_1 Photo Date: 8/26/20 Feature Number: 31.0-4 Direction: Northwest Notes: View of roadside swale and drop drain adjacent to I-15 freeway SB for Feature 31.0-4.
	Photograph #: 31.2-1_1 Photo Date: 8/26/20 Feature Number: 31.2-1 Direction: Southeast Notes: View of roadside swale adjacent to I-15 freeway NB for Feature 31.2-1.
	Photograph #: 31.2-2_1 Photo Date: 8/26/20 Feature Number: 31.2-2 Direction: Northeast Notes: View concrete ditch and drop drain perpendicular to I-15 freeway SB for Feature 31.2-2.

Photograph	Information
	Photograph #: 31.3-1_1 Photo Date: 8/26/20 Feature Number: 31.3-1 Direction: Northwest Notes: View of hillside ditch adjacent to I-15 freeway SB for Feature 31.3-1.
	Photograph #: 31.3-1_2 Photo Date: 8/26/20 Feature Number: 31.3-1 Direction: Southeast Notes: View of hillside ditch for Feature 31.3-1.

Photograph	Information
	Photograph #: 31.3-1_3 Photo Date: 8/26/20 Feature Number: 31.3-1 Direction: Northwest Notes: View of earthen swale perpendicular to I-15 freeway SB for Feature 31.3-1.
	Photograph #: 31.3-1_4 Photo Date: 8/26/20 Feature Number: 31.3-1 Direction: Southwest Notes: View of concrete brow ditch with tamarisk for Feature 31.3-1.
	Photograph #: 31.3-1_5 Photo Date: 8/26/20 Feature Number: 31.3-1 Direction: Southeast Notes: View of earthen swale for Feature 31.3-1.

Photograph	Information
	Photograph #: 31.3-2_1 Photo Date: 8/26/20 Feature Number: 31.3-2 Direction: Southeast Notes: View of roadside swale adjacent to I-15 freeway NB for Feature 31.3-2.
	Photograph #: 31.4-1_1 Photo Date: 8/26/20 Feature Number: 31.4-1 Direction: Southwest Notes: View of concrete brow ditch and Tamarisk for Feature 31.4-1.

Photograph	Information
	Photograph #: 31.4-2_1 Photo Date: 08/26/20 Feature Number: 31.4-2 Direction: Southeast Notes: View of metal culvert and riparian vegetation for Feature 31.4-2.
	Photograph #: 31.4-2_2 Photo Date: 08/26/20 Feature Number: 31.4-2 Direction: Northeast Notes: View of riparian vegetation for Feature 31.4-2.
	Photograph #: 31.4-2_3 Photo Date: 08/26/20 Feature Number: 31.4-2 Direction: Southeast Notes: View of riparian vegetation and incised channel for Feature 31.4-2.

Photograph	Information
	Photograph #: 31.5-1_1 Photo Date: 8/26/20 Feature Number: 31.5-1 Direction: Southeast Notes: View of hillside ditch adjacent to I-15 freeway NB for Feature 31.5-1.
	Photograph #: 31.5-2_1 Photo Date: 8/26/20 Feature Number: 31.5-2 Direction: Northwest Notes: View of riparian vegetation for Feature 31.5-2.
	Photograph #: 31.5-2_2 Photo Date: 8/26/20 Feature Number: 31.5-2 Direction: Northwest Notes: View of riparian vegetation for Feature 31.5-2.

Photograph	Information
	Photograph #: 31.5-3_1 Photo Date: 8/13/20 Feature Number: 31.5-3 Direction: Southwest Notes: View of pipe conveying flows for Feature 31.5-3.
	Photograph #: 31.5-3_2 Photo Date: 8/13/20 Feature Number: 31.5-3 Direction: Southeast Notes: View of earthen channel for Feature 31.5-3.
	Photograph #: 31.5-4_1 Photo Date: 8/26/20 Feature Number: 31.5-4 Direction: Northeast Notes: View of earthen swale for Feature 31.5-4.

Photograph	Information
	Photograph #: 31.6-1_1 Photo Date: 8/13/20 Feature Number: 31.6-1 Direction: Northeast Notes: View of culvert for Feature 31.6-1.
	Photograph #: 31.6-1_2 Photo Date: 8/13/20 Feature Number: 31.6-1 Direction: Southwest Notes: View of earthen channel and riparian vegetation for Feature 31.6-1.
	Photograph #: 31.6-2_1 Photo Date: 8/26/20 Feature Number: 31.6-2 Direction: Northeast Notes: View of earthen swale for Feature 31.6-2.

Photograph	Information
	Photograph #: 31.6-3_1 Photo Date: 8/26/20 Feature Number: 31.6-3 Direction: Northeast Notes: View of earthen swale for Feature 31.6-3.
	Photograph #: 31.7-1_1 Photo Date: 8/13/20 Feature Number: 31.7-1 Direction: Southeast Notes: View of concrete v-ditch adjacent to I-15 freeway NB for Feature 31.7-1.
	Photograph #: 31.7-2_1 Photo Date: 8/26/20 Feature Number: 31.7-2 Direction: South Notes: View of riparian vegetation for Feature 31.7-2.

Photograph	Information
	Photograph #: 31.7-2_2 Photo Date: 8/13/20 Feature Number: 31.7-2 Direction: Southwest Notes: View of riparian vegetation for Feature 31.7-2.
	Photograph #: 31.7-3_1 Photo Date: 8/13/20 Feature Number: 31.7-3 Direction: Northwest Notes:. View of culvert for Feature 31.7-3.
	Photograph #: 31.7-3_2 Photo Date: 8/13/20 Feature Number: 31.7-3 Direction: South Notes: View of earthen channel for Feature 31.7-3.

Photograph	Information
	Photograph #: 31.7-4_1 Photo Date: 8/26/20 Feature Number: 31.7-4 Direction: Northeast Notes:. View of riparian vegetation for Feature 31.7-4.
	Photograph #: 31.8-1_1 Photo Date: 8/13/20 Feature Number: 31.8-1 Direction: Northwest Notes: View of metal culvert and swale at toe of slope adjacent to I-15 freeway SB for Feature 31.8-1.
	Photograph #:31.8-1_2 Photo Date: 8/13/20 Feature Number: 31.8-1 Direction: Northeast Notes: View of swale for Feature 31.8-1.

Photograph	Information
	Photograph #: 31.8-1_3 Photo Date: 8/13/20 Feature Number: 31.8-1 Direction: Northeast Notes: View of roadside swale for Feature 31.8-1.
	Photograph #: 31.8-1_4 Photo Date: 8/13/20 Feature Number: 31.8-1 Direction: Northwest Notes: View of roadside swale for Feature 31.8-1.
	Photograph #: 31.8-1_5 Photo Date: 8/13/20 Feature Number: 31.8-1 Direction: Northeast Notes: View of earthen roadside channel for feature 31.8-1.

Photograph	Information
	Photograph #: 31.8-2_1 Photo Date: 8/26/20 Feature Number: 31.8-2 Direction: Northeast Notes:. View of Feature 31.8-2.
	Photograph #: 31.9-1_1 Photo Date: 8/13/20 Feature Number: 31.9-1 Direction: Southeast Notes:. View of dense mulefat vegetation in Feature 31.9-1. This portion of the channel is dry, but upstream had surface water near a clogged culvert at the time of the survey.
	Photograph #: 31.9-2_1 Photo Date: 8/13/20 Feature Number: 31.9-2 (Mayhew Wash) Direction: North Notes:. View towards Feature 31.9-2 taken from the point where Features 31.9-1 and 31.9-2 converge.

Photograph	Information
	Photograph #: 31.9-2_2 Photo Date: 8/13/20 Feature Number: 31.9-2 (Mayhew wash) Direction: Northwest Notes:. View of grouted rip-rap area beyond Feature 31.9-2_2 taken from edge of upper bank/CDFW limits
	Photograph #: 31.9-2_3 Photo Date: 8/13/20 Feature Number: 31.9-2 (Mayhew Wash) Direction: Northeast Notes: View of unvegetated braid with coarse sandy soils with adjacent upland-vegetated terrace for Feature 31.9-2.
	Photograph #: 31.9-2_4 Photo Date: 8/13/20 Feature Number: 31.9-2 (Mayhew Wash) Direction: Northeast Notes: View of unvegetated braid with coarse sandy soils with adjacent vegetated terrace for Feature 31.9-2.

Photograph	Information
	Photograph #: 31.9-2_5 Photo Date: 8/13/20 Feature Number: 31.9-2 (Mayhew Wash) Direction: Northeast Notes: View of unvegetated braid with coarse sandy soils with adjacent upland-vegetated terrace for Feature 31.9-2.
	Photograph #: 31.9-2_6 Photo Date: 8/13/20 Feature Number: 31.9-2 (Mayhew Wash) Direction: Northeast Notes: View of unvegetated braid with coarse sandy soils with adjacent upland-vegetated terrace for Feature 31.9-2.
	Photograph #: 32.1-1_1 Photo Date: 8/13/20 Feature Number: 32.1-1 Direction: Southwest Notes: View of concrete pad for Feature 32.1-1.

Photograph	Information
	Photograph #: 32.1-1_2 Photo Date: 8/13/20 Feature Number: 32.1-1 Direction: Northeast Notes: View of concrete pad and culvert for Feature 32.1-1.
	Photograph #: 32.1-1_3 Photo Date: 8/13/20 Feature Number: 32.1-1 Direction: Northeast Notes: View of concrete culvert for Feature 32.1-1.
	Photograph #: 32.1-2_1 Photo Date: 8/13/20 Feature Number: 32.1-2 Direction: West Notes: View of culvert, rocky channel and standing water for Feature 32.1-2.

Photograph	Information
	Photograph #: 32.1-2_2 Photo Date: 8/13/20 Feature Number: 32.1-2 Direction: Northeast Notes: View of riparian vegetation for Feature 32.1-2.
	Photograph #:32.1-3_1 Photo Date: 2/8/210 Feature Number: 32.1-3 Direction: Northwest Notes: View of v-ditch adjacent to I-15 freeway SB for Feature 32.1-3.
	Photograph #: 32.3-1_1 Photo Date: 8/27/20 Feature Number: 32.3-1 Direction: Northeast Notes: View of earthen channel for Feature 32.3-1.

Photograph	Information
	Photograph #: 32.3-2_1 Photo Date: 8/27/20 Feature Number: 32.3-2 Direction: Northeast Notes: View of riparian vegetation for Feature 32.3-2.
	Photograph #: 32.5-1_1 Photo Date: 8/13/20 Feature Number: 32.5-1 Direction: Southeast Notes: View of swale adjacent to I-15 freeway NB for Feature 32.5-1.
	Photograph #: 32.5-1_2 Photo Date: 8/13/20 Feature Number: 32.5-1 Direction: Northeast Notes: View of culvert for Feature 32.5-1.

Photograph	Information
	Photograph #: 32.6-1_1 Photo Date: 8/13/20 Feature Number: 32.6-1 Direction: Northeast Notes: View of earthen channel for Feature 32.6-1.
	Photograph #: 32.6-2_1 Photo Date: 8/13/20 Feature Number: 32.6-2 Direction: Northeast Notes: View of concrete culvert and saltgrass (*Distichlis spicata*) for Feature 32.6-2.
	Photograph #: 32.6-3_1 Photo Date: 8/27/20 Feature Number: 32.6-3 Direction: Northwest Notes: View of concrete culvert for Feature 32.6-3.

Photograph	Information
	Photograph #: 32.8-1_1 Photo Date: 8/13/20 Feature Number: 32.8-1 Direction: Northwest Notes: View of roadside swale adjacent to I-15 freeway SB for Feature 32.8-1.
	Photograph #: 32.9-1_1 Photo Date: 8/13/20 Feature Number: 32.9-1 (Coldwater Wash) Direction: Northwest Notes: View of riparian vegetation, earthen channel and incised banks for Feature 32.9-1.
	Photograph #:32.9-1_2 Photo Date: 8/13/20 Feature Number: 32.9-1 (Coldwater Wash) Direction: Northeast Notes: View of riparian vegetation, earthen channel and incised banks for Feature 32.9-1.

Photograph	Information
	Photograph #: 32.9-1_3 Photo Date: 8/13/20 Feature Number: 32.9-1 (Coldwater Wash) Direction: Southeast Notes: View of metal culvert, riparian vegetation, and seep for Feature 32.9-1.
	Photograph #: 32.9-1_4 Photo Date: 8/13/20 Feature Number: 32.9-1 (Coldwater Wash) Direction: Southeast Notes: View of riparian vegetation and rip-rap for Feature 32.9-1.
	Photograph #: 32.9-1_5 Photo Date: 8/13/20 Feature Number: 32.9-1 (Coldwater Wash) Direction: Northwest Notes: View of riparian vegetation for Feature 32.9-1.

Photograph	Information
	Photograph #:32.9-1_6 Photo Date: 8/13/20 Feature Number: 32.9-1 (Coldwater Wash) Direction: Southwest Notes: View of riparian vegetation for Feature 32.9-1.
	Photograph #: 32.9-1_7 Photo Date: 8/13/20 Feature Number: 32.9-1 (Coldwater Wash) Direction: South Notes: View of earthen channel and riparian vegetation for Feature 32.9-1.
	Photograph #: 32.9-1_8 Photo Date: 8/13/20 Feature Number: 32.9-1 (Coldwater Wash) Direction: Southwest Notes: View of earthen channel, rip-rap and algae for Feature 32.9-1.

Photograph	Information
	Photograph #: 32.9-1_9 Photo Date: 8/13/20 Feature Number: 32.9-1 (Coldwater Wash) Direction: Northeast Notes: View of riparian vegetation and earthen channel for Feature 32.9-1.
	Photograph #: 32.9-1_10 Photo Date: 8/13/20 Feature Number: 32.9-1 (Coldwater Wash) Direction: Southwest Notes: View of riparian vegetation and earthen channel for Feature 32.9-1.
	Photograph #: 33.0-1_1 Photo Date: 8/13/20 Feature Number: 33.0-1 Direction: Northwest Notes: View of swale for Feature 33.0-1.

Photograph	Information
	Photograph #: 33.1-1_1 Photo Date: 8/27/20 Feature Number: 33.1-1 Direction: Northwest Notes: View of drain and straw wattles for Feature 33.1-1.
	Photograph #: 33.5-1_1 Photo Date: 8/12/20 Feature Number: 33.5-1 Direction: Southwest Notes: View of swale for Feature 33.5-1.
	Photograph #: 33.5-1_2 Photo Date: 8/12/20 Feature Number: 33.5-1 Direction: Northeast Notes: View of concrete culvert for Feature 33.5-1.

Photograph	Information
	Photograph #: 33.6-1_1 Photo Date: 8/12/20 Feature Number: 33.6-1 Direction: Northeast Notes: View of earthen channel and concrete culvert for Feature 33.6-1.
	Photograph #: 33.6-1_2 Photo Date: 8/12/20 Feature Number: 33.6-1 Direction: Southwest Notes: View of earthen channel for Feature 33.6-1.
	Photograph #: 33.6-2_1 Photo Date: 8/12/20 Feature Number: 33.6-2 Direction: Southwest Notes: View of riparian vegetation and concrete headwall for Feature 33.6-2.

Photograph	Information
	Photograph #: 33.6-3_1 Photo Date: 8/27/20 Feature Number: 33.6-3 Direction: Southeast Notes: View of earthen channel and concrete headwall for Feature 33.6-3.
	Photograph #: 33.8-1_1 Photo Date: 8/12/20 Feature Number: 33.8-1 Direction: Southwest Notes: View of riparian vegetation for Feature 33.8-1.
	Photograph #: 33.8-2_1 Photo Date: 8/27/20 Feature Number: 33.8-2 Direction: Southeast Notes: View of earthen channel and concrete headwall for Feature 33.8-2.

Photograph	Information
	Photograph #: 33.8-2_2 Photo Date: 8/27/20 Feature Number: 33.8-2 Direction: Southeast Notes: View of riparian vegetation for Feature 33.8-2.
	Photograph #: 33.8-2_3 Photo Date: 8/27/20 Feature Number: 33.8-2 Direction: Southwest Notes: View of concrete channel for Feature 33.8-2.

Photograph	Information
	Photograph #: 33.8-2_4 Photo Date: 8/27/20 Feature Number: 33.8-2 Direction: Southwest Notes: View of incised channel for Feature 33.8-2.
	Photograph #: 33.8-3_1 Photo Date: 8/12/20 Feature Number: 33.8-3 Direction: Southeast Notes: View of concrete ditch and riparian vegetarian for Feature 33.8-3.
	Photograph #: 33.8-3_2 Photo Date: 8/12/20 Feature Number: 33.8-3 Direction: Southwest Notes: View of concrete ditch and riparian vegetarian for Feature 33.8-3.

Photograph	Information
	Photograph #: 33.8-3_3 Photo Date: 8/12/20 Feature Number: 33.8-3 Direction: Northeast Notes: View of concrete ditch conveying roadside flows for Feature 33.8-3.
	Photograph #: 33.9-1_1 Photo Date: 8/27/20 Feature Number: 33.9-1 Direction: Northeast Notes: View of concrete ditch and riparian vegetation for Feature 33.9-1.

Photograph	Information
	Photograph #: 34.0-1_1 Photo Date: 8/12/20 Feature Number: 34.0-1 Direction: Northwest Notes: View of concrete pad and swale for Feature 34.0-1.
	Photograph #: 34.0-1_2 Photo Date: 8/12/20 Feature Number: 34.0-1 Direction: Northwest Notes: View of concrete culvert for Feature 34.0-1.
	Photograph #: 34.0-2_1 Photo Date: 8/27/20 Feature Number: 34.0-2 Direction: Northeast Notes: View of riparian vegetation for Feature 34.0-2.

Photograph	Information
	Photograph #: 34.1-1_1 Photo Date: 8/12/20 Feature Number: 34.1-1 Direction: Southeast Notes: View of concrete v-ditch and riparian vegetation for Feature 34.1-1.

Photograph	Information
	Photograph #: 34.2-1_1 Photo Date: 8/12/20 Feature Number: 34.2-1 Direction: Southwest Notes: View of concrete v-ditch and riparian vegetation for Feature 34.1-1.
	Photograph #: 34.2-2_1 Photo Date: 8/12/20 Feature Number: 34.2-2 Direction: Northwest Notes: View of concrete v-ditch and riparian vegetation for Feature 34.1-1.

Photograph	Information
	Photograph #: 34.2-3_1 Photo Date: 8/12/20 Feature Number: 34.2-3 Direction: Southwest Notes: View of concrete channel for Feature 34.2-3.
	Photograph #: 34.2-3_2 Photo Date: 8/12/20 Feature Number: 34.2-3 Direction: Northeast Notes: View of rip-rap and concrete culvert for Feature 34.2-3.
	Photograph #: 34.3-1_3 Photo Date: 8/12/20 Feature Number: 34.3-1 Direction: Northwest Notes: View of concrete v-ditch for Feature 34.3-1.

Photograph	Information
	Photograph #: 34.7-1_1 Photo Date: 8/27/20 Feature Number: 34.7-1 (McBride Canyon) Direction: Southeast Notes: View of concrete channel with staining for Feature 34.7-1.
	Photograph #: 34.7-1_2 Photo Date: 8/27/20 Feature Number: 34.7-1 (McBride Canyon) Direction: Southwest Notes: View of concrete channel with staining for Feature 34.7-1.
	Photograph #: 35.5-1_1 Photo Date: 8/27/20 Feature Number: 35.5-1 Direction: Northeast Notes: View of riparian vegetation for Feature 35.5-1.

Photograph	Information
	Photograph #: 35.6-1_1 Photo Date: 8/12/20 Feature Number: 35.6-1 Direction: Southeast Notes: View of concrete v-ditch for Featurev35.6-1.
	Photograph #: 35.6-1_2 Photo Date: 8/12/20 Feature Number: 35.6-1 Direction: Northeast Notes: View of concrete culvert for Feature 35.6-1.
	Photograph #: 35.6-2_1 Photo Date: 8/25/20 Feature Number: 35.6-2 Direction: Northeast Notes: View of rocky hillside channel for Feature 35.6-2.

Photograph	Information
	Photograph #:35.6-2_2 Photo Date: 8/25/20 Feature Number: 35.6-2 Direction: Southwest Notes: View of concrete culvert for Feature 35.6-2.
	Photograph #: 35.6-3_1 Photo Date: 8/25/20 Feature Number: 35.6-3 Direction: Northeast Notes: View of concrete channel for Feature 35.6-3.
	Photograph #: 35.7-1_1 Photo Date: 8/25/20 Feature Number: 35.7-1 Direction: Southwest Notes: View of rip-rap channel and riparian vegetation for Feature 35.7-1.

Photograph	Information
	Photograph #: 35.7-1_2 Photo Date: 8/25/20 Feature Number: 35.7-1 Direction: Northwest Notes: View of riparian vegetation and open water for Feature 35.7-1.
	Photograph #: 35.7-2_1 Photo Date: 8/25/20 Feature Number: 35.7-2 Direction: Northwest Notes: View of concrete v-ditch for Feature 35.7-2.

Photograph	Information
	Photograph #: 35.7-3_1 Photo Date: 8/25/20 Feature Number: 35.7-3 Direction: Northeast Notes: View of concrete channel with staining and concrete culvert for Feature 35.7-3.
	Photograph #: 35.7-3_2 Photo Date: 8/25/20 Feature Number: 35.7-3 Direction: West Notes: View of concrete channel with staining and concrete culvert for Feature 35.7-3.

Photograph	Information
	Photograph #: 35.8-1_1 Photo Date: 8/25/20 Feature Number: 35.8-1 Direction: Northwest Notes: View of concrete v-ditch for Feature 35.8-1.
	Photograph #: 35.9-1_1 Photo Date: 8/25/20 Feature Number: 35.9-1 Direction: Northeast Notes: View of concrete channel for Feature 35.9-1.
	Photograph #: 36.1-1_1 Photo Date: 8/26/20 Feature Number: 36.1-1 Direction: Northeast Notes: View of concrete culvert for Feature 36.1-1.

Photograph	Information
	Photograph #: 36.1-1_2 Photo Date: 8/26/20 Feature Number: 36.1-1 Direction: East Notes: View of swale for Feature 36.1-1.
	Photograph #: 36.1-1_3 Photo Date: 8/26/20 Feature Number: 36.1-1 Direction: Northwest Notes: View of swale for Feature 36.1-1.
	Photograph #: 36.4-1_1 Photo Date: 8/12/20 Feature Number: 36.4-1 Direction: Northwest Notes: View of concrete swale for Feature 36.4-1.

Photograph	Information
	Photograph #: 36.5-1_1 Photo Date: 8/12/20 Feature Number: 36.5-1 (Bedford Wash) Direction: Southwest Notes: View of earthen channel and riparian vegetation for Feature 36.5-1.
	Photograph #: 36.5-1_2 Photo Date: 8/12/20 Feature Number: 36.5-1 (Bedford Wash) Direction: Southeast Notes: Concrete culvert and rip-rap for Feature 36.5-1.
	Photograph #: 36.5-1_3 Photo Date: 8/12/20 Feature Number: 36.5-1 (Bedford Wash) Direction: Northeast Notes: View of earthen channel and riparian vegetation for Feature 36.5-1.
	Photograph #: 36.5-1_4 Photo Date: 8/12/20 Feature Number: 36.5-1 (Bedford Wash) Direction: Southwest Notes: View of earthen channel for Feature 36.5-1.

Photograph	Information
	Photograph #: 36.5-1_5 Photo Date: 8/12/20 Feature Number: 36.5-1 (Bedford Wash) Direction: Southwest Notes: View of earthen channel and riparian vegetation for Feature 36.5-1.
	Photograph #:36.5-1_6 Photo Date: 8/12/20 Feature Number: 36.5-1 (Bedford Wash) Direction: Southwest Notes: View of earthen channel and riparian vegetation for Feature 36.5-1.
	Photograph #: 36.5-1_7 Photo Date: 8/12/20 Feature Number: 36.5-1 (Bedford Wash) Direction: Southwest Notes: View of earthen channel and riparian vegetation for Feature 36.5-1.

Photograph	Information
	Photograph #: 36.5-1_8 Photo Date: 8/12/20 Feature Number: 36.5-1 (Bedford Wash) Direction: Southwest Notes: View of earthen channel and riparian vegetation for Feature 36.5-1.
	Photograph #: 36.7-1_1 Photo Date: 8/25/20 Feature Number: 36.7-1 Direction: Southwest Notes: View of rip-rap channels and earthen basin for Feature 36.7-1.
	Photograph #: 36.8-1_1 Photo Date: 8/25/20 Feature Number: 36.8-1 Direction: East Notes: View of concrete v-ditch for Feature 36.8-1.

Photograph	Information
	Photograph #: 36.8-1_2 Photo Date: 8/25/20 Feature Number: 36.8-1 Direction: Southeast Notes: View of concrete v-ditch for Feature 36.8-1.
	Photograph #: 36.8-1_3 Photo Date: 8/25/20 Feature Number: 36.8-1 Direction: Southeast Notes: View of concrete v-ditch for Feature 36.8-1.

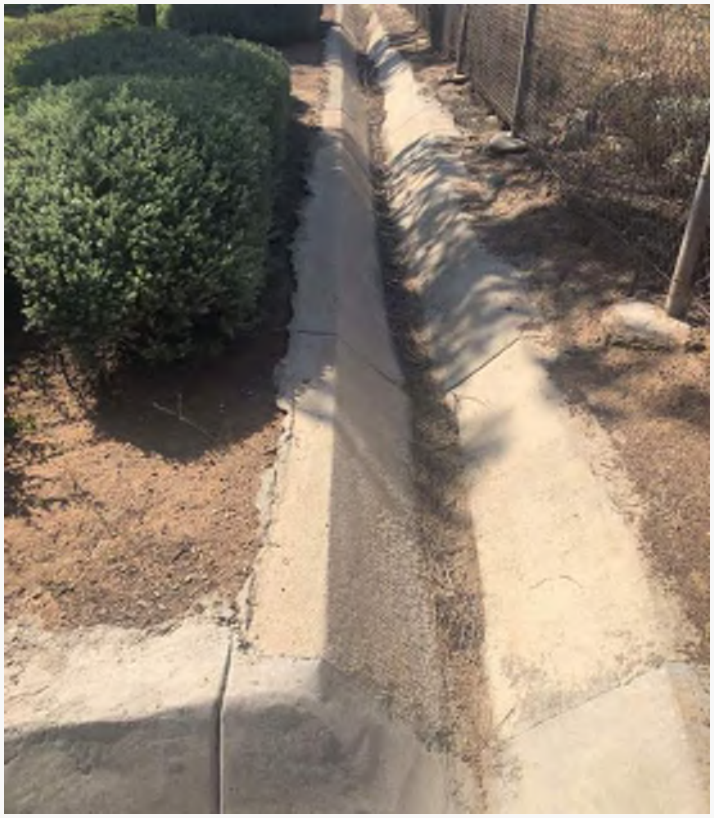
Photograph	Information
	Photograph #: 37.0-1_1 Photo Date: 8/26/20 Feature Number: 37.0-1 Direction: Northwest Notes: View of roadside rocky swale for Feature 37.0-1.
	Photograph #: 37.0-1_2 Photo Date: 8/26/20 Feature Number: 37.0-1 Direction: Northwest Notes: View of roadside rocky swale for Feature 37.0-1.
	Photograph #: 37.0-2_1 Photo Date: 8/25/20 Feature Number: 37.0-2 Direction: Southeast Notes: View of concrete v-ditch for Feature 37.0-2.

Photograph	Information
	Photograph #: 37.0-2_2 Photo Date: 8/25/20 Feature Number: 37.0-2 Direction: Northwest Notes: View of concrete v-ditch for Feature 37.0-2.
	Photograph #: 37.0-3_1 Photo Date: 8/25/20 Feature Number: 37.0-3 Direction: Southwest Notes: View of concrete v-ditch for Feature 37.0-3.

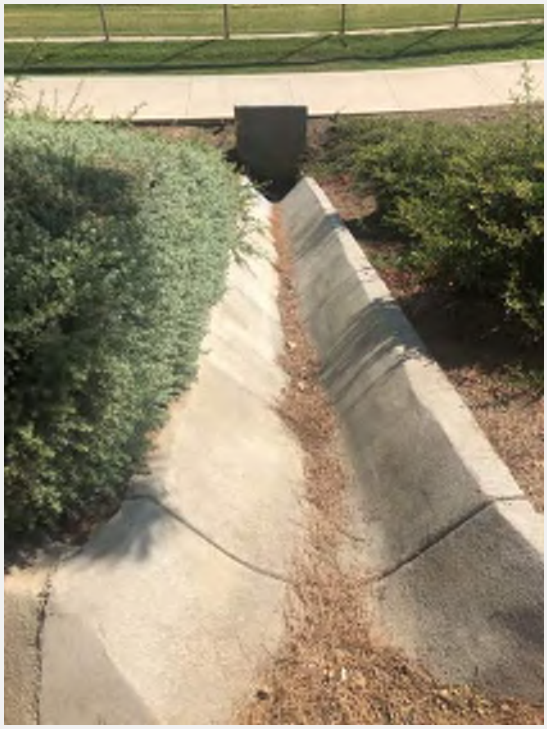
Photograph	Information
	Photograph #: 37.1-1_1 Photo Date: 8/25/20 Feature Number: 37.1-1 Direction: Southeast Notes: View of drop drains and basin for Feature 37.1-1.
	Photograph #: 37.1-2_1 Photo Date: 8/25/20 Feature Number: 37.1-2 Direction: Southeast Notes: View of roadside swale for Feature 37.1-2.
	Photograph #: 37.1-2_2 Photo Date: 8/25/20 Feature Number: 37.1-2 Direction: Southeast Notes: View of concrete brow ditch for Feature 37.1-2.

Photograph	Information
	Photograph #: 37.1-2_3 Photo Date: 8/25/20 Feature Number: 37.1-2 Direction: Northwest Notes: View of concrete brow ditch for Feature 37.1-2.
	Photograph #: 37.1-3_1 Photo Date: 8/25/20 Feature Number: 37.1-3 Direction: Northwest Notes: View of concrete v-ditch for Feature 37.1-3.
	Photograph #: 37.2-1_1 Photo Date: 8/25/20 Feature Number: 37.2-1 Direction: Southeast Notes: View of riparian vegetation for Feature 37.2-1.

Photograph	Information
	Photograph #: 37.2-1_2 Photo Date: 8/25/20 Feature Number: 37.2-1 Direction: Southwest Notes: View of culvert and riparian vegetation for Feature 37.2-1.
	Photograph #: 37.2-2_1 Photo Date: 8/27/20 Feature Number: 37.2-2 Direction: Northeast Notes: View of concrete channel with staining for Feature 37.2-2.

Photograph	Information
	Photograph #: 37.2-3_1 Photo Date: 8/27/20 Feature Number: 37.2-3 Direction: Southwest Notes: View of riparian vegetation for Feature 37.2-3.
	Photograph #: 37.9-1_1 Photo Date: 8/25/20 Feature Number: 37.9-1 Direction: Southeast Notes: View of concrete v-ditch for Feature 37.9-1.

Photograph	Information
	Photograph #: 37.9-2_1 Photo Date: 8/25/20 Feature Number: 37.9-2 Direction: Northwest Notes: View of concrete v-ditch for Feature 37.9-2.
	Photograph #:38.0-1_1 Photo Date: 8/25/20 Feature Number: 38.0-1 Direction: Southeast Notes: View of culvert for Feature 38.0-1.

Photograph	Information
	Photograph #: 38.0-2_1 Photo Date: 8/25/20 Feature Number: 38.0-2 Direction: Northeast Notes: View of concrete ditch for Feature 38.0-2.
	Photograph #: 38.0-3_1 Photo Date: 8/24/20 Feature Number: 38.0-3 Direction: Northeast Notes: View of concrete culvert for Feature 38.0-3.

Photograph	Information
	Photograph #: 38.0-3_2 Photo Date: 8/24/20 Feature Number: 38.0-3 Direction: Northeast Notes: View of rip-rap in channel for Feature 38.0-3.

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Appendix J Floral and Faunal Lists

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Appendix J. Wildlife Species Observed

Scientific Name	Common Name	Special Status
INVERTEBRATES		
Branchiopods		
Branchinecta lindahli	Versatile Fairy Shrimp	
**Procambarus clarkii*	Red Swamp Crayfish	
VERTEBRATES		
Fish		
Gambusia affinis	Western Mosquitofish	
Amphibians		
Anaxyrus boreas	Western Toad	
**Lithobates catesbeianus*	American Bullfrog	
Pseudacris hypochondriaca hypochondriaca	Northern Baja California Treefrog	
**Xenopus laevis*	African Clawed Frog	
Reptiles		
Aspidoscelis hyperythra	Orange-throated Whiptail	SSC
Aspidoscelis tigris stejnegeri	San Diegan Whiptail	
Sceloporus occidentalis	Western Fence Lizard	
Pituophis catenifer	Gophersnake	
Birds		
Anas platyrhynchos	Mallard	
Callipepla californica	California Quail	
Podilymbus podiceps	Pied-billed Grebe	
Ardea herodias	Great Blue Heron	
Ardea alba	Great Egret	
Butorides virescens	Green Heron	
Cathartes aura	Turkey Vulture	
Accipiter cooperii	Cooper's Hawk	
Buteo jamaicensis	Red-tailed Hawk	
Fulica americana	American Coot	
Charadrius vociferus	Killdeer	
**Columba livia*	Rock Pigeon	
**Streptopelia decaocto*	Eurasian Collared-Dove	
Zenaida macroura	Mourning Dove	
Geococcyx californianus	Greater Roadrunner	

Scientific Name	Common Name	Special Status
Tyto alba	Barn Owl	
Aeronautes saxatalis	White-throated Swift	
Calypte anna	Anna's Hummingbird	
Selasphorus sasin	Allen's Hummingbird	
Picoides nuttallii	Nuttall's Woodpecker	
Picoides pubescens	Downy Woodpecker	
Colaptes auratus	Northern Flicker	
Falco sparverius	American Kestrel	
Empidonax difficilis	Pacific-slope Flycatcher	
Sayornis nigricans	Black Phoebe	
Sayornis saya	Say's Phoebe	
Myiarchus cinerascens	Ash-throated Flycatcher	
Tyrannus vociferans	Cassin's Kingbird	
Tyrannus verticalis	Western Kingbird	
Vireo bellii pusillus	Least Bell's Vireo	FE, SE
Aphelocoma californica	California Scrub-Jay	
Corvus brachyrhynchos	American Crow	
Corvus corax	Common Raven	
Eremophila alpestris	Horned Lark	
Stelgidopteryx serripennis	Northern Rough-winged Swallow	
Petrochelidon pyrrhonota	Cliff Swallow	
Hirundo rustica	Barn Swallow	
Psaltriparus minimus	Bushtit	
Salpinctes obsoletus	Rock Wren	
Troglodytes aedon	House Wren	
Thryomanes bewickii	Bewick's Wren	
Polioptila caerulea	Blue-gray Gnatcatcher	
Polioptila californica californica	Coastal California Gnatcatcher	FT, SSC
Regulus calendula	Ruby-crowned Kinglet	
Chamaea fasciata	Wrentit	
Toxostoma redivivum	California Thrasher	
Mimus polyglottos	Northern Mockingbird	

Scientific Name	Common Name	Special Status
**Sturnus vulgaris*	European Starling	
Phainopepla nitens	Phainopepla	
Geothlypis trichas	Common Yellowthroat	
Icteria virens	Yellow-breasted Chat	SSC
Setophaga petechia	Yellow Warbler	SSC
Setophaga coronata	Yellow-rumped Warbler	
Pipilo maculatus	Spotted Towhee	
Melozone crissalis	California Towhee	
Passerculus sandwichensis	Savannah Sparrow	
Melospiza melodia	Song Sparrow	
Zonotrichia leucophrys	White-crowned Sparrow	
Pheucticus melanocephalus	Black-headed Grosbeak	
Passerina caerulea	Blue Grosbeak	
Passerina amoena	Lazuli Bunting	
Agelaius phoeniceus	Red-winged Blackbird	
Icterus cucullatus	Hooded Oriole	
Icterus bullockii	Bullock's Oriole	
Haemorhous mexicanus	House Finch	
Carduelis psaltria	Lesser Goldfinch	
**Passer domesticus*	House Sparrow	
Mammals		
Myotis californicus	California Myotis	
Myotis yumanensis	Yuma Myotis	
Lasionycteris noctivagans	Silver-haired Bat	
Parastrellus hesperus	Canyon Bat	
Eptesicus fuscus	Big Brown Bat	
Tadarida brasiliensis	Brazilian Free-tailed Bat	
Sylvilagus audubonii	Desert Cottontail	
Ostospermophilus beecheyi	California Ground Squirrel	
**Canis familiaris*	Domestic Dog	
Canis latrans	Coyote	
**Felis catus*	Domestic Cat	

Scientific Name	Common Name	Special Status

Legend

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened
SSC = California Species of Special Concern
CFP = California Fully Protected Species

Appendix J. Plant Species Observed

Scientific Name	Common Name	Special Status
GYMNOSPERMS		
Pinaceae - Pine family		
Pinus sp.	Pine	
MAGNOLIIDS		
Saururaceae - Lizard's-tail family		
Anemopsis californica	Yerba mansa	
EUDICOTS		
Adoxaceae - Muskroot family		
Sambucus nigra ssp. caerulea	Blue elderberry	
Aizoaceae - Fig-marigold family		
* *Mesembryanthemum nodiflorum*	Slender-leaved iceplant	
Amaranthaceae - Amaranth family		
* *Amaranthus albus*	Tumbleweed	
Anacardiaceae - Sumac Or Cashew family		
Malosma laurina	Laurel sumac	
Rhus ovata	Sugar bush	
* *Schinus molle*	Pepper tree	
* *Schinus terebinthifolius*	Brazilian pepper tree	
Toxicodendron diversilobum	Western poison oak	
Apiaceae - Carrot family		
Daucus pusillus	Rattlesnake weed	
Apocynaceae - Dogbane family		
Funastrum cynanchoides var. hartwegii	Hartweg's climbing milkweed	
* *Nerium oleander*	Common oleander	
Asteraceae - Sunflower family		
Acourtia microcephala	Sacapellote	
Ambrosia acanthicarpa	Annual bur-sage	
Ambrosia confertiflora	Weakleaf bur ragweed	
Ambrosia psilostachya	Western ragweed	
Artemisia californica	California sagebrush	
Artemisia douglasiana	California mugwort	
Artemisia dracunculus	Tarragon sagebrush	
Baccharis pilularis ssp. pilularis	Coyote brush	
Baccharis salicifolia ssp. salicifolia	Mule fat	

Scientific Name	Common Name	Special Status
Baccharis salicina	Emory's baccharis	
Bebbia juncea var. aspera	Sweetbush	
Brickellia desertorum	Desert brickellbush	
* *Centaurea melitensis*	Tocalote	
* *Centaurea solstitialis*	Yellow starthistle	
Cirsium occidentale var. occidentale	Cobwebby thistle	
Corethrogyne filaginifolia	Common sand aster	
* *Cotula coronopifolia*	Brass-buttons	
Deinandra fasciculata	Clustered tarweed	
Deinandra kelloggii	Kellogg's tarweed	
Encelia californica	California brittlebush	
Encelia farinosa	Brittlebush	
* *Erigeron bonariensis*	Flax-leaved horseweed	
Erigeron canadensis	Horseweed	
Erigeron foliosus	Leafy daisy	
Eriophyllum confertiflorum	Golden woolly sunflower	
Gutierrezia californica	California matchweed	
Helianthus annuus	Annual sunflower	
Helianthus gracilentus	Slender sunflower	
Heterotheca grandiflora	Telegraph weed	
Isocoma menziesii	Coastal goldenbush	
Iva axillaris	Poverty weed	
* *Lactuca serriola*	Prickly lettuce	
Laennecia coulteri	Coulter's horseweed	
Lasthenia gracilis	Common goldfields	
Lepidospartum squamatum	California broomsage	
* *Logfia gallica*	French cottonrose	
Malacothrix saxatilis	Cliff desert dandelion	
Microseris douglasii ssp. douglasii	Douglas' silverpuffs	
* *Oncosiphon pilulifer*	Stinknet	
Pluchea sericea	Arrow-weed	
Pseudognaphalium biolettii	Bi-color everlasting	
Pseudognaphalium californicum	California everlasting	
Pseudognaphalium canescens	Hairy everlasting	

Scientific Name	Common Name	Special Status
Pseudognaphalium microcephalum	White head everlasting	
* *Pulicaria paludosa*	Spanish false fleabane	
Senecio flaccidus	Threadleaf ragwort	
* *Sonchus asper ssp. asper*	Prickly sow thistle	
Stephanomeria exigua	Small wire-lettuce	
Stephanomeria virgata	Rod wire-lettuce	
Tetradymia comosa	Hairy horsebrush	
Xanthium strumarium	Cocklebur	
Boraginaceae - Borage family		
Amsinckia intermedia	Common fiddleneck	
Amsinckia menziesii	Menzies's fiddleneck	
Cryptantha intermedia	Clearwater cryptantha	
Emmenanthe penduliflora	Whispering bells	
Eriodictyon crassifolium var. crassifolium	Thickleaf yerba santa	
Heliotropium curassavicum var. oculatum	Alkali heliotrope	
Phacelia cicutaria	Caterpillar phacelia	
Phacelia distans	Wild heliotrope phacelia	
Phacelia minor	Wild canterbury bells	
Brassicaceae - Mustard family		
* *Brassica nigra*	Black mustard	
* *Hirschfeldia incana*	Shortpod mustard	
Lepidium virginicum ssp. virginicum	Virginia pepper-grass	
* *Raphanus sativus*	Radish	
* *Sisymbrium irio*	London rocket	
* *Sisymbrium orientale*	Indian hedgemustard	
Cactaceae - Cactus family		
Cylindropuntia californica var. parkeri	Cane cholla	
Opuntia oricola	Chaparral prickly pear	
Caprifoliaceae - Honeysuckle family		
Lonicera subspicata var. denudata	Johnston's honeysuckle	
Caryophyllaceae - Pink family		
* *Silene gallica*	Windmill catchfly	
* *Spergularia rubra*	Red sand-spurrey	
* *Stellaria media*	Common chickweed	

Scientific Name	Common Name	Special Status
Chenopodiaceae - Goosefoot family		
Atriplex lentiformis	Big saltbush	
* *Chenopodium album*	Lamb's quarters	
* *Chenopodium murale*	Nettleleaf goosefoot	
* *Dysphania pumilio*	Clammy goosefoot	
* *Salsola tragus*	Prickly russian thistle	
Convolvulaceae - Morning-glory family		
Calystegia macrostegia	Coast morning-glory	
* *Convolvulus arvensis*	Bindweed, orchard morning-glory	
Crassulaceae - Stonecrop family		
Dudleya edulis	Ladies fingers	
Dudleya lanceolata	Lance-leaved dudleya	
Dudleya pulverulenta	Chalk dudleya	
Cucurbitaceae - Gourd family		
Marah macrocarpa	Large fruit wild cucumber	
Euphorbiaceae - Spurge family		
Croton californicus	California croton	
Croton setigerus	Doveweed	
* *Euphorbia maculata*	Spotted spurge	
Euphorbia polycarpa	Many seed spurge	
* *Ricinus communis*	Castorbean	
Stillingia linearifolia	Thin leaf toothleaf	
Fabaceae - Legume family		
* *Acacia sp.*	Acacia	
Acmispon americanus var. americanus	Spanish-Clover	
Acmispon glaber	Deerweed	
Acmispon strigosus	Strigose lotus	
Lupinus bicolor	Miniature lupine	
Lupinus excubitus var. hallii	Hall's grape soda lupine	
* *Medicago polymorpha*	California burclover	
* *Medicago sativa*	Alfalfa	
* *Melilotus albus*	White sweetclover	
* *Melilotus indicus*	Sourclover	
* *Melilotus sp.*	Sweetclover	
* *Robinia pseudoacacia*	Black locust	

Scientific Name	Common Name	Special Status
Fagaceae - Oak family		
Quercus agrifolia	Coast live oak	
Quercus berberidifolia	Scrub oak	
Frankeniaceae - Frankenia family		
Frankenia salina	Alkali heath	
Geraniaceae - Geranium family		
* *Erodium botrys*	Longbeak stork's bill	
* *Erodium cicutarium*	Redstem filaree	
* *Erodium moschatum*	Greenstem filaree	
Lamiaceae - Mint family		
Salvia apiana	White sage	
Salvia columbariae	Chia	
Salvia mellifera	Black sage	
Stachys ajugoides	Bugle hedgenettle	
Trichostema lanceolatum	Vinegar weed	
Lythraceae - Loosestrife family		
* *Lythrum hyssopifolia*	Grass Poly	
Malvaceae - Mallow family		
* *Malva parviflora*	Cheeseweed	
Malvella leprosa	Alkali mallow	
Montiaceae - Purslane family		
Calyptridium monandrum	Common pussypaws	
Moraceae - Mulberry family		
* *Ficus carica*	Edible fig	
Myrsinaceae - Myrsine family		
* *Anagallis arvensis*	Scarlet pimpernel	
Myrtaceae - Myrtle family		
* *Eucalyptus camaldulensis*	Red gum	
* *Eucalyptus globulus*	Blue gum	
* *Eucalyptus* sp.	Gum	
* *Melaleuca citrina*	Crimson bottlebrush	
Nyctaginaceae - Four O'clock family		
Abronia villosa var. aurita	Chaparral sand-verbena	CRPR 1B.1
Mirabilis laevis	Wishbone plant	
Oleaceae - Olive family		
Fraxinus velutina	Velvet ash	

Scientific Name	Common Name	Special Status
* *Olea europaea*	Olive	
Onagraceae - Evening Primrose family		
Camissoniopsis bistorta	California sun cup	
Clarkia epilobioides	Canyon clarkia	
Clarkia purpurea	Purple clarkia	
Oxalidaceae - Oxalis family		
* *Oxalis pes-caprae*	Bermuda buttercup	
Papaveraceae - Poppy family		
Ehrendorferia chrysantha	Golden eardrops	
Romneya coulteri	Coulter's matilija poppy	CRPR 4.2
Phrymaceae - Lopseed family		
Mimulus aurantiacus	Bush monkeyflower	
Mimulus cardinalis	Scarlet monkeyflower	
Mimulus guttatus	Seep monkeyflower	
Mimulus pilosus	Downy Monkey Flower	
Mimulus sp.	Monkeyflower	
Plantaginaceae - Plantain family		
Keckiella antirrhinoides	Snapdragon bush penstemon	
* *Plantago coronopus*	Buckhorn plantain	
Plantago erecta	Dot seed plantain	
Platanaceae - Plane Tree, Sycamore family		
Platanus racemosa	Western sycamore	
Polemoniaceae - Phlox family		
Eriastrum densifolium ssp. elongatum	Chaparral woollystar	
Gilia angelensis	Chaparral gilia	
Gilia capitata	Ball gilia	
Polygonaceae - Buckwheat family		
Chorizanthe polygonoides var. longispina	Long-spined spineflower	CRPR 1B.2
Eriogonum davidsonii	Davidson's buckwheat	
Eriogonum elongatum var. elongatum	Longstem buckwheat	
Eriogonum fasciculatum	California buckwheat	
* *Rumex crispus*	Curly dock	
Rhamnaceae - Buckthorn family		
Ceanothus crassifolius	Hoaryleaf ceanothus	
Frangula californica	California coffeeberry	

Scientific Name	Common Name	Special Status
Rhamnus crocea	Spiny redberry	
Rosaceae - Rose family		
Adenostoma fasciculatum	Chamise	
Heteromeles arbutifolia	Toyon	
Prunus ilicifolia	Holly-leafed cherry	
Rubus ursinus	California blackberry	
Salicaceae - Willow family		
Populus fremontii ssp. fremontii	Fremont cottonwood	
Salix exigua	Sand bar willow	
Salix gooddingii	Goodding's black willow	
Salix laevigata	Red willow	
Salix lasiolepis	Arroyo willow	
Sarcobataceae - Greasewood family		
Sarcobatus vermiculatus	Greasewood	
Scrophulariaceae - Figwort family		
* *Myoporum laetum*	Ngaio tree	
Simaroubaceae - Quassia Or Simarouba family		
* *Ailanthus altissima*	Tree of heaven	
Solanaceae - Nightshade family		
Datura wrightii	Wright's jimsonweed	
* *Nicotiana glauca*	Tree tobacco	
Solanum douglasii	Douglas' nightshade	
Tamaricaceae - Tamarisk family		
* *Tamarix parviflora*	Smallflower tamarix	
* *Tamarix ramosissima*	Saltcedar	
Urticaceae - Nettle family		
Urtica dioica	Stinging nettle	
* *Urtica urens*	Dwarf nettle	
Verbenaceae - Vervain family		
Verbena lasiostachys	Western vervain	
Vitaceae - Grape family		
Vitis girdiana	Desert wild grape	
Vitis sp.	Grape	
MONOCOTS		
Arecaceae - Palm family		
* *Washingtonia robusta*	Mexican fan palm	

Scientific Name	Common Name	Special Status
Cyperaceae - Sedge family		
* *Cyperus involucratus*	Umbrella flatsedge	
Schoenoplectus acutus var. occidentalis	Western bulrush	
Poaceae - Grass family		
* *Arundo donax*	Giant reed	
* *Avena barbata*	Slender wild oat	
* *Avena fatua*	Wild oat	
* *Bromus diandrus*	Ripgut grass	
* *Bromus hordeaceus*	Soft chess	
* *Bromus madritensis*	Foxtail chess	
* *Bromus madritensis ssp. rubens*	Red brome	
* *Cynodon dactylon*	Bermuda grass	
Distichlis spicata	Salt grass	
Elymus condensatus	Giant wild-rye	
* *Festuca myuros*	Rattail fescue	
* *Festuca perennis*	Rye grass	
* *Hordeum murinum*	Wall barley	
* *Lamarckia aurea*	Goldentop grass	
Melica imperfecta	Coast range onion grass	
* *Schismus barbatus*	Mediterranean schismus	
Stipa cernua	Nodding needle grass	
Stipa lepida	Foothill needle grass	
Stipa pulchra	Purple needle grass	
Themidaceae - Brodiaea family		
Dichelostemma capitatum	Blue dicks	
Typhaceae - Cattail family		
Typha latifolia	Broad-leaved cattail	
Typha sp.	Cattail	

Scientific Name	Common Name	Special Status

Legend

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened

CRPR – California Rare Plant Rank
1A. Presumed extinct in California and elsewhere
1B. Rare or Endangered in California and elsewhere
2A. Presumed extinct in California, more common elsewhere
2B. Rare or Endangered in California, more common elsewhere
3. Plants for which we need more information - Review list
4. Plants of limited distribution - Watch list

Threat Ranks
.1 - Seriously endangered in California
.2 – Fairly endangered in California
.3 – Not very endangered in California

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Appendix K Jurisdictional Delineation Impacts

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Table K-1. Proposed Impacts on Non-wetland and Wetland USACE/RWQCB Waters of the United States (WoUS) and RWQCB Waters of the State (WoS)

Feature ID	Hydrology[1]	Permanent Impact (acres)				Temporary Impact (acres)			
		USACE/RWQCB WoUS		RWQCB WoS		USACE/RWQCB WoUS		RWQCB WoS	
		Non-wetland	Wetland	Non-wetland	Wetland	Non-wetland	Wetland	Non-wetland	Wetland
21.5-1 (Wasson Canyon Wash)	Ephemeral	--	--	*	--	0.29	--	*	--
22.5-1	Ephemeral	--	--	--	--	0.06	--	*	--
22.6-1 (Arroyo Del Toro West Segment)	Ephemeral	--	--	--	--	0.10	--	*	--
25.3-2	Ephemeral	--	--	--	--	0.01	--	*	--
25.5-1	Ephemeral	--	--	--	--	0.08	--	*	--
26.7-1	Ephemeral	--	--	--	--	0.01	--	*	--
27.0-1	Constructed in Uplands	--	--	--	--	--	--	<0.01	--
27.2-1	Constructed in Uplands	--	--	--	--	--	--	<0.01	--
27.8-1	Constructed in Uplands	--	--	--	--	--	--	<0.01	--
28.1-1 (Temescal Wash)	Perennial	<0.01	--	*	--	0.99	--	*	--
28.1-1 (Temescal Wash)	Wetland	--	--	--	--	--	0.03	--	*
29.1-1	Ephemeral	--	--	--	--	0.14	--	*	--
30.0-1 (Indian Wash)	Ephemeral	--	--	--	--	0.21	--	*	--
30.4-2	Constructed in Uplands	--	--	--	--	--	--	<0.01	--
30.4-3	Constructed in Uplands	--	--	--	--	--	--	<0.01	--
30.9-1	Constructed in Uplands	--	--	<0.01	--	--	--	<0.01	--
31.2-1	Constructed in Uplands	--	--	<0.01	--	--	--	--	--
31.3-2	Constructed in Uplands	--	--	<0.01	--	--	--	<0.01	--
31.6-1	Ephemeral	--	--	--	--	<0.01	--	*	--
31.7-1	Constructed in Uplands	--	--	--	--	--	--	<0.01	--
31.8-1	Ephemeral	--	--	--	--	0.04	--	*	--
31.9-2 (Mayhew Wash)	Ephemeral	--	--	--	--	0.08	--	*	--
32.8-1	Constructed in Uplands	--	--	--	--	--	--	<0.01	--
32.9-1 (Coldwater Wash)	Ephemeral	--	--	--	--	0.32	--	*	--
33.0-1	Constructed in Uplands	--	--	--	--	--	--	0.02	--
33.3-2	Constructed in Uplands	--	--	--	--	--	--	0.01	--
33.8-2	Ephemeral	--	--	--	--	<0.01	--	*	--
33.8-3	Ephemeral	--	--	--	--	<0.01	--	*	--
33.8-3	Wetland	--	--	--	--	--	<0.01	--	*
33.9-1	Constructed in Uplands	--	--	--	--	--	--	<0.01	--
34.7-1 (McBride Canyon Creek)	Perennial	--	--	--	--	0.03	--	*	--
35.6-2	Ephemeral	--	--	--	--	<0.01	--	*	--
35.7-3	Ephemeral	--	--	--	--	<0.01	--	*	--
35.9-1	Constructed in Uplands	--	--	<0.01	--	--	--	--	--
36.1-1	Ephemeral	0.01	--	*	--	--	--	--	--
36.1-2	Constructed in Uplands	--	--	<0.01	--	--	--	--	--
36.4-1	Constructed in Uplands	--	--	--	--	--	--	0.08	--
36.5-1 (Bedford Wash)	Ephemeral	<0.01	--	*	--	0.14	--	*	--

Feature ID	Hydrology[1]	Permanent Impact (acres)				Temporary Impact (acres)			
		USACE/RWQCB WoUS		RWQCB WoS		USACE/RWQCB WoUS		RWQCB WoS	
		Non-wetland	Wetland	Non-wetland	Wetland	Non-wetland	Wetland	Non-wetland	Wetland
36.7-1	Constructed in Uplands	--	--	--	--	--	--	0.01	--
37.0-1	Constructed in Uplands	--	--	--	--	--	--	0.02	--
37.1-1	Constructed in Uplands	--	--	--	--	--	--	0.01	--
37.1-2	Constructed in Uplands	--	--	<0.01	--	--	--	<0.01	--
37.1-3	Constructed in Uplands	--	--	--	--	--	--	0.03	--
38.0-1	Constructed in Uplands	--	--	--	--	--	--	<0.01	--
Grand Total[2]		**0.01**	**--**	**0.01***	**--**	**2.53**	**0.03**	**0.19***	*****
Note: RWQCB WoS Grand Total (do not add as these numbers are accounted for under USACE/RWQCB WoUS)		**N/A**	**N/A**	**0.03**	**--**	**N/A**	**N/A**	**2.21**	**0.03**

-- not applicable

*To prevent double counting, these RWQCB features are accounted for under USACE/RWQCB WoUS.

[1]Features identified as “Constructed in Uplands” may not be considered RWQCB jurisdictional.

[2]Totals may not match due to rounding.

Table K-2. Proposed Impacts on CDFW Streambed and Associated Riparian Habitat

	Permanent Impact			Temporary Impact			Shading Impact	
Feature ID	**Riparian**	**Streambed**	**Constructed in Uplands[1]**	**Riparian**	**Streambed**	**Constructed in Uplands[1]**	**Riparian**	**Streambed**
21.5-1 (Wasson Canyon Wash)	--	--	--	--	0.56	--	--	--
22.5-1	--	--	--	--	0.06	--	--	--
22.6-1 (Arroyo Del Toro West Segment)	--	--	--	--	0.10	--	--	--
24.0-1	--	--	--	--	<0.01	--	--	--
24.7-1	--	--	--	--	<0.01	--	--	--
25.3-2	--	--	--	--	0.02	--	--	--
25.3-3	--	--	--	--	--	<0.01		
25.5-1	--	--	--	--	0.23	--	--	0.11
25.6-1	--	--	--	--	--	<0.01	--	--
26.2-1	--	--	--	0.14	--	--	--	--
26.7-1	--	--	--	--	0.01	--	--	--
27.0-1	--	--	--	--	--	0.01	--	--
27.2-1	--	--	--	--	--	<0.01	--	--
27.8-1	--	--	--	--	--	0.01	--	--
28.1-1 (Temescal Wash)	<0.01	--	--	1.66		--	0.46	--
29.1-1	--	--	--	--	0.43	--	--	0.18
30.0-1 (Indian Wash)	--	--	--	--	0.27	--	--	0.12
30.4-2	--	--	--	--	--	<0.01	--	--
30.4-3	--	--	--	--	--	0.01	--	--
30.9-1	--	--	<0.01	--	--	0.01	--	--
31.2-1	--	--	<0.01	--	--	--	--	--
31.2-2	--	--	--	--	--	<0.01	--	--
31.3-1	--	--	--	--	--	<0.01	--	--
31.3-2	--	--	<0.01	--	--	0.01	--	--

Feature ID	Permanent Impact			Temporary Impact			Shading Impact	
	Riparian	Streambed	Constructed in Uplands[1]	Riparian	Streambed	Constructed in Uplands[1]	Riparian	Streambed
31.4-2	--	--	--	--	<0.01	--	--	--
31.5-4	--	--	--	--	<0.01	--	--	--
31.6-1	--	--	--	--	<0.01	--	--	--
31.7-1	--	--	--	--	--	<0.01	--	--
31.8-1	--	--	--	<0.01	0.03	--	--	0.01
31.9-2 (Mayhew Wash)	--	--	--	--	0.48	--	--	0.14
32.8-1	--	--	--	--	--	<0.01	--	--
32.9-1 (Coldwater Wash)	--	<0.01	--	--	0.96	--	--	0.30
33.0-1	--	--	--	--	--	0.03	--	--
33.3-2	--	--	--	--	--	0.01	--	--
33.8-1	--	--	--	<0.01	--	--	--	--
33.8-2	--	--	--	--	<0.01	--	--	--
33.8-3	--	--	--	--	0.01	--	--	--
33.9-1	--	--	--	--	--	<0.01	--	--
34.2-1	--	--	--	--	--	<0.01	--	--
34.4-1	--	--	--	--	--	<0.01	--	--
34.7-1 (McBride Canyon Creek)	--	--	--	--	0.07	--	--	0.03
35.6-2	--	--	--	--	0.04	--	--	--
35.7-2	--	--	--	--	--	<0.01	--	--
35.7-3	--	--	--	--	0.01	--	--	--
35.9-1	--	--	--	--	--	<0.01		
36.1-1	--	0.01	--	--	--	--	--	--
36.1-2	--	--	--	--	--	<0.01		
36.4-1	--	--	--	--	--	0.08	--	--

Feature ID	Permanent Impact			Temporary Impact			Shading Impact	
	Riparian	**Streambed**	**Constructed in Uplands[1]**	**Riparian**	**Streambed**	**Constructed in Uplands[1]**	**Riparian**	**Streambed**
36.5-1 (Bedford Wash)	--	0.06	--	--	0.52	--	--	0.12
36.7-1	--	--	--	--	--	0.63	--	--
37.0-1	--	--	--	--	--	0.04	--	--
37.1-1	--	--	--	--	--	0.02	--	--
37.1-2	--	--	0.01	--	--	0.01	--	--
37.1-3	--	--	--	--	--	0.05	--	--
38.0-1	--	--	--	--	--	<0.01	--	--
Grand Total	**<0.01**	**0.07**	**0.02**	**1.80**	**3.82**	**0.91**	**0.46**	**1.00**

-- not applicable

[1]Features identified as "Constructed in Uplands" may not be considered CDFW jurisdictional.

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Appendix L Mitigation Measures

Minimization and avoidance, as well as compensatory measures, are presented throughout this report. Unless otherwise noted, the measures described are avoidance and/or minimization measures. The following is a full presentation of the text of these measures.

BIO-1. Vegetation Clearing Restrictions. Clearing of natural vegetation (including sage scrub) will be performed outside of the active breeding season for birds, as defined in the MSHCP (March 1 through June 30) (MSHCP Volume I, Section 7.5.3), except for Riversidian sage scrub (including disturbed) judged to be potentially suitable habitat for (and/or occupied by) coastal California gnatcatcher and located within MSHCP criteria areas. For these areas, the habitat removal restriction is extended from June 30 to August 15. In addition, for riparian/riverine vegetation occupied by LBV, vegetation removal cannot occur through September 15. Table L-1 summarizes the locations of (1) natural vegetation communities within the limits of disturbance (LOD) that have the March 1 through June 30 restriction, (2) the sage scrub with the June 30 and the August 15 clearing restriction, and (3) the riparian/riverine vegetation with a clearing restriction through September 15 (refer to **Appendix A, Figure 7**, for an illustration of these vegetation communities).

Table L-1. Natural, Sage Scrub, and Riparian Vegetation Clearing Restrictions

Clearing Restriction	Figure/Sheet(s)	Natural Vegetation with Clearing Restriction
March 1–June 30	**Appendix A, Figure 7**, Sheets 1–22	Needle Grass–Melic Grass Grasslands, Clustered Tarweed Fields, Wild Tarragon Patches, Arrow Weed Thickets, Coast Live Oak Woodland and Forest, Goodding's Willow-Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Mulefat Thickets, Salt Grass Flats, Brittle Bush Scrub, Scale Broom Scrub, Bush Penstemon Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub, Deer Weed Scrub, Holly Leaf Cherry—Toyon—Greenbark Ceanothus Chaparral, Quailbush Scrub, Scrub Oak Chaparral, California Sycamore Woodland
March 1–August 15	**Appendix A, Figure 7**, Sheets 1–21	Brittlebush Scrub, California Buckwheat Scrub, California Sagebrush–Black Sage Scrub where it occurs within criteria cell areas, RCA Conserved Lands, and Public/Quasi-Public Conserved Lands.
April 1–September 15	**Appendix A, Figure 7**, Sheets 1, 3–16, and 20	Coast Live Oak Woodland and Forest (Riparian), Fremont Cottonwood Forest and Woodland, Goodding's Willow–Red Willow Riparian Woodland, Hardstem and California Bulrush Marshes, Mulefat Thickets, Tamarisk Thickets

Note: Compliance with the Special Terms and Condition 5 (b) of the Biological Opinion Permit TE-088609-0 requires that clearing of occupied gnatcatcher habitat within public/quasi-public lands and the Criteria Areas between March 1 and August 15 is prohibited.

If clearing of vegetation needs to occur during these time frames, a preconstruction nesting bird survey will need to be performed (refer to measure **BIO-28** for the nesting bird survey requirements).

BIO-2. **Dust Control**. Active construction areas will be watered regularly to control dust and thus minimize impacts on adjacent vegetation (MSHCP Volume I, Section 7.5.3).

BIO-3. Fire Suppression. When work is conducted during the fire season (as identified by the Riverside County Fire Department) adjacent to Riversidian sage scrub (**Appendix A, Figure 7**), appropriate fire-fighting equipment (e.g., extinguishers, shovels, water tankers) will be available on the project site during all phases of project construction to help minimize the chance of human-caused wildfires. Shields, protective mats, and/or other fire preventative methods will be used during grinding, welding, and other spark-inducing activities. Personnel trained in fire hazards, preventative actions, and responses to fires will advise contractors regarding fire risk from all construction-related activities (MSHCP Volume I, Section 7.5.3).

BIO-4. Biological Training. A qualified biologist will conduct a training session for Project and construction personnel (MSHCP Volume I, Section 7.5.3) prior to grading. The training will include a description of the species of concern and their habitats, the general provisions of the Endangered Species Acts (FESA and CESA) and the MSHCP, the need to adhere to the provisions of the acts and the MSHCP, the penalties associated with violating the provisions of the acts, the general measures that are being implemented to conserve the species of concern as they relate to the Project, and the access routes to and project site boundaries within which the Project activities must be accomplished (MSHCP Volume I, Appendix C). All sensitive areas will be fenced as presented in measure **BIO-6**, below.

BIO-5. Biological Monitoring. The qualified Project Biologist will monitor construction activities for the duration of the Project to ensure that practicable measures are being employed and avoid incidental disturbance of habitat and species of concern outside the LOD (MSHCP Volume I, Section 7.5.3). Special attention will be provided to ensure that the environmentally sensitive area (ESA) fencing required in measure **BIO-6** is maintained daily. Additionally, ongoing monitoring and reporting will occur for the duration of the construction activity to ensure implementation of best management practices (BMPs). This will be done in concert with measure **BIO-6**, below, which includes the fencing of sensitive areas.

BIO-6. Construction and Project Limits. Construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the proposed LOD and designated staging areas and routes of travel. The construction area(s) will be the minimal area necessary to complete the Project and will be specified in the construction plans. Construction limits adjacent to sensitive resource areas will be demarcated using ESA fencing (e.g., orange snow screen). ESA fencing will be installed where sensitive biological resources have been identified by a qualified biologist. ESA fencing will be reviewed at least weekly by the biological monitor (as indicated in measure **BIO-5**) until the completion of all construction activities. Employees will be instructed that their activities are restricted to the construction areas (MSHCP Volume I, Appendix C). Access to sites will be from pre-existing access routes to the greatest extent possible (MSHCP Volume I, Section 7.5.3, and MSHCP Volume I, Appendix C).

BIO-7. Exotic Species. Exotic plant species removed during construction will be properly handled to prevent sprouting or regrowth (MSHCP Volume I, Section 7.5.3). Exotic wildlife species that prey upon

or displace target species of concern should be permanently removed from the site to the extent feasible (MSHCP Volume I, Appendix C).

Development adjacent to the MSHCP conservation area will not use the plant species listed in Table 6-2 of the MSHCP Volume I. The applicability of this list will consider the proximity of the planting area to the MSHCP conservation areas, species considered in the planting plans, resources to be protected within the MSHCP conservation area and their relative sensitivity to invasion, and barriers to plant and seed dispersal, such as walls, topography, and other features.

BIO-8. Equipment Cleaning. Construction equipment will be cleaned of mud or other debris that may contain invasive plants and/or seeds and inspected to reduce the potential of spreading noxious weeds before mobilizing to the site and before leaving the site during the course of construction. The cleaning of equipment will occur off-site.

BIO-9. Minimizing Disturbance. The removal of native vegetation will be avoided and minimized to the maximum extent practicable. Temporary impacts will be returned to pre-existing contours and revegetated with appropriate native species (MSHCP Volume I, Appendix C). Vegetation will be covered while being carried on trucks, and vegetation materials removed from the site will be disposed of in accordance with applicable laws and regulations.

BIO-10. Revegetation. Post-construction, any temporarily disturbed areas remaining as bare ground will be hydro-seeded with a Caltrans-approved seed mix. This measure will comply with **BIO-7**, Exotic Species.

BIO-11. Access. The permittee (in this case, Caltrans and RCTC) will have the right to access and inspect any sites of approved projects for compliance with project approval conditions, including BMPs (MSHCP Volume I, Appendix C).

BIO-12. Water Pollution and Erosion Control Plans. Plans for water pollution and erosion control will be prepared. The plans will describe sediment and hazardous materials control, dewatering or diversion structures, fueling and equipment management practices, and use of plant material for erosion control. Plans will be reviewed and approved by the County of Riverside and Caltrans prior to construction (MSHCP Volume I, Sections 6.1.4 and 7.5.3). The following measures will be provided:

- Water pollution and erosion control plans will be developed and implemented in accordance with RWQCB requirements (MSHCP Volume I, Appendix C) and will ensure that no fluids or sediment from construction will enter into the ESA fenced areas.
- Measures, including measures required through the National Pollutant Discharge Elimination System (NPDES) requirements, will be required for work in proximity to MSHCP conservation areas to ensure that the quantity and quality of runoff discharged into the MSHCP conservation area are not altered in an adverse way when compared to existing conditions. In particular, stormwater systems will be designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials, or other elements that might degrade or harm biological resources or ecosystem processes within the MSHCP conservation area.

- New surface flows will be treated prior to reaching waterways.
- Sediment and erosion control measures will be implemented until such time soils are determined to be successfully stabilized (MSHCP Volume I, Section 7.5.3).
- No erodible materials will be deposited into watercourses or areas demarcated with ESA fencing. Brush, loose soils, or other debris material will not be stockpiled within stream channels or on adjacent banks (MSHCP Volume I, Section 7.5.3, and MSHCP Volume I, Appendix C).
- Projects that cannot be conducted without placing equipment or personnel in riparian vegetation areas should be timed to avoid the breeding season of riparian/associated species identified in MSHCP Global Species Objective No. 7 (MSHCP Volume I, Appendix C). The breeding season as defined by the MSHCP is March 1 through June 30.
- If streamflows must be diverted, the diversions will be conducted using sandbags or other methods requiring minimal instream impacts. Silt fencing or other sediment trapping materials will be installed at the downstream end of construction activity to minimize the transport of sediments off-site. Settling ponds where sediment is collected will be cleaned out in a manner that prevents the sediment from reentering the stream. Care will be exercised when removing silt fences, as feasible, to prevent debris or sediment from returning to the stream (MSHCP Volume I, Section 7.5.3, MSHCP Volume I, Appendix C). Short-term diversions will consider effects on wildlife (MSHCP Volume I, Section 7.5.3).
- Equipment storage, fueling, and staging areas will be located on non-sensitive upland sites with minimal risks of direct drainage into riparian areas or other sensitive habitats (MSHCP Volume I, Section 7.5.3, and MSHCP Volume I, Appendix C). These designated areas will be located in such a manner as to prevent any runoff from entering sensitive habitat. Necessary precautions will be taken to prevent the release of cement or other toxic substances into surface waters. Project-related spills of hazardous materials will be reported to appropriate entities, including, but not limited to, the applicable jurisdictional city, USFWS, CDFW, and the RWQCB, and will be cleaned up immediately and contaminated soils removed to approved disposal areas (MSHCP Volume I, Appendix C).
- All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other toxic substances will occur only in designated areas within the proposed grading limits of the project site. These designated areas will be clearly marked and located in such a manner as to contain runoff (MSHCP Volume I, Section 7.5.3). This will ensure that there will be no discharge into MSHCP Conservation Areas adjacent to the LOD (MSHCP Volume I, Section 6.1.4).

BIO-13. LODs and ESAs. The LODs, including the upstream, downstream, and lateral extents on either side of any stream adjacent to the Project's LOD, will be clearly defined and marked in the field. Biological monitors will review the LODs prior to initiation of construction activities (MSHCP Volume I, Section 7.5.3, and MSHCP Volume I, Appendix C). ESA fencing will be installed during construction to ensure avoidance of jurisdictional areas and riparian habitat.

BIO-14. MSHCP Covered Species Avoidance. During construction, the placement of equipment within a stream or on adjacent banks or adjacent upland habitats occupied by MSHCP covered species that are

outside of the Project's LOD will be avoided (MSHCP Volume I, Section 7.5.3, and MSHCP Volume I, Appendix C).

BIO-15. Determination of Biologically Equivalent or Superior Preservation (DBESP). A DBESP report that provides analysis of direct and indirect impacts, avoidance, minimization, and compensatory mitigation, along with the functions and values of the resources being affected as related to MSHCP covered species, will be prepared, and submitted to RCA, USFWS, and CDFW for review. After approval, the DBESP will be implemented.

BIO-16. Riparian/Riverine Compensation. Compensation of permanent impacts on riparian/riverine resources (including permanent shading) shall occur at a minimum 3:1 for riparian and 2:1 for ephemeral drainages. The compensation can be a combination of enhancement, restoration, and/or creation as long as there is no net loss of riparian/riverine resources. The remaining compensation can occur as enhancement and restoration or as approved by RCA and the agencies. Compensatory mitigation should be coordinated with CWA 401 and 404 permitting and CDFW 1602 Streambed Alteration Agreement acquisition to ensure efficiencies with the mitigation effort. The temporary impacts are to be replaced through restoration at their current locations at a 1.25:1 ratio. Details of this compensation will be provided in the DBESP (measure **BIO-15**). Because the federally and state endangered LBV occupies the riparian/riverine resources at Temescal Wash and associated tributaries proposed for impact, the compensation for both riparian/riverine and LBV should be integrated. Final mitigation ratios will be determined after consultation with USACE, RWQCB, USFWS, and CDFW.

BIO-17. Compensatory Mitigation. (Compensatory mitigation option) Purchase of mitigation bank credits will be through an agency-approved mitigation bank or in-lieu fee program and/or establishment of riparian/riverine, and/or creation of riparian/riverine resources, including federal and state jurisdictional water resources. The compensation required under this measure should incorporate the creation of occupied LBV habitat for time and monetary efficiencies (refer to measure **BIO-23** for more details on LBV compensatory mitigation).

BIO-18. Night Lighting Management. Night lighting will be directed away from natural lands within potential MSHCP conservation areas in order to support potential linkage and core functions during construction. This is intended to protect species within potential MSHCP conservation areas from direct night lighting during construction if activities occur at night. The MSHCP requires that shielding be incorporated in project designs to ensure ambient lighting in MSHCP conservation areas is not increased (MSHCP Volume I, Section 6.1.4). For this Project, there are no proposed modifications to existing signals or proposed new signals.

BIO-19. Oak Tree Management. Compliance with the Riverside County Oak Tree Management Guidelines will be required. An accurate depiction of all oak trees that are 2 inches diameter at breast heigh or larger within the Project will be identified by a biologist and mapped. Impacts on all oak trees will be identified and quantified. If impacts on oak trees and their protected zones cannot be avoided, then a design that least impacts oak trees will be prepared. If oak trees are to be lost, the loss of oak trees will require mitigation, and an oak tree mitigation plan will be required to be prepared. At a minimum, the plan will include mitigation methods and options, requirements for replacement trees, and location of mitigation site.

BIO-20. Wildlife Undercrossings. To maintain functionality of Temescal Wash at Temescal Canyon Road (feature 28.1-1); Mayhew Wash (feature 31.9-2); Indian Wash (feature 30.0-1); Arroyo del Toro Wash (feature 22.6-2); Wasson Canyon Wash (21.5-1); Bedford Wash (feature 36.5-1); Coldwater Wash (feature 32.9-1); McBride Canyon Creek (feature 34.7-1); feature 25.5-1; feature 37.2-2; feature 27.1-1; feature 27.4-1; feature 28.4-1; feature 29.1-1 at Corona Lake; feature 29.6-1; feature 32.1-1; and feature 33.8-2 will be maintained as wildlife undercrossings at all times during construction. This includes but may not be limited to the following:

- No fencing (temporary or permanent) will be installed that will impede the movement of wildlife within these wildlife crossing areas.
- Construction work within the crossings will be the minimum as required to complete construction.
- No storage of equipment or materials will occur within the wildlife crossing areas.
- The temporary obstruction of the crossing areas will not be allowed, unless absolutely necessary to complete construction.
- No temporary construction roads or other facilities will be established within the crossing areas.
- Construction night lighting will not occur within the identified wildlife crossing areas.

BIO-21. Temescal Wash – Nesting Season Noise Requirements. Between March 15 and September 15, all heavy equipment will install and maintain mufflers or other noise-reducing features when working within 300 feet of Temescal Wash. A biological monitor will monitor and log sound levels at the edge of the LOD with the riparian area to ensure noise levels do not result in a disruption to nesting birds (typically over 60 decibels). If construction noise is negatively affecting nesting birds, work will cease (unless authorized by the wildlife agencies) until adequate sound barriers can be constructed to reduce noise levels at the edge of the riparian corridor. It may be most effective to construct noise barriers well prior to March 15 to ensure construction delays do not occur. All noise barriers would need to be constructed within the LOD.

BIO-22. Temescal Wash – Biological Monitoring. A qualified monitor will be present during all construction phase work occurring in or within surface waters that are within 300 feet of Temescal Wash and its tributaries.

BIO-23. LBV Habitat Compensation. The permanent removal of occupied LBV habitat (termed use areas in this document) will be compensated at a minimum 3:1 ratio with compensation occurring as creation and/or restoration. For all LBV occupied habitat temporarily removed during construction, restoration would occur at their original location at a 1.25:1 ratio. Creation and restoration potential is present at the Temescal Wash. Compensation for LBV impacts should be coordinated with the MSHCP riparian/riverine resources mitigation (measures **BIO-16** and **BIO-17**) and water permitting for time and monetary efficiencies.

BIO-24. Waste Management. To avoid attracting predators of special-status species, the Project site will be kept as clean of debris as possible. All food-related trash items will be enclosed in sealed containers

and regularly removed from the site(s) (MSHCP Volume I, Appendix C). Waste, dirt, rubble, or trash will not be deposited in the Conservation Area or on native habitat (MSHCP Volume I, Section 7.5.3).

BIO-25. Burrowing Owl Management Plan. A Burrowing Owl Management Plan (Plan) will be prepared by a qualified biologist and will include:

a) Focused Survey for Burrowing Owl – Include within the Plan, the results of the MSHCP protocol survey conducted.

b) Preconstruction Survey for Burrowing Owl – Performed within 14 days prior to ground disturbance. The BSA shall be the LOD and a 500-foot BSA.

c) Protocol for Presence – Steps necessary for handling the presence of burrowing owl (if found during either of the two surveys), which may include full avoidance, if feasible, or passive relocation by a qualified ornithologist.

d) Agency Approval – The Plan will need approval by RCA, USFWS, and CDFW.

BIO-26. Bat Management Plan. A Bat Management Plan (Plan) will be prepared by a qualified biologist. Because bat exclusion activities require specific timing, it is recommended to begin bat pre-Project emergence surveys and planning in late spring/summer prior to construction. Both the hibernation season and the maternity season have restrictions, which introduce timing restrictions for bat exclusion activities, should these be required. These are briefly described below.

- The hibernation season begins in November (November 1 through November 30), where exclusion is dependent upon weather conditions and is at the bat biologist's discretion. If the low temperatures on the evening of exclusion and the subsequent four evenings are not forecasted to drop below 45°F, then the exclusion may occur. If the forecasted low temperatures are anticipated to be 45°F or less, then no exclusion will be performed.
- During the hibernation season (December 1 through February 14), no exclusions will be performed. During the maternity season (April 1 through August 31), no bat exclusions will be performed to avoid "take" of flightless young.
- From February 15 through March 31 and September 1 through October 31, bat exclusion generally has no timing constraints.

The Plan will include the following requirements:

a) A qualified bat biologist will conduct bat pre-Project emergence surveys at all bridges, culverts, or other significant features (within at least 150 feet of the Project) that show any potential for bat roosts if any disruptive construction work is expected to come within the suggested protective bat buffer distances for potential bat roosts at these sites. These buffer distances can be found in Table 7-1 of the 2019 *Caltrans Bat Mitigation* guide (H.T. Harvey 2019). Such locations include, **but are not limited to**, the potential bat roost structures identified in **Appendix A, Figure 11**. The field review will determine the level of survey needed to assess presence/absence of bats at each structure and will be performed in late spring/summer prior to construction.

b) A qualified bat biologist will evaluate all mature trees, palm trees and fronds, and snags to be removed for their potential to support roosting bats. If potential bat roost sites are identified in

trees to be removed, the removal will be conducted over a two-day period (two-step removal process). On day 1, the qualified biologist will identify branches and limbs without crevices or cavities to be removed using hand tools or chainsaws. On day 2, the remainder of the tree may be removed.

- From February 15 through March 31 and September 1 through October 31, tree removal follows the 2-day process with no other constraints.
- During the start of the hibernation season (November 1 through November 30), tree removal is dependent upon weather conditions and will be at the bat biologist's discretion. If the low temperatures on the evening of removal and the subsequent four evenings are not forecast to drop below 45°F, then the contractor may remove trees following the two-step removal process. If the forecasted low temperatures are anticipated to be 45°F or less, then no tree removal will be performed.
- During the hibernation season (December 1 through February 14), no tree removal will be performed.
- During the maternity season (April 1 through August 31), tree removal should be avoided to prevent "take" of flightless young. Tree removal can only be performed if a qualified bat biologist surveys all of the trees containing suitable bat roosting habitat to be removed and no roosting bats are found. These surveys will consist of acoustic detectors placed near each tree for 1 to 2 evenings (with data retrieved and analyzed), and emergence surveys will be conducted at trees where bat acoustic activity was recorded during the emergence period. If roosting bats are found, the tree cannot be removed until the end of the maternity season.

c) Night lighting associated with construction will be directed away from bridges, palm trees, and other significant features determined by the qualified bat biologist to have potential for bats. In addition, night lighting will be directed away from areas of natural vegetation adjacent to the western side of southbound I-15 in the vicinity of the Cajalco Road Bridge, the Bedford Wash Bridges, the Weirick Road undercrossing, and the palm grove between these bridges.

d) To minimize impacts on roosting bats, the Plan will require that no staging or storage of equipment or vehicles will occur under or on top of bridges with potential for bats. This will include, but is not limited to the Cajalco Road Bridge, Bedford Wash Bridges, and Weirick Road undercrossing.

e) Preconstruction bat emergence surveys will be completed 14 days prior to construction by a qualified bat biologist, in coordination with the Caltrans biologists, within the Project area at all bridges, culverts, or other significant features that show any potential for bat roosts if any disruptive construction work is expected to come within the recommended disturbance buffer zones for potential bat roosts per Table 7-1 of the 2019 *Caltrans Bat Mitigation* guide (H.T. Harvey 2019) at these sites. Such locations include, but are not limited to, the Weirick Road undercrossing, the Cajalco Road OC bridges, the three Bedford Wash bridges, and the palm grove near Bedford Wash. If bats are detected, the qualified bat biologist will coordinate with the Caltrans biologist to determine if additional avoidance and minimization measures are needed.

f) For bridges, culverts, or other significant features confirmed to be potentially suitable for bat roosting/nursery, exit counts and acoustic surveys will be performed to determine whether a

structure supports a nursery or roost and by which species. This survey work will occur in the late spring/summer in the year prior to construction and potentially again in the fall in the year prior to construction, depending on the results of the summer work. This would be determined by the bat biologist. Where the timing for these surveys is not possible for every potential bat roost, the implementation of BIO-26, section "e" will be performed in lieu of these surveys if conditions (e.g., temperature) permit the feasibility of surveys at these sites at least 14 days prior to construction.

g) For each location confirmed to be occupied by bats, the Plan will provide details both in text and graphically where exclusion devices will need to be placed, the timing for exclusion work, and the timeline and methodology needed to exclude the bats.

h) Monitoring activities and schedule will be included in the Plan, including frequency of monitoring, which structures would need to be monitored, and reporting requirements.

i) Details on placement of human-made roosting habitat panels, including design, placement location, and timing of placement will be included in the Plan. These panels must be placed at least 9 months prior to the exclusion of the bats.

j) The draft Plan will be reviewed and approved by CDFW.

BIO-27. Bat Roosting Habitat. All structures on bridges and/or culverts supporting bat roosting habitat will be returned to original or better condition at the completion of construction, where feasible. Where this is not feasible, permanent loss of such habitat will be mitigated through creation of suitable roosting habitat at no less than a 1:1 ratio. This shall be coordinated with CDFW. If trees with the potential to provide roost sites for solitary bats are removed as determined by the qualified bat biologist (i.e., fan palms, riparian trees), trees will be replaced with equivalent or better at the completion of construction.

BIO-28. Nesting Bird Management Plan. Due to the complexity of the Project at the Temescal Wash, as well as the presence of many bridges and mature trees along the Caltrans ROW, a Nesting Bird Management Plan (Plan) will be drafted to provide a comprehensive approach to handling nesting birds well prior to the commencement of construction. It will include, at a minimum, the following items:

a) A qualified biologist will perform a detailed field review and document the location of raptor and/or corvid nests along with sign of colonial nesting birds within the LOD and adjacent lands. The colonial nesting bird review should be performed in conjunction with measure **BIO-26**. This field review should occur in late spring/early summer to provide the best results.

b) Results of the field review will be used to draft approaches and survey methodologies for addressing potential nesting species. A single approach and methodology will not suffice for all species with potential to nest. This Plan should be coordinated with USFWS and CDFW with final approval being provided by both agencies. Below is a basic nesting bird survey method that can be incorporated into the document. At the very least, the Plan must provide assurance that birds protected under the MBTA and similar protections under the California Fish and Game Code will not be harmed.

Within 7 days prior to the commencement of construction activities (if between January 15 and September 1), a qualified biologist will perform a nesting bird and raptor survey that will consist of at least two site visits to each area with potential nesting habitat to determine whether there are active nests

within 200 feet of the LOD. This survey will also identify the species, and to the degree feasible, nesting stage (e.g., incubation of young, feeding of young, near fledging). Nests will be mapped (not by using GPS as close encroachment may cause nest abandonment). If active nests are found, construction will not occur within 200 feet of the nest, or as directed by a qualified biologist, until the nesting attempt has been completed and/or abandoned because of non-project related reasons.

BIO-29. Insect Measures. The planting of milkweed (for monarch) and nectar sources (for monarch and Crotch bumble bee) is not recommended within the LOD as this may attract these species to an area where the potential for collision with vehicles is high. To protect monarch, Crotch bumble bee, and other pollinators, the following measures are to be implemented:

- Avoid the planting of milkweed (for monarch) and nectar sources (for Crotch bumble bee).
- Avoid the use of pesticides (i.e. insecticides and herbicides) wherever possible. If pesticides are to be used, conduct applications between March 16 and September 14, when possible.
- Screen pesticides for pollinator risk to avoid harmful applications. Bee precaution pesticide ratings can be found here: **https://www2.ipm.ucanr.edu/beeprecaution/**.
- Avoid the use of neonicotinoids or other systematic insecticides, including coated seeds, at any time of year, due to their toxic nature.
- Avoid the use of soil fumigants.
- Use non-chemical weed control techniques when possible (**https://www.cal-ipc.org/resources/library/publications/non-chem/**) (Cal-IPC 2020).
- If possible, avoid the use of herbicide on blooming flowers. Herbicide use should be conducted on young plant phases, when plants are more responsive to treatment, and when pollinators are less likely to be nectaring on plants.
- Use a targeted herbicide approach whenever possible, not large-scale broadcast application. Also, use precautions to limit herbicide drift from wind and discharge from surface water flows.
- Do **not** plant nonnative tropical milkweed *Asclepias curassavica*. This plant species contributes to the spread of the monarch pathogen *Ophryocystis elektroscirrha* (OE), which can be debilitating and/or lethal to monarchs. Remove any detected *Asclepias curassavica.*

Appendix M Protocol Wet-Season and Dry-Season Branchiopod Surveys

- Survey Report for the 2019/2020 Protocol Wet-Season Branchiopod Surveys for the I-15 Express Lanes Project – Southern Extension, Riverside County, California

- Survey Report for the 2020 Protocol Dry-Season Branchiopod Surveys for the I-15 Express Lanes Project – Southern Extension, Riverside County, California

- Survey Report for the 2020/2021 Protocol Wet/Dry-Season Branchiopod Surveys for the I-15 Express Lanes Project – Southern Extension, Riverside County, California

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October 14, 2020

Ms. Stacey Love
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

RE: Survey Report for the 2019/2020 Protocol Wet-Season Branchiopod Surveys for the I-15 Express Lanes Project – Southern Extension, Riverside County, California

Dear Stacey:

This letter provides the results of the 2019/2020 protocol wet-season surveys for federally listed vernal pool branchiopods (fairy shrimp) as part of the I-15 Express Lane Project – Southern Extension (ELPSE) in Riverside County, California.

PROJECT DESCRIPTION AND LOCATION

The Riverside County Transportation Commission (RCTC), in cooperation with the California Department of Transportation (Caltrans), is proposing to construct toll lanes along Interstate 15 (I-15) between post mile (PM) 20.3 and PM 40.1 in Riverside County, California (**Figure 1**). Specifically, the proposed project would occur within the South Corona, Lake Matthews, Alberhill, and Lake Elsinore U.S. Geological Survey topographic quadrangles (**Figure 2**). **Attachment 1** provides a list of all the USGS Townships, Ranges and Sections associated with the proposed project location within each of the quadrangles.

The primary component of the I-15 ELPSE Project is the addition of two express toll lanes in both the northbound and southbound direction within the median of I-15 from State Route (SR) 74 (Central Avenue) in the city of Lake Elsinore (PM 20.3) to the unincorporated Riverside County community of Temescal Valley and then to El Cerrito Road in the city of Corona (PM 38.1), a distance of approximately 15.8 miles. The proposed project would also add southbound auxiliary lanes between the Main Street on-ramp (PM 21.2) and SR-74 (Central Avenue) off-ramp (approximately 0.75 mile) as well as between the SR-74 (Central Avenue) on-ramp and Nichols Road off-ramp (PM 23.9) (approximately 1 mile). In addition to the lane additions, which would extend from PM 21.2 to 38.1, the proposed project would widen up to 15 bridges; construct noise barriers, retaining walls, and drainage systems; and install electronic toll collection equipment and signs. Associated improvements for the toll lanes, including advance signage and transition striping, would extend approximately 2 miles from each end of the limits of the express lanes to PM 20.3 on the south and PM 40.1 on the north. The proposed lane additions and supporting infrastructure would be constructed primarily within the existing state right of way.

The survey area included the project area (i.e., Caltrans Right-of-Way) and a 100-foot buffer around the project limits, where access was granted. The majority of the survey area is heavily disturbed as a result of vehicular traffic, roadway maintenance, foot traffic, and development. Several areas are also under construction for unrelated projects. All features included in the surveys (e.g., ruts along the shoulders of the roads, man-made impoundments associated with drainages and urban runoff) were heavily disturbed. Many of the features were unvegetated or they supported only non-native vegetation. Native vegetation was sparse at only a few of the features. All of the surveyed features appeared to be filled by direct rainfall or surrounding surface flows. Based on the filling and drying cycles observed at a few of the features outside of rain events, it was assumed that these features filled as a result of fluctuating water table levels, unknown discharges from upstream areas or due to their location within a stream course.

SURVEY METHODS

The focused 2019/2020 wet-season fairy shrimp surveys were conducted in accordance with the current U.S. Fish and Wildlife Service (USFWS) survey guidelines[1]. Potential fairy shrimp habitat was mapped by ICF biologists on December 12, 13, 14, and 17, 2020, following 3.33 inches of accumulated rain that had fallen since September 1, 2019. By the end of the rainy season, 95 features that support potentially suitable fairy shrimp habitat were identified.

During each sampling round, all features that were inundated during the habitat assessment and/or previous sampling were visited to determine they were still retaining water. If a rain event occurred between sampling rounds, all known and potential features that may have been inundated by the rain event were visited, and the survey area was reassessed for new features.

During each sampling round, the biologists recorded information, including air temperature, water temperature, average depth, approximate size, habitat condition (e.g., disturbances), voucher information, and other relevant data, about each inundated feature. Each inundated feature was sampled by sweeping a hand-held net through the water, examining the net contents, and recording all aquatic species. Fairy shrimp were identified in the field with a hand lens or a microscope for immature specimens. The reproductive status and approximate number of fairy shrimp in each feature were noted. Sampling was completed once a feature desiccated and did not reinundate during the 2019/2020 season or once the feature sustained 120 days of continuous inundation. Mature male and female fairy shrimp voucher specimens were collected from a representative number of features sampled during the 2019/2020 wet-season surveys.

It should be noted that a complete sampling could not be done for some features because of access limitations within private parcels outside of the Right-of-Way or restrictions associated with active construction from unrelated projects. Many of the features in the 100-foot buffer are on private property, which requires written approval from each property owner before the area can be surveyed. In these instances, when possible, a visual assessment from the property boundary was

[1] U.S. Fish and Wildlife Service. 2017. *Survey Guidelines for the Listed Large Branchiopods*. November 13.

done, noting whether ponding was present. If access was granted, each featured was sampled until it dried up and did not reinundate or reached 120 days of continuous inundation after the date access was granted.

RESULTS

The 2019/2020 wet-season survey consisted of 53 sampling visits, which were conducted by USFWS-permitted biologists Frank Wegscheider (TE 038716-4) and Crysta Dickson (TE 067347-5). Biologist Kristen Klinefelter assisted on some of the surveys. A 15-day notice was sent to USFWS on December 11, 2019. Surveys were initiated on December 31, 2019 and continued through July 18, 2020. **Table 1** provides a summary of the 2019/2020 wet-season survey effort.

Table 1. Survey Dates, Times, Personnel, and Conditions for the 2019/2020 Wet-Season Fairy Shrimp Surveys

Visit	Date	Time	Personnel	Weather Conditions
1	12/31/19	0715–1250	FW/CD	59°F–70°F, winds 0–30 mph, 80%–100% cloud cover, good visibility
2	1/02/20	0710–1515	FW/KK	45°F–64F, winds 3–13 mph, 10%–60% cloud cover, good visibility
3	1/03/20	0730–1250	FW/KK	50°F–71°F, winds 0–6 mph, 80% cloud cover, good visibility
4	1/07/20	0730–1530	FW/KK	47°F–76°F, winds 0–3 mph, 10%–70% cloud cover, good visibility
5	1/14/20	0850–1625	FW/KK	48°F–61°F, winds 1–5 mph, 100% cloud cover, poor–good visibility
6	1/17/20	0930–1635	FW/KK	51°F–63°F, winds 0–6 mph, 100% cloud cover, light rain
7	1/21/20	0930–1320	FW/KK	54°F–60°F, winds 1–6 mph, 50% cloud cover, good visibility
8	1/24/20	0930–1510	FW	52°F–75°F, winds 0–7 mph, 0% cloud cover, good visibility
9	1/28/20	0930–1540	FW	54°F–74°F, winds 5–12 mph, 30% cloud cover, good visibility
10	1/31/20	0920–1530	FW	49°F–78°F, winds 0–6 mph, 20% cloud cover, good visibility
11	2/04/20	0955–1600	FW	45°F–56°F, winds 20–30 mph, 0% cloud cover, good visibility
12	2/07/20	1130–1330	FW	42°F–68°F, winds 0–6 mph, 0% cloud cover, good visibility
13	2/11/20	1000–1605	FW	60°F–70°F, winds 6–25 mph, 0% cloud cover, good visibility
14	2/14/20	1030–1640	FW	50°F–69°F, winds 0–9 mph, 0% cloud cover, good visibility
15	2/18/20	1130–1320	FW	56°F–75°F, winds 0–12 mph, 60% cloud cover, good visibility
16	2/25/20	1030–1240	FW	71°F–80°F, winds 7–25 mph, 0% cloud cover, good visibility
17	2/29/20	1000–1444	FW	63°F–72°F, winds 0–10 mph, 20% cloud cover, good visibility
18	03/04/20	0900–1045	CD	59°F–61°F, winds 0–1 mph, 10% cloud cover, good visibility
19	3/07/20	0915–1115	FW	54°F–64°F, winds 5–14 mph, 90% cloud cover, good visibility
20	3/11/20	0740–1450	FW/KK	57°F–72°F, winds 0–15 mph, 90% cloud cover, good visibility
21	3/13/20	1030–1730	FW	54°F–56°F, winds 0–7 mph, 100% cloud cover, good visibility
22	3/17/20	0930–1740	FW	49°F–57°F, winds 3–10 mph, 80% cloud cover, good visibility
23	3/20/20	0900–1720	FW	51°F–62°F, winds 5–7 mph, 15% cloud cover, good visibility
24	3/21/20	0930–1230	FW	53°F–64°F, winds 0–12 mph, 30% cloud cover, good visibility
25	3/24/20	1010–1815	FW	54°F–62°F, winds 5–12 mph, 30% cloud cover, good visibility
26	3/27/20	0915–1720	FW	46°F–63°F, winds 0–13 mph, 10% cloud cover, good visibility

Visit	Date	Time	Personnel	Weather Conditions
27	3/28/20	0910–1215	FW	59°F–65°F, winds 3–10 mph, 25% cloud cover, good visibility
28	3/31/20	1005–1505	FW	61°F–77°F, winds 3–8 mph, 100% cloud cover, good visibility
29	4/03/20	1150–1540	FW	66°F–70°F, winds 8–15 mph, 10% cloud cover, good visibility
30	4/04/20	0805–1400	FW	55°F–68°F, winds 0–16 mph 30% cloud cover, good visibility
21	4/07/20	0830–1630	FW	52°F–59°F, winds 3–9 mph, 100% cloud cover, good visibility
32	4/10/20	0810–1615	FW	49°F–59°F, winds 7–12 mph, 100% cloud cover, good visibility
33	4/11/20	0805–1330	FW	50°F–68°F, winds 0–13 mph, 20% cloud cover, good visibility
34	4/14/20	0820–1550	FW	53°F–79°F, winds 0–9 mph, 0% cloud cover, good visibility
35	4/17/20	0815–1555	FW	55°F–68°F, winds 0–15 mph, 40% cloud cover, good visibility
36	4/18/20	0835–1325	FW	54°F–62°F, winds 7–12 mph, 100% cloud cover, good visibility
37	4/21/20	0820–1355	FW	56°F–74°F, winds 5–14 mph, 30% cloud cover, good visibility
38	4/24/20	0845–1635	FW	70°F–96°F, winds 0–8 mph, 0% cloud cover, good visibility
39	4/28/20	0855–1220	FW	67°F–90°F, winds 0–12 mph, 0% cloud cover, good visibility
40	5/02/20	0830–1405	FW	72°F–83°F, winds 5–11 mph, 0% cloud cover, good visibility
41	5/05/20	1115–1645	FW	66°F–81°F, winds 0–6 mph, 0% cloud cover, good visibility
42	5/09/20	0930–1140	FW	76°F–84°F, winds 4–7 mph, 10% cloud cover, good visibility
43	5/16/20	0825–1115	FW	70°F–81°F, winds 3–7 mph, 0% cloud cover, good visibility
44	5/23/20	1140–1455	FW	74°F–78°F, winds 4–9 mph, 0% cloud cover, good visibility
45	5/30/20	1100–1310	FW	69°F–79°F, winds 2–5 mph, 0% cloud cover, good visibility
46	6/06/20	1030–1235	FW	71°F–73°F, winds 1–7 mph, 100% cloud cover, good visibility
47	6/13/20	1000–1155	FW	68°F–77°F, winds 2–8 mph, 0% cloud cover, good visibility
48	6/20/20	0910–1135	FW	67°F–74°F, winds 2–4 mph, 100% cloud cover, good visibility
48	6/22/20	0815–1125	FW/CD	68°F–79°F, winds 1–6 mph, 40% cloud cover, good visibility
50	6/27/20	0900–1050	FW	79°F–89°F, winds 3–5 mph, 0% cloud cover, good visibility
51	7/04/20	0830–1150	FW	80°F–95°F, winds 0–5 mph, 0% cloud cover, good visibility
52	7/11/20	0910–1140	FW	86°F–103°F, winds 1–5 mph, 0% cloud cover, good visibility
53	7/18/20	0920–1105	FW	76°F–89°F, winds 2–9 mph, 0% cloud cover, good visibility
*FW = Frank Wegscheider; CD = Crysta Dickson; KK = Kristen Klinefelter.				

Summary of Rainfall for the 2019/2020 Wet Season

Rain events for the 2019/2020 rainy season were monitored using rainfall data from the National Oceanic and Atmospheric Administration (NOAA) website[2]. **Table 2** provides a summary of the monthly rainfall totals for the 2019/2020 survey season as well as the expected average monthly rainfall totals, based on the weather data for Elsinore, California.

[2] National Oceanic and Atmospheric Administration. 2020. *NOWData – NOAA Online Weather Data*. National Weather Service Forecast Office, Elsinore, CA. Available: https://w2.weather.gov/climate/xmacis.php?wfo=sgx. Accessed: September 15, 2020.

Table 2. Summary of 2019/2020 Rainfall for Elsinore, CA

Month	Rainfall Total (inches)	
	2019/2020	Average
September 2019	0.00	0.24
October 2019	0.00	0.61
November 2019	2.27	0.86
December 2019	4.26	2.01
January 2020	0.03	3.04
February 2020	0.38	2.91
March 2020	3.39	1.77
April 2020	2.52	0.62
May 2020	0.00	0.14
June 2020	0.05	0.02
Total	**12.85**	**12.22**
Source: https://w2.weather.gov/climate/xmacis.php?wfo=sgx		

The total rainfall recorded during the 2019/2020 rain season for the Lake Elsinore area was 12.85 inches, which was 0.63 inch above the expected. In addition, the Palmer Drought Index classified the 2019/2020 rain season as being mid-range to moderately moist[3].

2019/2020 Wet-Season Sampling Results

The wet-season sampling effort was initiated on December 31, 2019, after approximately 6.53 inches of accumulated rain had occurred between September 1 and December 31, 2019. A total of 95 features that support potentially suitable fairy shrimp habitat were sampled during the 2019/2020 wet season. Many of the features were road ruts, ditches, or other depressions that became inundated at some point during the wet season. None of the features sampled exhibited vernal pool indicators. The majority of the features were low-quality habitat and heavily disturbed by frequent vehicular traffic, foot traffic, and active construction associated with I-15 and nearby urban development. Therefore, the elimination of features, the formation of new features, and/or the reconfiguration of existing features within the survey area occurred frequently and unexpectedly. This level of disturbance, including the man-made aspect, created low-quality habitat conditions for fairy shrimp.

Of the 92 features identified, 18 were found to support the versatile fairy shrimp, *Branchinecta lindahli*. As shown in **Figure 3**, Sheet 7, Feature 29 could not be sampled because of access constraints; however, fairy shrimp of an unknown species could be seen in the feature on one occasion using binoculars from the property boundary. Fairy shrimp were not detected in 58 of

[3] National Integrated Drought Information Center. 2020. *U.S. Drought Portal*. Available: https://www.drought.gov/drought/data-maps-tools/current-conditions. Accessed: September 24, 2020.

the features. It is unknown if the remaining 15 features support fairy shrimp. This is because of access constraints and the inability to sample the features on a weekly basis while ponded.

Figure 3 shows the locations of all the features sampled during the 2019/2020 wet-season surveys. **Attachment 2** provides a summary of the sampling results for each feature; the first entry notes the date the feature was first observed to be inundated and the last entry when the feature dried up for the season. **Attachment 3** includes representative photos of the types of features sampled. It should be noted that many of the features held water for only a short period of time during and immediately following a rain event and/or did not inundate until late in the season (mid-March). Oftentimes, sampling occurred the day of a rain event or immediately following consecutive rain events. Therefore, many of the features were ponded during the sampling event, but did not remain inundated more than 2 or 3 days following the rain event.

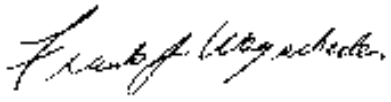
Representative aquatic species found in many of the features included water fleas (Order Cladocera), water boatman (Family Corixidae), midge larvae (Order Diptera), dragonfly/damselfly larvae (Order Odonata), backswimmer (Family Notonectidae), water scavenger beetle (Family Hydrophilidae), predaceous diving beetle (Family Dytiscidae), mosquito larva (Family Culicidae), water snails (Subclass Pulmonata), roundworms (Phylum Nematoda), western toad tadpoles (*Bufo boreas*), Pacific treefrog tadpoles/eggs (*Hyla regilla*), African clawed frog adult (*Xenopus laevis*), crayfish (Order Decapoda), and mosquitofish (*Gambusia affinis*).

We certify that the information contained in this survey report and attached exhibits fully and accurately represents our work.

Sincerely,

_____ Date: October 14, 2020

Crysta Dickson (TE067347-5)



_____ Date: October 14, 2020

Frank Wegscheider (TE 038716-4)

FIGURES

\\PDCCITRDSGIS1\Projects_1\Caltrans\I15_ELPSE\Figures\Fig01_Regional_Vicinity.mxd Date: 10/8/2020 37937

Figure 1
Regional Vicinity
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

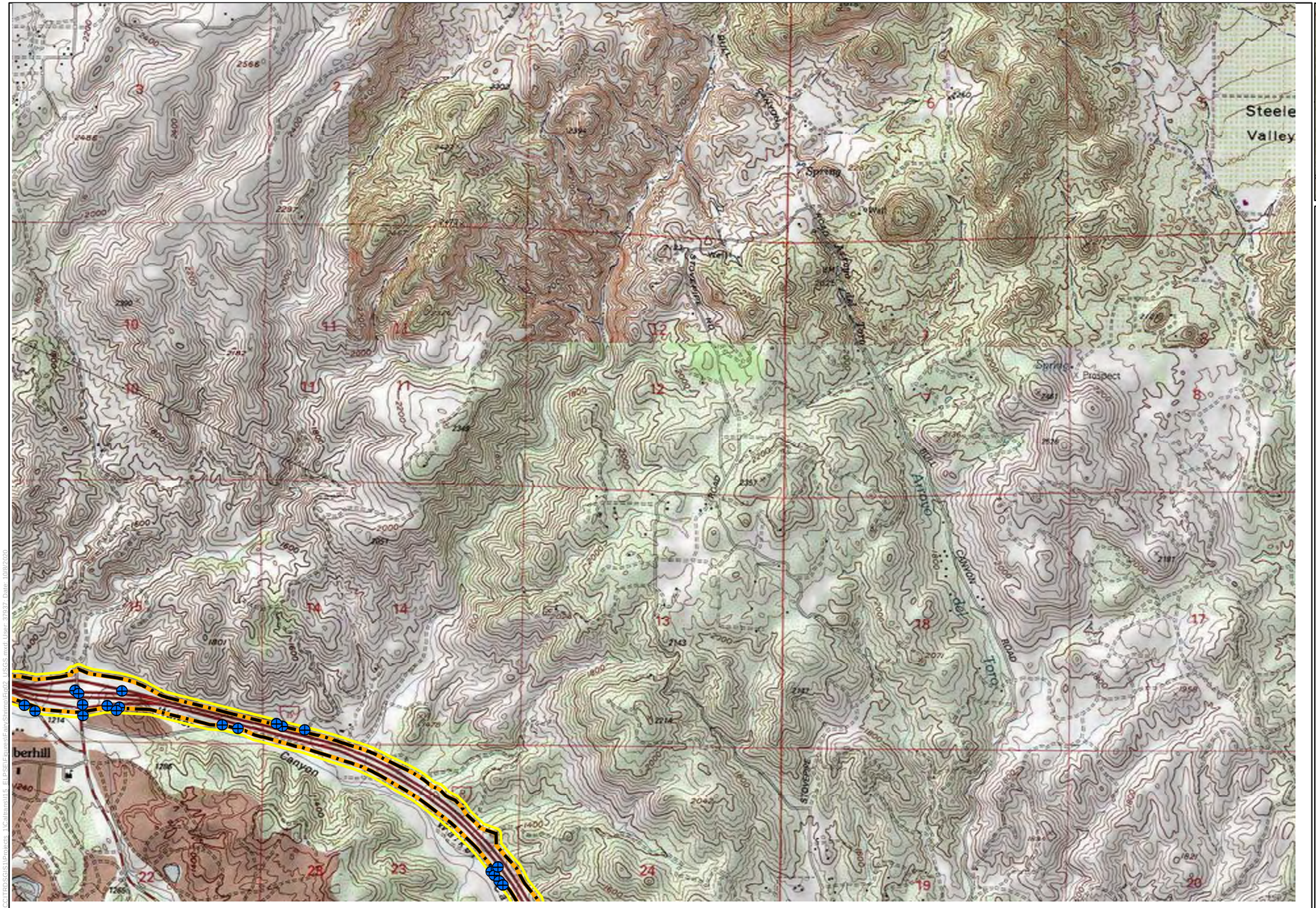
- Fairy Shrimp Survey Locations
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 1,000 2,000 Feet

1:24,000

Figure 2, Sheet 1 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

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1:24,000

Figure 2, Sheet 2 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

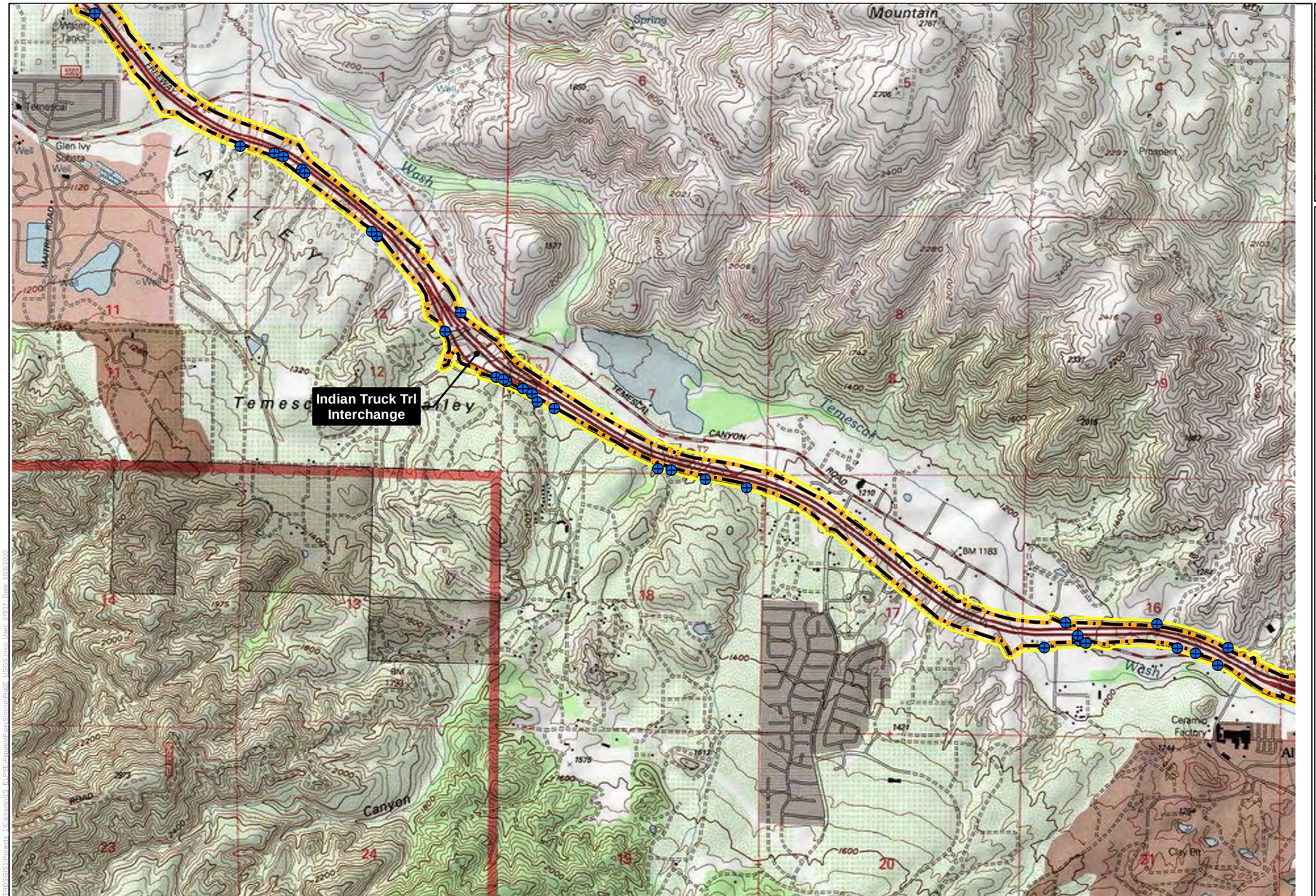
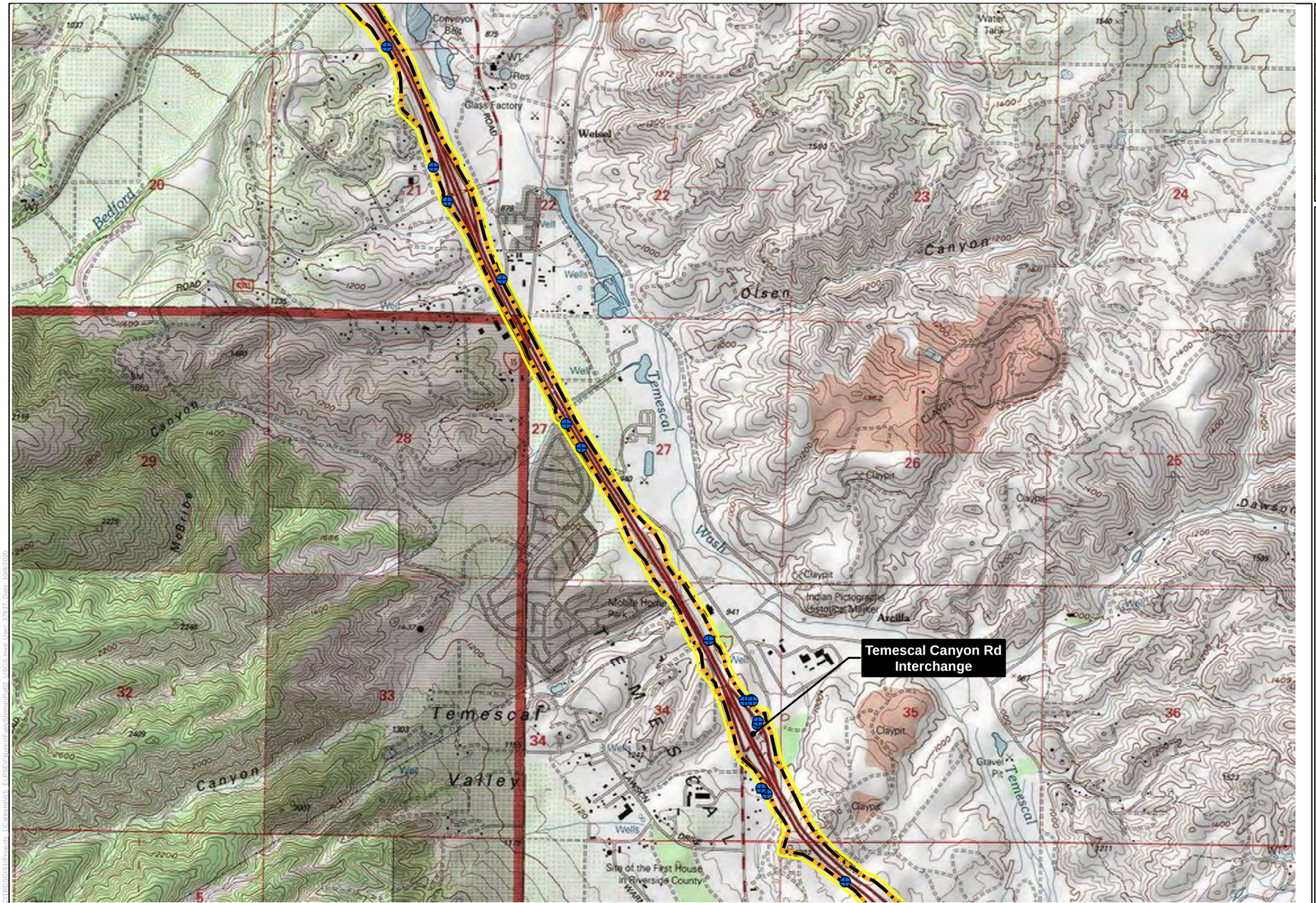
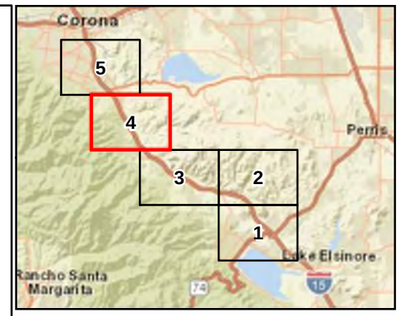


Figure 2, Sheet 3 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

- Fairy Shrimp Survey Locations
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 1,000 2,000 Feet

1:24,000

Figure 2, Sheet 4 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

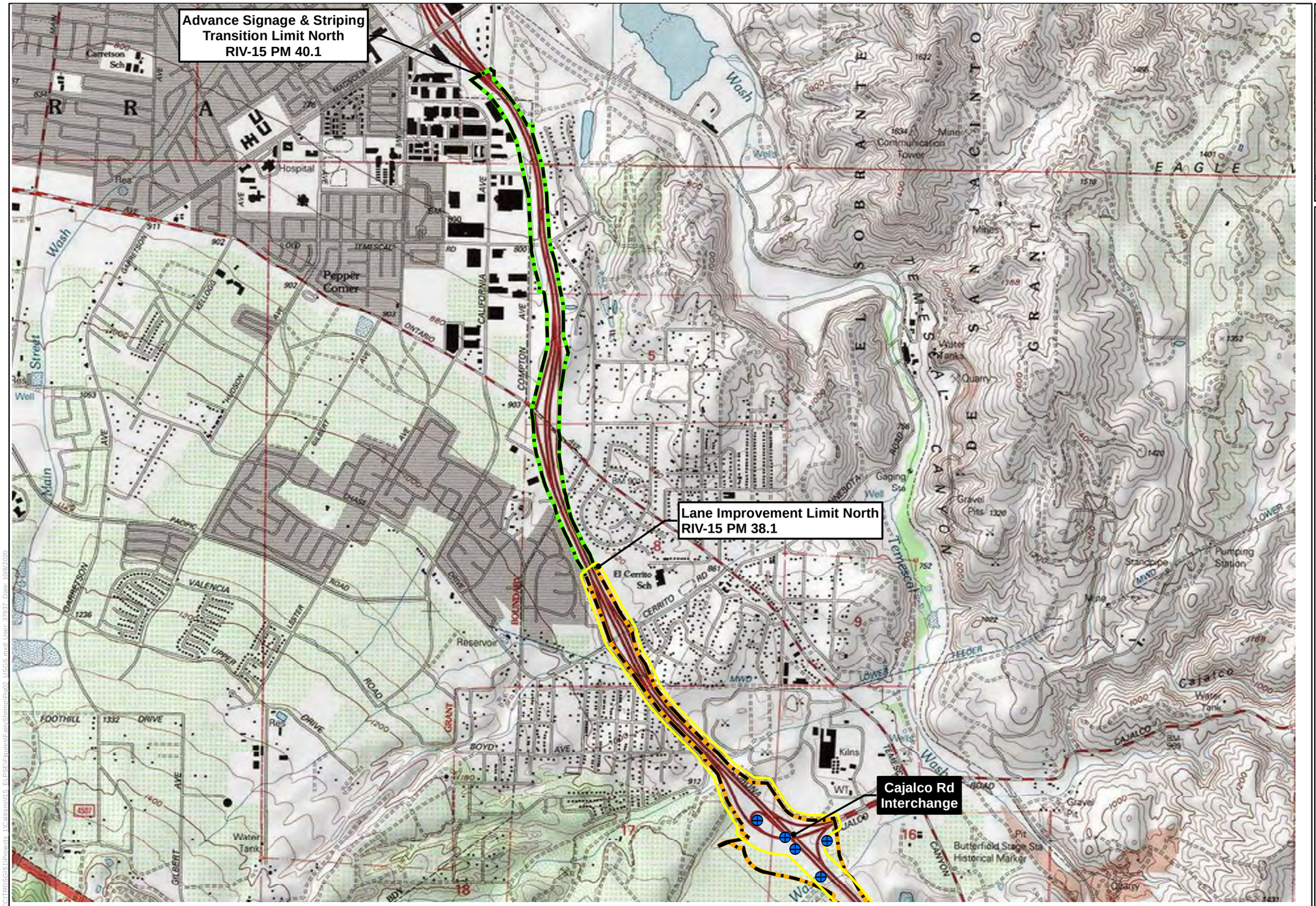


Figure 2, Sheet 5 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

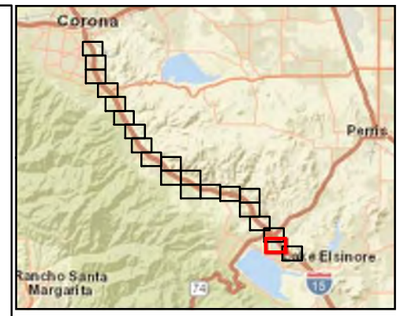
Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet
1:6,000

Figure 3, Sheet 1 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

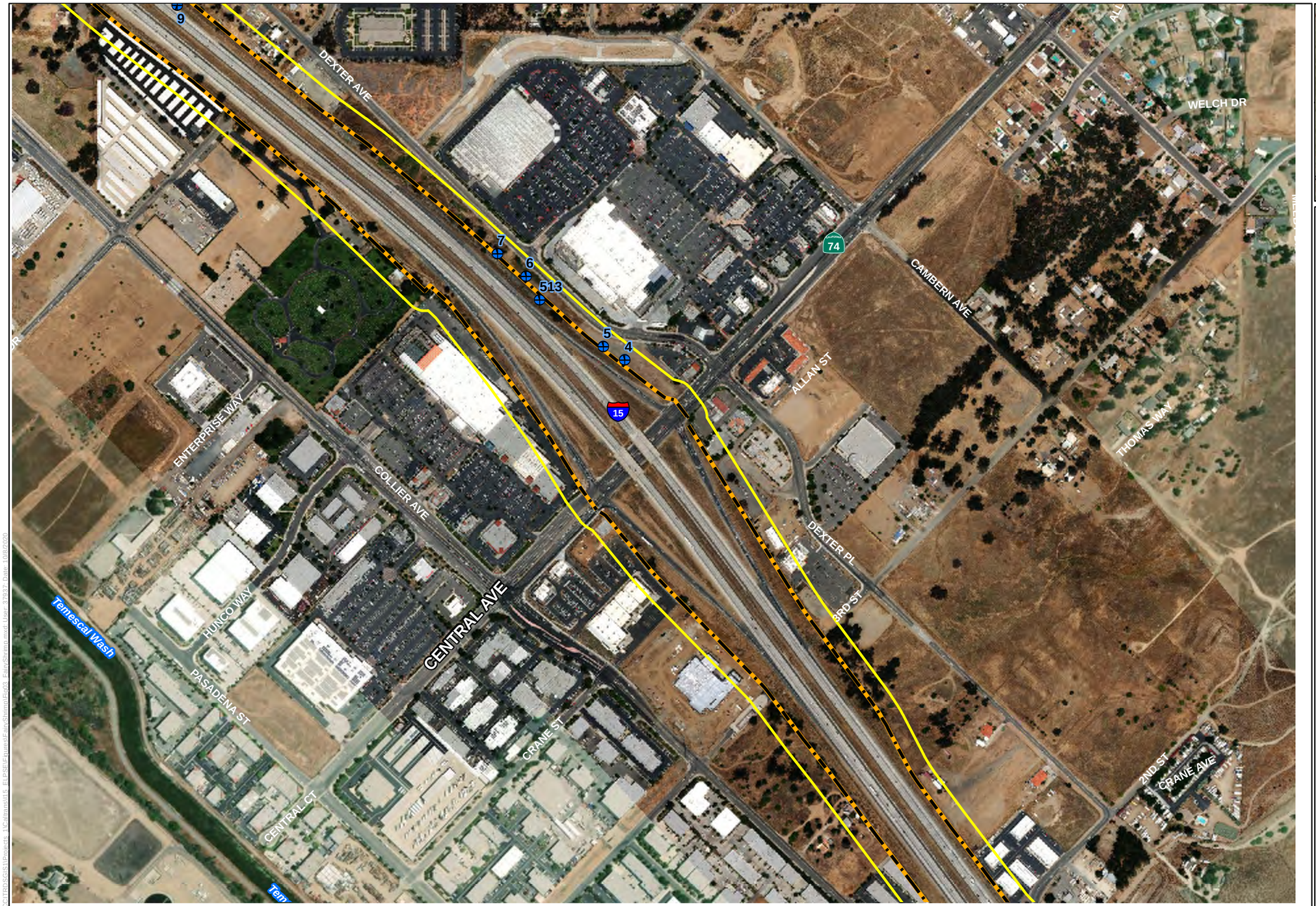
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

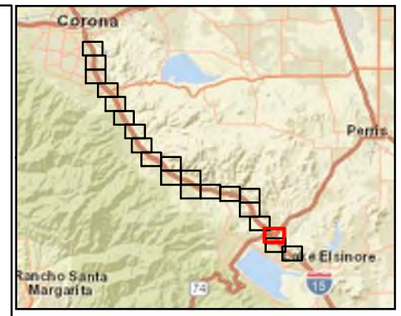
N

0 300 600 Feet

1:6,000

Figure 3, Sheet 2 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 3 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

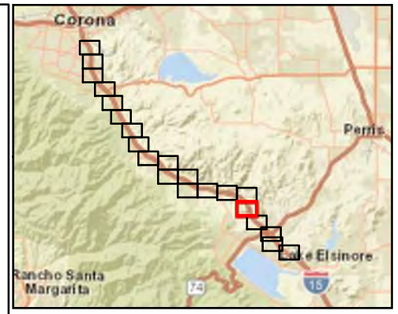
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 4 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

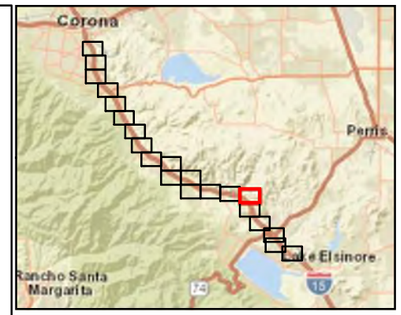
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 5 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

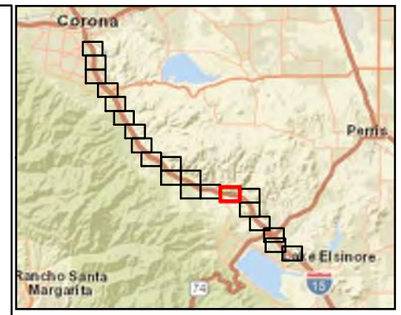
N

0 300 600 Feet

1:6,000

Figure 3, Sheet 6 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

P:\Corridors\Graphics\I-15 ELPSE\Figures\FairyShrimp\Fig3_FairyShrimp.mxd Layer 3 of 3 Date: 10/7/2020



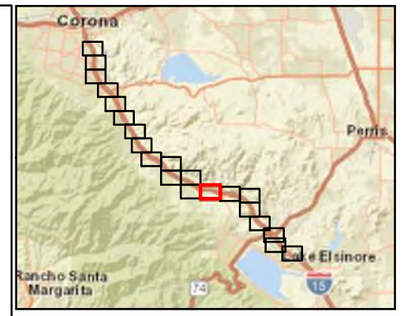
Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet
1:6,000

Figure 3, Sheet 7 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

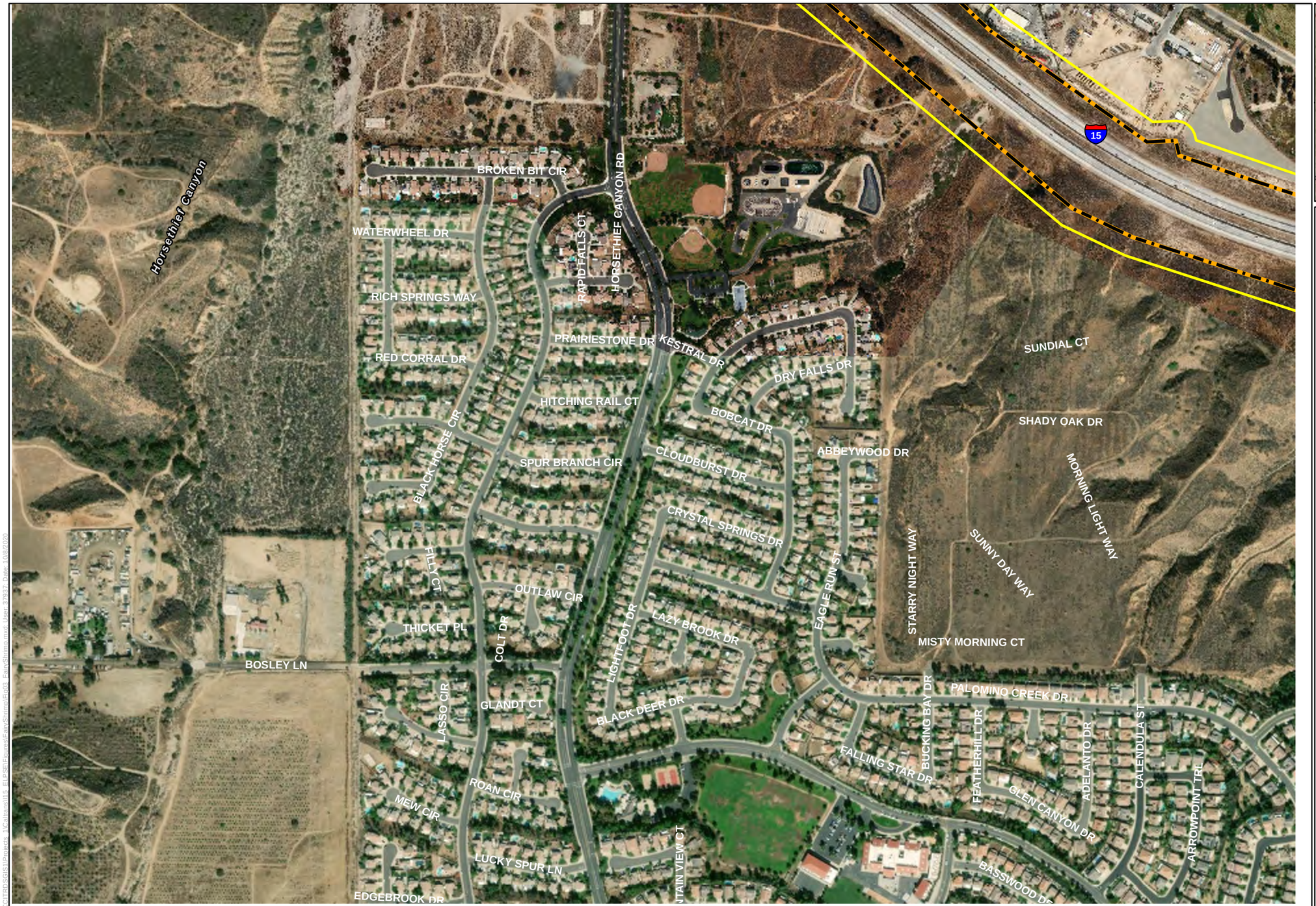
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

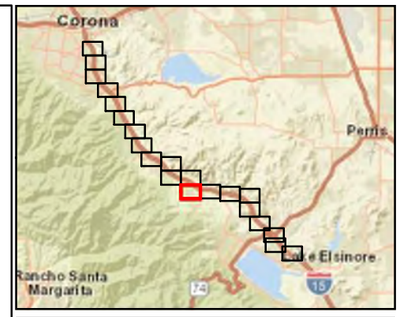
N

0 300 600 Feet

1:6,000

Figure 3, Sheet 8 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 9 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 10 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

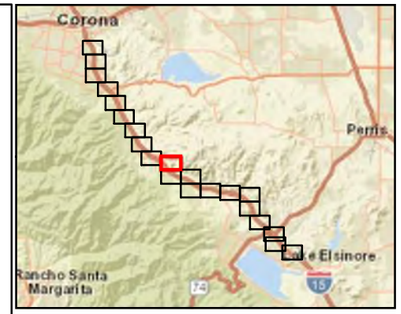
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 11 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

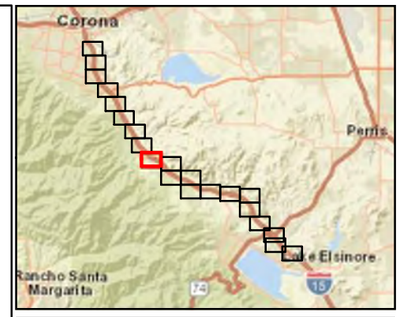
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 12 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

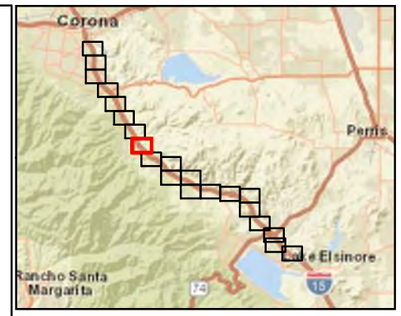
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 13 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 14 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

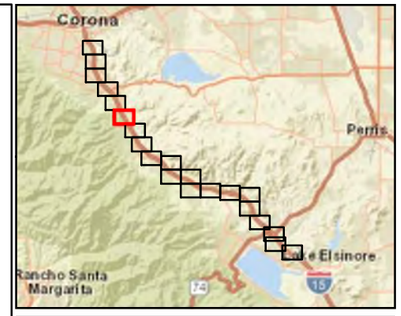
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 15 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 16 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600
Feet
1:6,000

Figure 3, Sheet 17 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

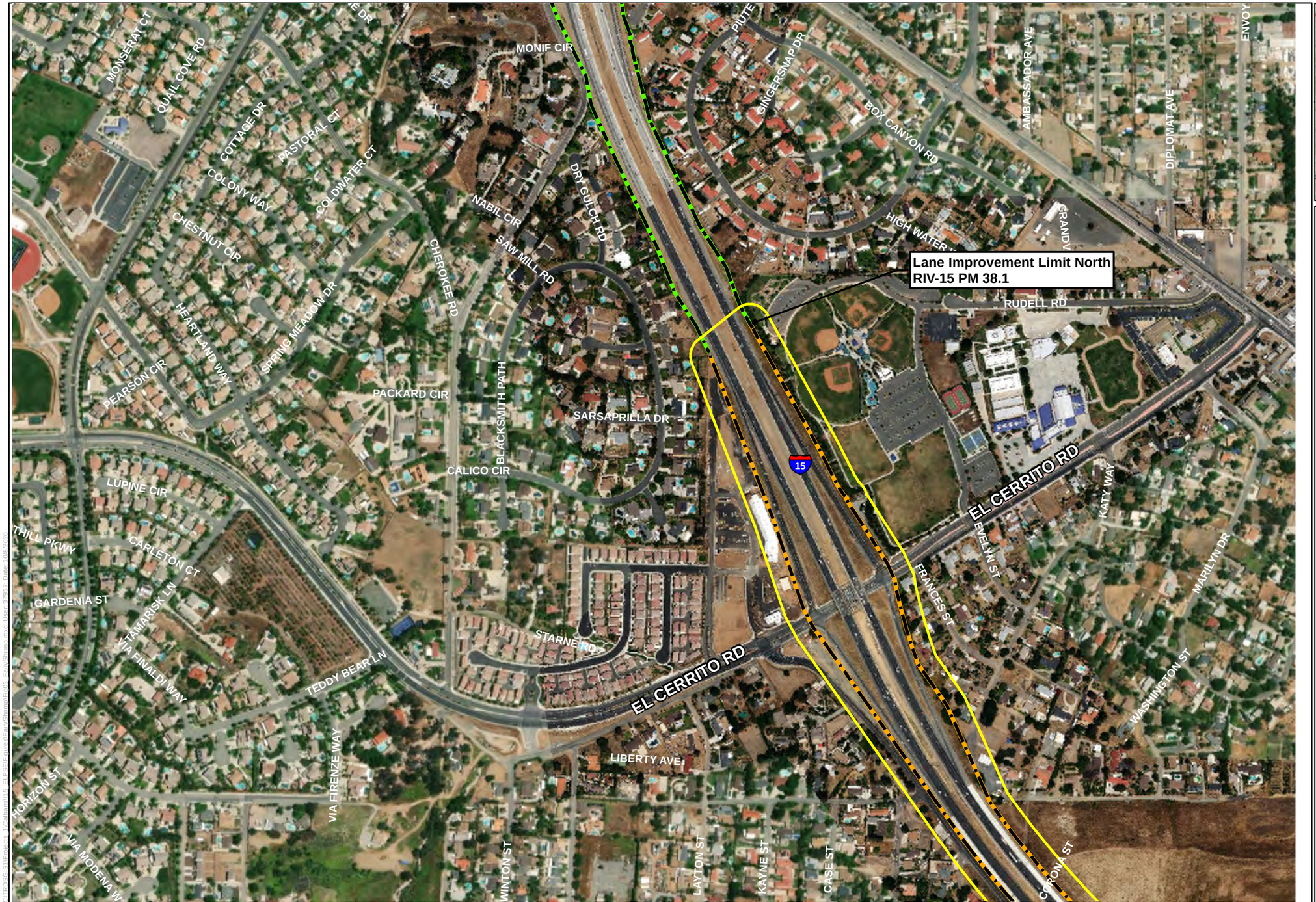
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

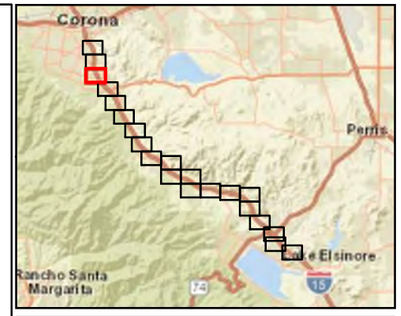
N

0 300 600 Feet

1:6,000

Figure 3, Sheet 18 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

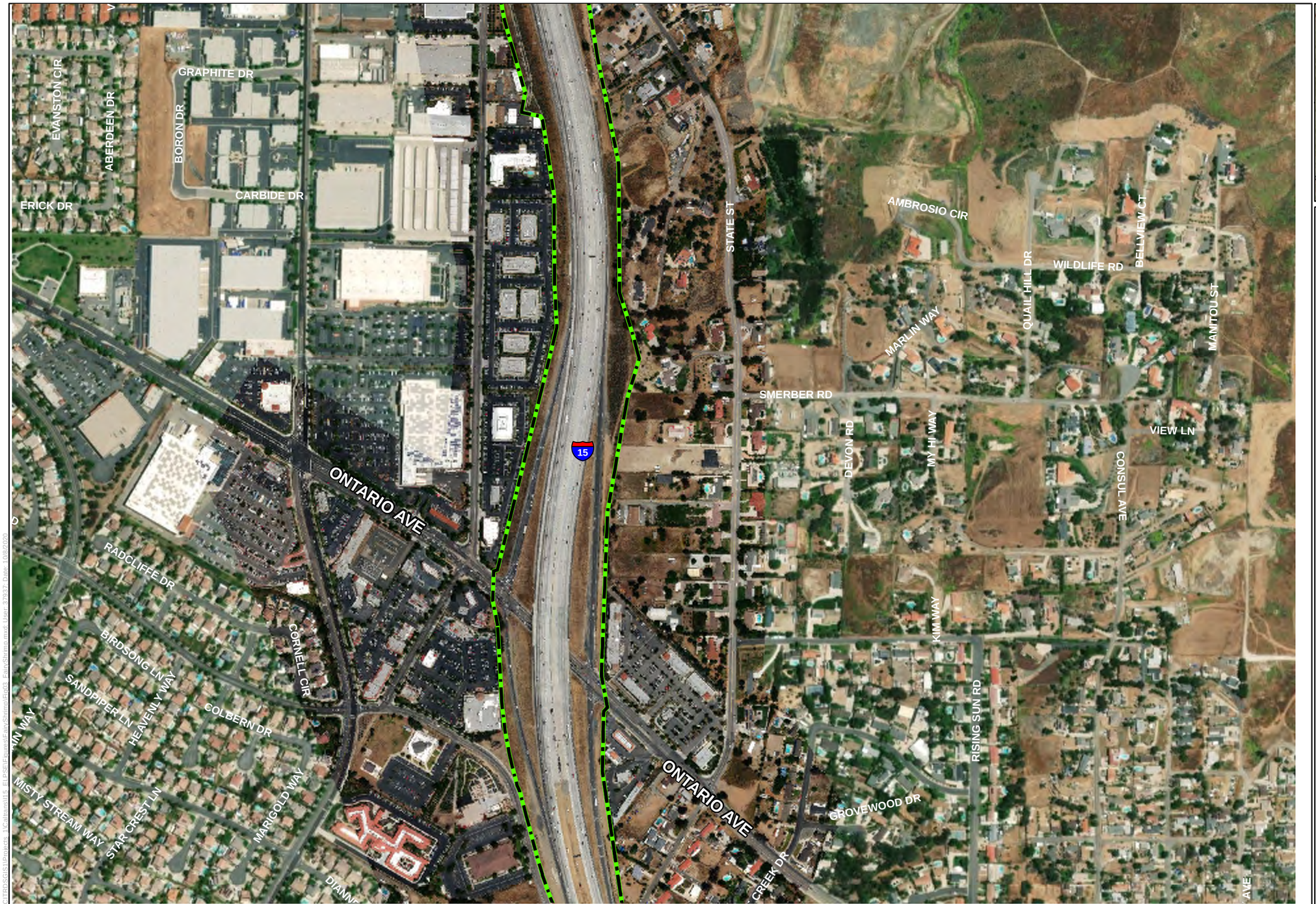
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 19 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

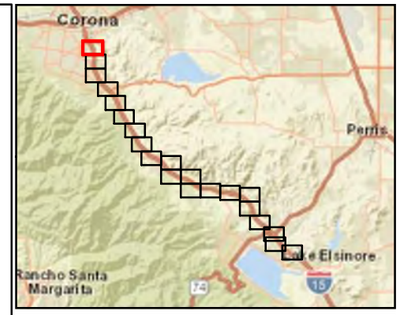
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 20 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 21 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Attachment 1: USGS Quads with Township, Range and Section

Alberhill Quadrangle	
Township 5 South, Range 5 West.	Sections 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35.
Township 5 South, Range 6 West.	Sections 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 35 and 36.
Township 6 South, Range 5 West.	Sections 2, 3, 4, 5, 6, 8, 9, 10, 11, 14, 15, 16, 17, 19, 20, 21, 22, 23, 26, 27, 28 and 29.
Corona South Quadrangle	
Township 3 South, Range 6 West	Sections 27, 28, 29, 30, 31, 32, 33 and 34.
Township 3 South, Range 7 West.	Sections 25, 26, 27, 28, 33, 34, 35 and 36.
Township 4 South, Range 6 West.	Sections 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33 and 34.
Township 4 Section, Range 7 West.	Sections 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 21, 22, 23, 24, 25, 26, 27, 28, 34, 35 and 36.
Township 5 South, Range 6 West.	Sections 3, 4, 5, 6, 7, 8, 9 and 10.
Township 5 South, Range 7 West.	Sections 1 and 2.
Lake Matthews Quadrangle	
Township 3 South, Range 5 West.	Sections 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35.
Township 3 South, Range 6 West.	Sections 25, 26, 27, 34, 35 and 36.
Township 4 South, Range 5 West.	Sections 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35.
Township 4 South, Range 6 West.	Sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35 and 36.
Township 5 South, Range 5 West.	Sections 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11.
Township 5 South, Range 6 West.	Sections 1, 2, 3, 10, 11, and 12.
Lake Elsinore Quadrangle	
Township 5 South, Range 4 West.	Sections 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, and 36.
Township 5 South, Range 5 West.	Sections 11, 12, 13, 14, 23, 24, 25, 26, 35 and 36.
Township 6 South, Range 4 West.	Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29 and 30.
Township 6 South, Range 5 West.	Sections 1, 2, 11, 12, 13, 14, 23, 24, 25 and 26.

Attachment 2: Summary of Sampling Results

Feature: 4						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS**	**Fairy Shrimp Present and Magnitude**	**Notes**
1/21/20	N/R	N/R	~64	N/R	Unknown	Inundated; access constraints
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4//20	—	—	—	—	—	Dry
3/11/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
3/17/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
3/24/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
3/27/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
4/4/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
4/7/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
4/14/20	—	—	—	—	—	Dry

Feature: 5						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS**	**Fairy Shrimp Present and Magnitude**	**Notes**
1/21/20	N/R	N/R	~16	N/R	Unknown	Inundated; access constraints
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry

Feature: 5						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS**	**Fairy Shrimp Present and Magnitude**	**Notes**
3/11/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
3/17/20	—	—	—	—	—	Dry
3/24/20	—	—	—	—	—	Dry
3/31/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
4/7/20	N/R	N/R	~2	N/R	Unknown	Inundated; access constraints
4/14/20	—	—	—	—	—	Dry

Feature: 6						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/21/20	N/R	N/R	30	N/R	Unknown	Inundated; access constraints
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	N/R	30	N/R	Unknown	Inundated; access constraints
3/17/20	N/R	N/R	30	N/R	Unknown	Inundated; access constraints
3/24/20	22.5	3	69	119	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	21	6	105	58	None	Currently raining
4/14/20	—	—	—	—	—	Dry

Feature: 7						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	< 3	N/R	N/R	—	Inundated
3/17/20	15.5	6	6	130	None	—
3/24/20	17.3	5	12	166	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	18.9	8	22.5	52	None	Inundated

Feature: 7						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
4/14/20	16.4	4	6	97	None	—
4/1/20	—	—	—	—	—	Dry

Feature: 9						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	7	N/R	N/R	—	Inundated
3/17/20	24.5	5	45	136	None	—
3/24/20	23.5	6	70	89	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	17.4	5	127.5	100	None	Inundated
4/14/20	—	—	—	—	—	Dry

Feature: 11						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/21/20	15.3	3	196	107	—	Inundated
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	< 3	N/R	N/R	—	Inundated; too shallow to sample
3/17/20	—	—	—	—	—	Dry
3/25/20	—	—	—	—	—	Dry
4/4/20	—	—	—	—	—	Dry
4/7/20	17.3	6	45	59	None	Currently raining
4/14/20	—	—	—	—	—	Dry

Feature: 13						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/21/20	N/R	< 1	N/R	N/R	—	Inundated; too shallow to sample
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry

Feature: 13						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	3	N/R	N/R	None	Inundated
3/17/20	22	2	5	95	None	—
3/24/20	23	2	9	83	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	—	< 3	12	N/R	—	Inundated; too shallow to sample
4/14/20	—	—	—	—	—	Dry

Feature: 14						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/21/20	13.1	11	16	127	—	Inundated
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	—	—	—	—	—	Dry
3/17/20	19.9	13	3.75	161	None	Inundated
3/25/20	18.9	10	2.5	400	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	16.4	12	6	432	None	Inundated
4/14/20	—	—	—	—	—	Dry

Feature: 16						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	12	9	39	254	*B. lindahli* High 100s	Inundated
1/7/20	14.6	6	33	320	*B. lindahli* High 100s	—
1/14/20	13.4	5	16	360	*B. lindahli* Mid-100s	—
1/21/20	15.1	6	18	924	*B. lindahli* Low 100s	—
1/28/20	18.3	4	6	990	*B. lindahli* 10s	—
2/4/20	N/R	< 1	0.1	N/R	—	Too shallow to sample
2/11/20	14.6	1.5	0.6	5,790	None	—
2/18/20	—	—	—	—	—	Dry

Feature: 16						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
2/25/20	—	—	—	—	—	Dry
3/11/20	N/R	15	N/R	N/R	—	Inundated
3/17/20	20	9	80.5	696	*B. lindahli* Immature 100s	—
3/24/20	21.6	10	36	917	*B. lindahli* 1,000s	—
3/31/20	23.7	7	21	1,380	*B. lindahli* Immature High 100s	—
4/7/20	N/R	10	60	N/R	Unknown	—
4/14/20	N/R	N/R	30	N/R	Unknown	—
4/21/20	29.8	5	15	1,270	*B. lindahli*	—
4/28/20	—	—	—	—	—	Dry

Feature: 17						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/21/20	16.3	3	25	75.1	—	Inundated
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	5	N/R	N/R	—	Inundated
3/17/20	21.2	5	6	206	None	—
3/24/20	19.3	4	5	192	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	N/R	< 3	4	N/R	—	Inundated; too shallow to sample
4/14/20	28.8	4	—	221	None	—
4/21/20	—	—	—	—	—	Dry

Feature: 18						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	15.1	11	140	115	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	14.3	2	12	364	None	—
1/21/20	16.5	8	240	425	None	—
1/28/20	20.8	8	220	636	*B. lindahli*	—

Feature: 18						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
					Nauplii and Immature 100s	
2/4/20	—	—	—	—	—	Dry
2/11/20	19.3	3	5	346	None	—
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	15	N/R	N/R	—	Inundated
3/17/20	20		448	183	*B. lindahli* Immature 100s	—
3/24/20	22.4	14	385	420	*B. lindahli* Mature 1,000s	—
3/31/20	21.8	12	300	549	None	—
4/7/20	19.3	14	318	166	None	—
4/14/20	N/R	N/R	N/R	N/R	None	—
4/21/20	27.2	—	330	544	None	—
4/28/20	27.2	6	99	773	None	—
5/5/20	—	—	—	—	—	Dry

Feature: 20						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	15.4	4	2	39.3	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	—	—	—	—	—	Dry
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	1	N/R	N/R	—	Inundated
3/17/20	20.1	5	30	434	None	—
3/24/20	23.7	3	2	256	*B. lindahli* One female	—
3/31/20	—	—	—	—	—	Dry
4/7/20	N/R	3	2	N/R	—	Inundated
4/14/20	N/R	< 1	0.1	N/R	—	Too shallow to sample
4/21/20	—	—	—	—	—	Dry

Feature: 22						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	3	N/R	N/R	—	Inundated
3/17/20	17.7	N/R	4	83	None	—
3/24/20	22	4	4	67	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	N/R	3	6	N/R	—	Inundated
4/14/20	N/R	< 1	1.5	N/R	—	Too shallow to sample
4/21/20	—	—	—	—	—	Dry

Feature: 23						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	6.9	2	1.5	37.7	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	—	—	—	—	—	Dry
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	N/R	1	0.1	N/R	—	Too shallow to sample
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4//20	—	—	—	—	—	Dry
3/11/20	N/R	5	N/R	N/R	—	Inundated
3/17/20	19.4	4	11	33	None	—
3/24/20	22.6	4	12	37	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	N/R	< 3	13.5	N/R	—	Inundated; too shallow to sample
4/14/20	24.8	2	3	28	None	—
4/21/20	—	—	—	—	—	Dry

Feature: 24						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	2	N/R	N/R	—	Inundated
3/17/20	18.6	3	3	66	None	—
3/24/20	22	3	2.5	62	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	N/R	< 3	4	N/R	—	Inundated
4/14/20	—	—	—	—	—	Dry

Feature: 25						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	13.2	3	4	162	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	—	—	—	—	—	Dry
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	3.5	N/R	N/R	—	Inundated
3/17/20	21.5	5	22.5	166	None	—
3/24/20	22.6	4	12	164	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	20.1	5	20	100	—	Inundated
4/14/20	28.1	3	5	135	None	—
4/21/20	—	—	—	—	—	Dry

Feature: 26						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
2/11/20	N/R	1	1.5	N/R	—	Inundated
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	< 3	N/R	N/R	—	Inundated
3/17/20	22.1	4	19.5	154	None	—
3/24/20	23.9	3	12	132	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	20.7	4	34.5	107	—	Inundated
4/14/20	—	—	—	—	—	Dry

Feature: 27						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	N/R	N/R	N/R	N/R	—	Inundated; access constraints
1/7/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
1/14/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints

Feature: 27						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/21/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
1/28/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
2/4/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
2/11/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
2/18/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
2/25/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
3/4/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
3/11/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
3/17/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
4/7/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
4/14/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
4/21/20	—	—	—	—	—	Dry

Feature: 28						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	10.8	8.0	30	172	—	Inundated
1/7/20	20.8	2.0	4	206	None	—
1/14/20	—	—	—	—	—	Dry
1/21/20	15.6	1.0	0.5	167	—	Inundated
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	19.3	3	5	171	—	Inundated
2/18/20	—	—	—	—	—	Dry

Feature: 28						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	14	N/R	N/R	—	Inundated
3/17/20	19.6	7	32	97	None	—
3/24/20	22.8	10	55	81	None	—
3/31/20	22.2	3	2	377	None	—
4/7/20	19.5	12	60	70	None	—
4/14/20	24.4	8	25	128	None	—
4/21/20	—	—	—	—	—	Dry

Feature: 29						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	N/R	N/R	N/R	N/R	—	Inundated; access constraints
1/7/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
1/14/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
1/21/20	N/R	1	0.25	N/R	Unknown	Inundated; access constraints
1/28/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
2/4/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
2/11/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
2/18/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
2/25/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
3/4/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
3/11/20	N/R	6	90	N/R	Unknown	Inundated; access constraints

Feature: 29						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/17/20	N/R	20	N/R	N/R	Unknown	Inundated; access constraints
3/24/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
3/31/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
4/7/20	N/R	>10	360	N/R	Unknown	Inundated; access constraints
4/14/20	N/R	>10	300	N/R	Unknown	Inundated; access constraints
4/21/20	N/R	N/R	280	N/R	Can see FS with binoculars. Species unknown	Inundated; access constraints.
4/28/20	N/R	N/R	24	N/R	Unknown	Inundated; access constraints
5/5/20	—	—	—	—	—	Dry

Feature: 31						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	7.1	5	8	72.8	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	14.6	2.5	4	76.7	—	Inundated
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	9.1	3	3	97	—	Inundated
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	—	—	—	—	—	Dry
3/21/20	12.2	8	2	128	—	Inundated
3/24/20	14.6	8	80	71	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	14.6	12	102	69	—	Inundated
4/14/20	20.1	7	95	61	*B. lindahli* 10s Immature	—

Feature: 31						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
4/17/20	17.5	4	2.5	116	*B. lindahli* One female + 10s Immature	—
4/21/20	—	—	—	—	—	Dry

Feature: 32						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/17/20	N/R	20	N/R	N/R	—	Inundated
3/20/20	15.8	15	135	63	None	—
3/24/20	12.1	6	2.25	83	None	—
3/31/20	12.8	12	6	89	None	—
4/7/20	14.4	2	0.25	92	—	Inundated
4/14/20	—	—	—	—	—	Dry

Feature: 35						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
2/11/20	22.1	3	2	181	—	Inundated
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	—	—	—	—	—	Dry
3/17/20	20.3	4	4	122	None	—
3/24/20	20.9	4	4	162	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	17.2	4	3	70	—	Inundated
4/14/20	N/R	1	N/R	N/R	—	Too shallow to sample
4/21/20	—	—	—	—	—	Dry

Feature: 36						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	4	N/R	N/R	—	Inundated
3/17/20	20.6	6	0.5	343	None	—
3/24/20	19.8	6	2	305	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	17	5	2	229	—	Inundated
4/14/20	16.8	4	1	175	None	—
4/21/20	—	—	—	—	—	Dry

Feature: 39						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	11.9	7	10	82.3	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	—	—	—	—	—	Dry
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	—	9	—	—	—	Inundated
3/17/20	13.9	9	36	85	None	—
3/24/20	17.8	5	13.5	203	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	N/R	3–5	27	N/R	—	Inundated
4/14/20	N/R	4–5	15	N/R	None	—
4/21/20	—	—	—	—	—	Dry

Feature: 40						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	> 20	N/R	N/R	—	Inundated
3/17/20	N/R	1	N/R	N/R	—	Too shallow to sample
3/24/20	—	—	—	—	—	Dry
3/31/20	—	—	—	—	—	Dry
4/7/20	N/R	10	112	N/R	—	Inundated
4/14/20	—	—	—	—	—	Dry

Feature: 41						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	5	N/R	N/R	—	Inundated; access constraints
3/17/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
3/24/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
3/31/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints

Feature: 41						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
4/7/20	N/R	3	24	N/R	Unknown	Inundated; access constraints
4/14/20	—	—	—	—	—	Dry

Feature: 42						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	13	2	2.5	70.7	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	—	—	—	—	—	Dry
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	9	N/R	N/R	—	Inundated
3/17/20	14.4	8	16	65	None	—
3/24/20	17	7	9	68	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	N/R	5	12	N/R	—	Inundated
4/14/20	N/R	4	6	N/R	None	—
4/21/20	—	—	—	—	—	Dry

Feature: 44						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	7.3	21	50	70.7	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	—	—	—	—	—	Dry
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	20.8	3	3	221	—	Inundated
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	30	N/R	N/R	—	Inundated
3/17/20	12.7	35	162	59	None	—
3/24/20	14.3	30	153	68	*B. lindahli* Low 100s	—
3/31/20	17.6	7	15	117	*B. lindahli* Mid-10s	—

Feature: 44						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
4/7/20	14	38	203	51	None	—
4/14/20	14.6	28	119	55	*B. lindahli* Immature 1,000s	—
4/21/20	18	10	17.5	80	None	—
4/28/20	—	—	—	—	—	Dry

Feature: 45						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	4	N/R	N/R	—	Inundated
3/17/20	13.2	45	45	59	None	—
3/24/20	17.8	3	35	68	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	15.1	4	31	46	—	Inundated
4/14/20	N/R	1	0.25	N/R	—	Wet but not inundated
4/21/20	—	—	—	—	—	Dry

Feature: 48						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
1/7/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
1/14/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
1/21/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
1/28/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
2/4/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
2/11/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
2/18/20	N/R	N/R	N/R	N/R	N/R	Inundated; access

Feature: 48						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
						constraints
2/25/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
3/4/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
3/11/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
3/17/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
3/24/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
4/4/20	—	—	—	—	—	Dry
4/7/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
4/14/20	N/R	N/R	N/R	N/R	N/R	Inundated; access constraints
4/21/20	—	—	—	—	—	Dry

Feature: 91						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	3	N/R	N/R	—	Inundated
3/20/20	—	—	—	—	—	Dry
3/27/20	—	—	—	—	—	Dry
4/3/20	—	—	—	—	—	Dry
4/10/20	N/R	3	15	N/R	—	Inundated
4/17/20	—	—	—	—	—	Dry

Feature: 100						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/2/20	8.9	10	76	73	—	Inundated
1/10/20	7.5	7	70	87.1	None	—
1/17/20	—	—	—	—	—	Dry
1/24/20	—	—	—	—	—	Dry
1/31/20	—	—	—	—	—	Dry
2/7/20	—	—	—	—	—	Dry
2/14/20	—	—	—	—	—	Dry

Feature: 100						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
2/21/20	—	—	—	—	—	Dry
2/29/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	18	N/R	N/R	—	Inundated
3/21/20	17.4	12	156	83	*B. lindahli* Immature 1,000s	—
3/27/20	21.7	11	162	95	*B. lindahli* Immature 1,000s	—
4/3/20	N/R	3+	12	N/R	*B. lindahli* Mature 1,000s	—
4/10/20	N/R	12+	200	N/R	*B. lindahli* Mature 1,000s	—
4/17/20	23.7	12	170	100	*B. lindahli* Immature 1,000s	—
4/24/20	33.2	8–10	56	143	*B. lindahli* Immature 1,000s	—
5/2/20	—	—	—	—	—	Dry

Feature: 106						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	N/R	N/R	N/R	N/R	—	Inundated
1/2/20	7.5	> 70	1216	56	—	Quicksand, difficult to survey
1/10/20	9.1	N/R	840	98.1	—	Quicksand, difficult to survey
1/17/20	14.5	N/R	360	179	—	Quicksand, difficult to survey
1/24/20	N/R	N/R	N/R	N/R	—	Quicksand, difficult to survey
1/31/20	11.12	N/R	140	292	—	Quicksand, difficult to survey
2/7/20	N/R	1–3	180	N/R	—	Quicksand, difficult to survey
2/14/20	N/R	3	32	N/R	—	Quicksand,

Feature: 106						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
						difficult to survey
2/21/20	N/R	< 1	4	N/R	—	Muddy; quicksand, difficult to survey
2/29/20	—	—	—	—	—	Dry
3/4/20	N/R	20	N/R	N/R	—	Inundated; quicksand, difficult to survey
3/11/20	N/R	N/R	N/R	N/R	—	Wet but not inundated
3/20/20	N/R	N/R	N/R	N/R	—	Muddy; no standing water
3/27/20	N/R	< 1	N/R	N/R	—	Wet but not inundated
4/3/20	N/R	N/R	N/R	N/R	—	Muddy; no standing water
4/10/20	N/R	30+	20	N/R	None	—
4/17/20	N/R	N/R	300	N/R	None	—
4/24/20	27.7	30+	224	399	None	—
5/2/20	21.3	75+	187	523	None	—
5/9/20	23.1	75+	190	519	None	—
5/16/20	20.5	75+	180	539	None	—
5/23/20	23.4	75+	170	529	None	—
5/30/20	N/R	N/R	220	N/R	None	—

Feature: 123						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/13/20	N/R	7	N/R	N/R	—	Inundated
3/20/20	21.1	6	5	139	None	—
3/27/20	—	—	—	—	—	Dry
4/3/20	—	—	—	—	—	Dry
4/10/20	N/R	8	22.5	N/R	—	Inundated
4/17/20	—	—	—	—	—	Dry

Feature: 124						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	7	N/R	N/R	—	Inundated
3/13/20	N/R	10	N/R	N/R	None	—

Feature: 124						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/20/20	21.9	6	120	76	None	—
3/27/20	—	—	—	—	—	Dry
4/4/20	—	—	—	—	—	Dry
4/11/20	11.5	5	160	48	None	—
4/17/20	—	—	—	—	—	Dry

Feature: 125						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/13/20	N/R	5	N/R	N/R	—	Inundated
3/20/20	20.8	3	8	94	None	—
3/27/20	—	—	—	—	—	Dry
4/4/20	—	—	—	—	—	Dry
4/11/20	N/R	< 3	N/R	N/R	—	Muddy
4/17/20	—	—	—	—	—	Dry

Feature: 126						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	4	N/R	N/R	—	Inundated
3/17/20	—	—	—	—	—	Dry
3/27/20	—	—	—	—	—	Dry
3/31/20	—	—	—	—	—	Dry
4/10/20	N/R	5	6	N/R	—	Inundated; recently raining
4/17/20	—	—	—	—	—	Dry

Feature: 129						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	7	N/R	N/R	—	Inundated
3/13/20	N/R	9	N/R	N/R	None	—
3/20/20	21.2	7	60	91	None	—
3/27/20	—	—	—	—	—	Dry
4/4/20	—	—	—	—	—	Dry
4/11/20	11.8	7	70	56	—	Inundated
4/17/20	—	—	—	—	—	Dry

Feature: 130						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/13/20	N/R	2	N/R	N/R	—	Wet but not inundated
3/20/20	21.6	3	2	113	None	Inundated
3/27/20	—	—	—	—	—	Dry
4/4/20	—	—	—	—	—	Dry
4/11/20	N/R	1	N/R	N/R	—	Wet but not inundated
4/17/20	—	—	—	—	—	Dry

Feature: 131						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/13/20	N/R	1	N/R	N/R	—	Wet but not inundated
3/20/20	20.4	4	2	253	None	Inundated
3/27/20	N/R	< 1	N/R	N/R	—	Wet but not inundated
4/4/20	—	—	—	—	—	Dry
4/11/20	N/R	1	N/R	N/R	—	Wet but not inundated
4/17/20	—	—	—	—	—	Dry

Feature: 146						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	N/R	N/R	N/R	N/R	—	Inundated
1/2/20	8.4	12	4	114	None	—
1/10/20	16.8	1	.06	165	None	—
1/17/20	—	—	—	—	—	Dry
1/24/20	—	—	—	—	—	Dry
1/31/20	—	—	—	—	—	Dry
2/7/20	—	—	—	—	—	Dry
2/14/20	—	—	—	—	—	Dry
2/21/20	—	—	—	—	—	Dry
2/29/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/13/20	N/R	15	N/R	N/R	—	Inundated
3/20/20	14.9	14	2.25	91	None	—
3/27/20	16.8	15	4	105	None	—
4/3/20	N/R	< 1	0.02	N/R	None	—
4/10/20	13.8	15	1	44	None	—
4/17/20	18.3	12	2.25	89	None	—
4/24/20	—	—	—	—	—	Dry

Feature: 148						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	10	N/R	N/R	—	Inundated
3/21/20	21.4	N/R	15	223	None	—
3/28/20	185	3	1	314	None	—
4/4/20	—	—	—	—	—	Dry
4/11/20	17.7	12	20	141	—	Inundated
4/18/20	—	—	—	—	—	Dry

Feature: 163						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	< 3	N/R	N/R	—	Wet but not inundated
3/20/20	—	—	—	—	—	Dry
3/27/20	—	—	—	—	—	Dry
4/3/20	—	—	—	—	—	Dry
4/10/20	N/R	> 3	4	N/R	—	Inundated
4/17/20	—	—	—	—	—	Dry

Feature: 164						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	> 3	N/R	N/R	—	Inundated
3/20/20	—	—	—	—	—	Dry
3/27/20	—	—	—	—	—	Dry
4/3/20	—	—	—	—	—	Dry
4/10/20	14.1	5	2.5	26	—	Inundated
4/17/20	—	—	—	—	—	Dry

Feature: 170						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	N/R	> 3	N/R	N/R	—	Inundated
1/3/20	17.2	3	0.25		None	—
1/10/20	—	—	—	—	—	Dry
1/17/20	—	—	—	—	—	Dry
1/24/20	—	—	—	—	—	Dry
1/31/20	—	—	—	—	—	Dry
2/7/20	—	—	—	—	—	Dry
2/14/20	—	—	—	—	—	Dry
2/21/20	—	—	—	—	—	Dry
2/29/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	10	N/R	N/R	—	Inundated
3/20/20	—	—	—	—	—	Dry

Feature: 170						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/27/20	N/R	< 3	N/R	N/R	—	Muddy but not inundated
4/3/20	—	—	—	—	—	Dry
4/10/20	14.9	8	7	20	—	Inundated
4/17/20	—	—	—	—	—	Dry

Feature: 187						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/13/20	N/R	10	30	N/R	—	Inundated
3/20/20	—	—	—	—	—	Dry
3/27/20	—	—	—	—	—	Dry
4/3/20	—	—	—	—	—	Dry
4/10/20	14.8	12	90	36	—	Inundated; recently raining
4/17/20	—	—	—	—	—	Dry

Feature: 189						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	3	N/R	N/R	—	Inundated
3/13/20	N/R	3	2.25	N/R	None	—
3/20/20	20.4	3	5	198	None	—
3/27/20	—	—	—	—	—	Dry
4/3/20	—	—	—	—	—	Dry
4/10/20	15.7	3	9	90	—	Inundated; recently raining
4/17/20	—	—	—	—	—	Dry

Feature: 191						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	4	N/R	N/R	—	Inundated
3/13/20	N/R	4	8	N/R	None	—
3/20/20	N/R	1	0.25	N/R	None	—
3/27/20	—	—	—	—	—	Dry
4/3/20	—	—	—	—	—	Dry
4/10/20	N/R	5	22.5	14.8	—	Inundated; recently raining
4/17/20	—	—	—	—	—	Dry

Feature: 197						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/13/20	N/R	N/R	N/R	N/R	—	Inundated; access constraints
3/20/20	N/R	N/R	N/R	N/R	Unknown	Inundated; access constraints
3/27/20	26	3	9	93	None	—
4/10/20	N/R	> 3	36	N/R	None	—
4/17/20	—	—	—	—	—	Dry

Feature: 250						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/3/20	17.1	6	16	283	—	Inundated
1/10/20	—	—	—	—	—	Dry
1/17/20	—	—	—	—	—	Dry
1/24/20	—	—	—	—	—	Dry
1/31/20	—	—	—	—	—	Dry
2/7/20	—	—	—	—	—	Dry
2/14/20	—	—	—	—	—	Dry
2/21/20	—	—	—	—	—	Dry
2/29/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	8	N/R	N/R	—	Inundated
3/13/20	N/R	15	N/R	N/R	None	—
3/20/20	19.8	12	105	205	None	—
3/27/20	21.8	8	60	230	None	—
4/3/20	—	—	—	—	—	Dry
4/10/20	—	—	—	—	—	Dry
4/10/20	13.8	10	110	565	—	Inundated
4/17/20	19.5	5	105	448	None	—
4/24/20	—	—	—	—	—	Dry

Feature: 260						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/3/20	10.2	15	10	931	—	Inundated
1/10/20	11.2	8	9	860	None	—
1/17/20	13.3	10	10	1,310	None	—
1/24/20	14.0	25	15	N/R	None	—
1/31/20	—	—	—	—	—	Dry
2/7/20	—	—	—	—	—	Dry
2/14/20	10.4	18	9	841	—	Inundated
2/21/20	—	—	—	—	—	Dry
2/29/20	—	—	—	—	—	Dry

Feature: 260						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	> 20	N/R	N/R	—	Inundated
3/20/20	14.4	24	30	297	None	—
3/27/20	13.4	22	7.5	632	None	—
4/3/20	17.9	18	7.5	737	None	—
4/10/20	13.4	30	22.5	263	None	—
4/17/20	14.9	20	22.5	1,210	None	—
4/24/20	19.4	20	10.5	1,360	None	—
5/2/20	19.6	18	12.5	1,470	None	—
5/9/20	—	—	—	—	—	Muddy but not inundated
5/16/20	—	—	—	—	—	Dry

Feature: 266						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	3	N/R	N/R	—	Inundated
3/20/20	—	—	—	—	—	Area graded; feature filled

Feature: 267						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	7	N/R	N/R	—	Inundated
3/20/20	—	—	—	—	—	Area graded; feature filled

Feature: 274						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/13/20	N/R	3	N/R	N/R	—	Inundated
3/21/20	N/R	1	N/R	N/R	—	Muddy but not inundated
3/28/20	N/R	1	0.06	N/R	—	Muddy but not inundated
4/4/20	—	—	—	—	—	Dry

Feature: 275						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	4	N/R	N/R	—	Inundated
3/14/20	N/R	1	N/R	N/R	—	Muddy but

Feature: 275						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
						not inundated
3/28/20	—	—	—	—	—	Dry
4/4/20	—	—	—	—	—	Dry
4/11/20	29.3	5	6	72	—	Inundated
4/18/20	—	—	—	—	—	Dry

Feature: 288						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/14/20	N/R	5	N/R	N/R	—	Inundated
3/21/20	N/R	2	0.5	N/R	—	Muddy but not inundated
3/28/20	—	—	—	—	—	Dry
3/27/20	—	—	—	—	—	Dry
4/4/20	—	—	—	—	—	Dry
4/11/20	N/R	N/R	N/R	N/R	—	Muddy but not inundated
4/18/20	—	—	—	—	—	Dry

Feature: 313						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/13/20	N/R	3	N/R	N/R	—	Inundated
3/13/20	N/R	7	N/R	N/R	None	—
3/20/20	17.3	6	3	316	None	—
3/27/20	N/R	> 1	N/R	N/R	—	Wet but not inundated
4/3/20	—	—	—	—	—	Dry

Feature: 315						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/20/20	18.3	3	15	149	—	Inundated
3/27/20	—	—	—	—	—	Dry
4/10/20	11	8	42	94	—	Inundated
4/17/20	—	—	—	—	—	Dry

Feature: 323						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	3	N/R	N/R	—	Inundated; access

Feature: 323						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
						constraints
3/21/20	—	—	—	—	—	Dry
3/28/20	N/R	N/R	2	N/R	—	Inundated; access constraints—feature modified due to grading
4/4/20	—	—	—	—	—	Dry
4/11/20	N/R	N/R	N/R	N/R	—	Inundated; access constraints—feature modified due to grading
4/18/20	—	—	—	—	—	Dry

Feature: 325						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	7	N/R	N/R	—	Inundated
3/20/20	17.1	7	5.25	143	None	—
3/27/20	—	—	—	—	—	Dry
4/3/20	—	—	—	—	—	Dry
4/10/20	12.5	16	24	53	—	Inundated; currently raining
4/17/20	—	—	—	—	—	Dry

Feature: 330						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/13/20	N/R	3	N/R	N/R	—	Inundated
3/20/20	—	—	—	—	—	Wet but not inundated
3/27/20	—	—	—	—	—	Dry
4/3/20	—	—	—	—	—	Dry
4/10/20	N/R	10	100	N/R	—	Inundated; currently raining
4/17/20	—	—	—	—	—	Dry

Feature: 331						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/6/20	9.3	5	728	183	—	Active construction area; Newly constructed detention basin

Feature: 332						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/3/20	N/R	N/R	N/R	N/R	—	Active construction area
3/11/20	N/R	N/R	N/R	N/R	—	Active construction area; Newly filled/hardscaped.

Feature: 333						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/3/20	11	4	12	228	—	Inundated
1/24/20	—	—	—	—	—	Dry
2/14/20	—	—	—	—	—	Dry
3/11/20	N/R	3	N/R	N/R	—	Inundated
3/13/20	N/R	< 3	N/R	N/R	—	Inundated; too shallow to sample
3/20/20	12.7	3	10	226	None	—
3/27/20	10.5	3	12.5	695	None	—
4/3/20	—	—	—	—	—	Dry
4/10/20	11.1	4	30	80	—	Inundated
4/17/20	—	—	—	—	—	Dry

Feature: 334						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/3/20	N/R	N/R	N/R	N/R	—	Active construction area. Filled/newly constructed road.

Feature: 335						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/6/20	9.3	5	728	183	—	Active construction area; Newly constructed detention basin

Feature: 338						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/3/20	—	—	—	—	—	Active construction area. Filled/newly constructed road.

Feature: 401						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	6.3	3	22.5	132	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	—	—	—	—	—	Dry
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	10	N/R	N/R	—	Inundated
3/17/20	20.4	7	32	79	None	—
3/24/20	—	—	—	—	—	Dry
3/31/20	—	—	—	—	—	Dry
4/7/20	17.9	8	40	71	—	Inundated
4/14/20	N/R	4	24.5	N/R	None	—
4/21/20	—	—	—	—	—	Dry

Feature: 402						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/21/20	N/R	3	6	N/R	—	Inundated
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry

Feature: 402						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
2/11/20	18.3	4	30	181	—	Inundated
2/18/20	22.3	3	6.25	238	None	—
2/25/20	26.3	2	3	284	None	—
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	14	N/R	N/R	—	Inundated
3/17/20	16.8	12	72	102	None	—
3/24/20	17.6	9	88	76	*B. lindahli* 10s	—
3/31/20	18.4	5	8.75	192	*B. lindahli* 10s	—
4/7/20	N/R	10+	78	N/R	None	—
4/14/20	N/R	6+	56	N/R	None	—
4/21/20	—	—	—	—	—	Dry

Feature: 403						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	8.7	8	20	133	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	—	—	—	—	—	Dry
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Wet but not inundated
2/18/20	—	—	—	—	—	Wet but not inundated
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	8	N/R	N/R	—	Inundated
3/17/20	14.9	7	24	104	None	—
3/24/20	16.6	5	40	110	None	—
3/31/20	—	—	—	—	—	Wet but not inundated
4/7/20	14.6	7	8 x 4	72	None	—
4/14/20	16.6	4	5 x 3	97	None	—
4/21/20	—	—	—	—	—	Dry

Feature: 404						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	11.1	6	4.5	122	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	—	—	—	—	—	Dry

Feature: 404						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	5	N/R	N/R	—	Inundated
3/17/20	15.5	6	6	130	None	—
3/24/20	17.3	5	12	166	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	14.2	6	12	141	—	Inundated
4/14/20	16.4	4	6	97	None	—
4/21/20	—	—	—	—	—	Dry

Feature: 405						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/17/20	N/R	1	N/R	N/R	—	Wet but not inundated
3/24/20	N/R	< 1	N/R	N/R	—	Wet but not inundated
3/31/20	—	—	—	—	—	Dry
4/7/20	13	3	0.06	114	—	Inundated
4/14/20	12.6	3	9	106	None	—
4/21/20	—	—	—	—	—	Dry

Feature: 406						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	13.7	7	20	278	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	16.3	3	1x.5	3,570	—	Inundated
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	7	N/R	N/R	—	Inundated
3/17/20	21	6	27	1,060	*B. lindahli* 100s immature	—
3/24/20	23.4	7	17.5	1,760	*B. lindahli* 100s	—

Feature: 406						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/31/20	24.1	3	6	3,390	None	—
4/7/20	20.3	7	33	2,190	None	—
4/14/20	N/R	N/R	15	N/R	None	—
4/21/20	29.9	1	3.75	2,150	None	—
4/28/20	—	—	—	—	—	Dry

Feature: 407						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	14	6	12	205	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	16.6	2	1	617	*B. lindahli* 10s Immature	—
1/21/20	17.3	2	6	2,010	None	—
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	10	N/R	N/R	—	Inundated
3/17/20	21.7	7	18	757	*B. lindahli* 100s Immature	—
3/24/20	24.5	8	17.5	939	*B. lindahli* 100s	—
3/31/20	24.7	3	2.5	1,710	*B. lindahli* 10s	—
4/7/20	20.4	7	21	1,420	None	—
4/14/20	29.4	7	18	649	None	—
4/21/20	34.3	3	5	1,610	*B. lindahli* 10s Immature	—
4/28/20	—	—	—	—	—	Dry

Feature: 408						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	12.5	6	10	140	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	16.1	2	N/R	551	—	Inundated
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry

Feature: 408						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	11	N/R	N/R	—	Inundated
3/17/20	21	9	18	367	None	—
3/24/20	22.3	7	27	355	*B. lindahli* One female/ one male	—
3/31/20	20.6	4	9	473	*B. lindahli* One female	—
4/7/20	N/R	8+	10	N/R	None	—
4/14/20	N/R	4	7	N/R	None	—
4/21/20	N/R	> 3	8	N/R	None	—
4/28/20	—	—	—	—	—	Dry

Feature: 409						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	15.7	2	0.5	47	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	—	—	—	—	—	Dry
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	2	N/R	N/R	—	Inundated
3/17/20	21.3	3	2	109	None	—
3/24/20	23.9	4	3	86	*B. lindahli* Immature 10s	—
3/31/20	—	—	—	—	—	Dry
4/7/20	N/R	3+	4	N/R	—	Inundated
4/14/20	N/R	N/R	1.5	N/R	*B. lindahli* Low 10s Immature	—
4/21/20	—	—	—	—	—	Dry

Feature: 500						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	3.5	N/R	N/R	—	Inundated

Feature: 500						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/13/20	N/R	5	10	N/R	None	—
3/20/20	20.9	3	25	171	—	Inundated; currently raining
3/27/20	—	—	—	—	—	Dry
4/3/20	—	—	—	—	—	Dry
4/10/20	15.6	4	37.5	96	—	Inundated; currently raining
4/17/20	—	—	—	—	—	Dry

Feature: 501						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	4	N/R	N/R	—	Inundated
3/20/20	N/R	N/R	N/R	N/R	—	Wet but not inundated
3/27/20	—	—	—	—	—	Dry
4/3/20	—	—	—	—	—	Dry
4/10/20	N/R	5	5	N/R	—	Inundated
4/17/20	—	—	—	—	—	Dry

Feature: 502						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/21/20	18.3	2	1	50.1	—	Inundated
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	3	N/R	N/R	—	Inundated
3/17/20	21.7	3	4	34	None	—
3/24/20	22.7	3	25	35	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	N/R	3	10	N/R	—	Inundated
4/14/20	—	—	—	—	—	Dry

Feature: 503						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	N/R	5	63	333	None	Inundated
1/7/20	19	5	65	357	*B. lindahli*	—

Feature: 503						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
					Low 10s	
1/14/20	16.5	5	52	489	*B. lindahli* Low 10s	—
1/21/20	15.1	5	48	669	None	—
1/28/20	22.9	4	3	905	None	—
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	—	12	—	—	None	Inundated
3/17/20	21.3	7	88	378	*B. lindahli* 100s Immature	—
3/24/20	24.7	7	216	681	*B. lindahli* 100s Newly maturing	—
3/31/20	24.5	4	85	973	*B. lindahli* 100s Immature	—
4/7/20	20	5	112	794	None	—
4/14/20		7	60	N/R	None	—
4/21/20	31.7	4	58.5	1,190	None	—
4/28/20	33.4	1	2	3,250	None	Inundated
5/5/20	—	—	—	—	—	Dry

Feature: 504						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS**	**Fairy Shrimp Present and Magnitude**	**Notes**
12/31/19	12.2	14	180	231	*B. lindahli* High 100s Immature	Inundated
1/7/20	16.3	9	48	292	*B. lindahli* High 100s	—
1/14/20	15.1	8	44	344	*B. lindahli* Mid-100s	—
1/21/20	16.3	8	56	491	*B. lindahli* 10s	—
1/28/20	21.2	6	24	577	None	—
2/4/20	12.0	3	12.5	980	None	—
2/11/20	16.1	1	7.5	1,330	None	—
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	14	N/R	N/R	—	Inundated

Feature: 504						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS**	**Fairy Shrimp Present and Magnitude**	**Notes**
3/17/20	19.9	14	87.5	405	*B. lindahli* High 1,000s Immature	—
3/24/20	24.4	12	72	628	*B. lindahli* High 1,000s Mature	—
3/31/20	22.6	8	52.5	851	None	—
4/7/20	19.5	12	90	936	None	—
4/14/20	26.5	11	63	634	None	—
4/21/20	30.4	9	52.5	957	*B. lindahli* One mature male	—
4/28/20	33	5	22.5	1,800	None	—
5/5/20	—	—	—	—	—	Dry

Feature: 505						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS**	**Fairy Shrimp Present and Magnitude**	**Notes**
12/31/19	13.1	9	30	81.5	*B. lindahli* 10s	Inundated
1/7/20	18.1	4	30	170	*B. lindahli* 10s	—
1/14/20	15.9	3	14	225	*B. lindahli* 100s	—
1/21/20	16	3	24	1,460	*B. lindahli* 10s	—
1/28/20	22.3	2	3	1,080	*B. lindahli* 10s Nauplii0	—
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	14	N/R	N/R	—	Inundated
3/17/20	N/R	15	N/R	N/R	None	—
3/24/20	21.5	12	52	453	*B. lindahli* 10s Immature	—
3/31/20	22	7	30	707	None	—
4/7/20	18.9	10	49	928	None	—
4/14/20	N/R	N/R	60	N/R	None	—
4/21/20	26.4	6	30	876	*B. lindahli* One female	—
4/28/20	33.8	3	12.5	1,490	*B. lindahli* One male	—

Feature: 505						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS**	**Fairy Shrimp Present and Magnitude**	**Notes**
5/5/20	—	—	—	—	—	Dry

Feature: 506						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	9	N/R	N/R	—	Inundated
3/17/20	21.3	6	4.5	176	None	—
3/24/20	24.8	5	13.5	284	*B. lindahli* Mid-10s	—
3/31/20	—	—	—	—	—	Dry
4/7/20	N/R	6+	15	N/R	—	Inundated
4/14/20	29.3	2	1.5	206	*B. lindahli* Low 10s Immature	—
4/21/20	—	—	—	—	—	Dry

Feature: 507						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	15.8	2	0.5	125	—	Inundated
1/7/20	—	—	—	—	—	Dry
1/14/20	—	—	—	—	—	Dry
1/21/20	—	—	—	—	—	Dry
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	4	N/R	N/R	—	Inundated
3/17/20	22.6	5	5	606	None	—
3/24/20	25.9	3	N/R	832	*B. lindahli* Low 10s Immature	—
3/31/20	—	—	—	—	—	Dry
4/7/20	—	—	—	—	—	Dry
4/14/20	N/R	> 3	15	N/R	—	Inundated
4/21/20	—	—	—	—	—	Dry

Feature: 508						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
12/31/19	15.8	3	0.5	52.2	—	Inundated
1/7/20	—	—	—	—	—	Dry

Feature: 508						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
1/14/20	—	—	—	—	—	Dry
1/21/20	—	—	—	—	—	Dry
1/28/20	—	—	—	—	—	Dry
2/4/20	—	—	—	—	—	Dry
2/11/20	—	—	—	—	—	Dry
2/18/20	—	—	—	—	—	Dry
2/25/20	—	—	—	—	—	Dry
3/4/20	—	—	—	—	—	Dry
3/11/20	N/R	3	N/R	N/R	—	Inundated
3/24/20	23.4	4	5	98	*B. lindahli* < 10s	—
3/31/20	—	—	—	—	—	Dry
4/7/20	N/R	3	4	N/R	—	Inundated
4/14/20	—	—	—	—	—	Dry

Feature: 509						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/17/20	20.1	5	30	85	—	Inundated
3/24/20	22.4	4	16.5	77	None	—
67763/31/20	—	—	—	—	—	Dry
4/7/20	21.3	5	33	54	—	Inundated
4/7/20	N/R	4	4.5	N/R	None	—
4/14/20	—	—	—	—	—	Dry

Feature: 510						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	5	N/R	N/R	—	Inundated
3/17/20	24.1	5	18	2,060	None	—
3/24/20	21.7	4	45	1,030	None	—
3/31/20	—	—	—	—	—	Dry
4/7/20	21.3	4	13.5	1,050	—	Inundated
4/14/20	25.9	5	57.5	1,150	None	—
4/21/20	—	—	—	—	—	Dry

Feature: 511						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/24/20	22.5	8	22.5	69	—	Inundated
3/31/20	—	—	—	—	—	Dry
4/7/20	17.8	11	30	69	—	Inundated
4/14/20	25	2	0.75	65	*B. lindahli*	—

					Low 10s Immature	
4/21/20	—	—	—	—	—	Dry

Feature: 512						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	9	24	N/R	—	Inundated
3/17/20	—	—	—	—	—	Dry
3/24/20	—	—	—	—	—	Dry
3/31/20	—	—	—	—	—	Dry
4/7/20	N/R	3	9	N/R	—	Inundated
4/14/20	—	—	—	—	—	Dry

Feature: 513						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m^2)**	**TDS (ppm)**	**Fairy Shrimp Species and Magnitude**	**Notes**
3/11/20	N/R	6	144	N/R	—	Inundated
3/17/20	—	—	—	—	—	Dry
3/24/20	—	—	—	—	—	Dry
3/31/20	—	—	—	—	—	Dry
4/7/20	21.2	5	75	70	—	Inundated; currently raining
4/14/20	—	—	—	—	—	Dry

Attachment 3: Photographs

Photo 1: Feature 502, looking south.

Photo 2: Feature 503, looking southeast.

Photo 3: Feature 504, looking southeast.

Photo 4: Feature 16, looking south.

Photo 5: Feature 18, looking southeast.

Photo 6: Feature 260, looking southwest.

Photo 7: Feature 106, looking southwest.

Photo 8: Feature 408, looking northwest.

Photo 9: Feature 7, looking south.

Photo 10: Feature 22, looking northeast.

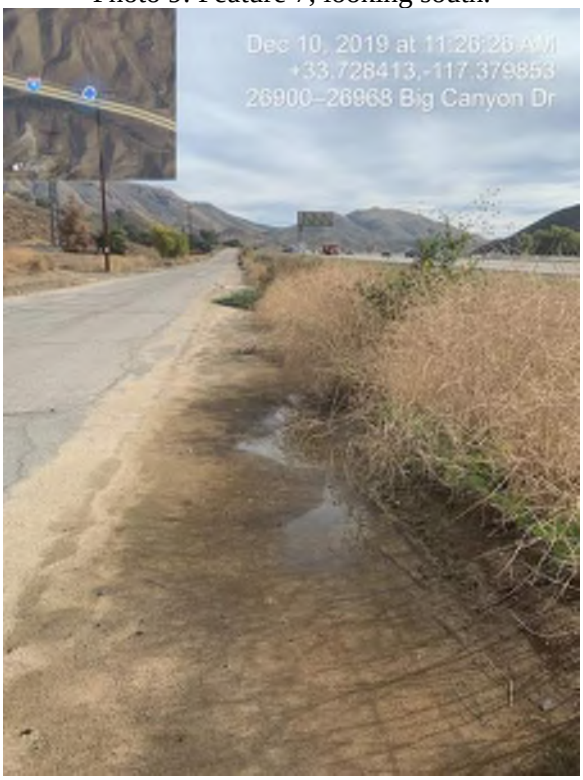


Photo 11: Feature 23, looking northeast.

Photo 12: Feature 24, looking northeast.

Photo 13: Feature 28, looking southeast.

Photo 14: Feature 31, looking north.


Photo 15: Feature 32, looking north.

Photo 16: Feature 42, looking southeast.

Photo 17: Feature 44, looking northeast.

Photo 18: Feature 45, looking north.

Photo 19: Feature 100, looking south.

Photo 20: Feature 403, looking northwest.

July 25, 2021

Ms. Stacey Love
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

RE: Survey Report for the 2020/2021 Protocol Wet-Season Branchiopod Surveys for the I-15 Express Lanes Project – Southern Extension, Riverside County, California

Dear Stacey:

This letter provides the results of the 2020/2021 protocol wet-season surveys for federally listed vernal pool branchiopods (fairy shrimp) as part of the I-15 Express Lane Project – Southern Extension (ELPSE) in Riverside County, California.

PROJECT DESCRIPTION AND LOCATION

The Riverside County Transportation Commission (RCTC), in cooperation with the California Department of Transportation (Caltrans), is proposing to construct toll lanes along Interstate 15 (I-15) between post mile (PM) 20.3 and PM 40.1 in Riverside County, California (**Figure 1**). Specifically, the proposed project would occur within the South Corona, Lake Matthews, Alberhill, and Lake Elsinore U.S. Geological Survey topographic quadrangles (**Figure 2**). **Attachment 1** provides a list of all the USGS Townships, Ranges and Sections associated with the proposed project location within each of the quadrangles.

The primary component of the I-15 Express Lanes Project Southern Extension (Project) would be the addition of two tolled express lanes in both the NB and SB directions within the median of I-15 from SR-74 (Central Avenue) (PM 22.3) in the City of Lake Elsinore, through the unincorporated Riverside County community of Temescal Valley, to El Cerrito Road (PM 38.1) in the City of Corona, for approximately 15.8 miles. The proposed Project would also add a southbound auxiliary lane between both the Main Street (PM 21.2) off-ramp and SR-74 (Central Avenue) on-ramp (approximately 0.75 mile), and the SR-74 (Central Avenue) off-ramp and Nichols Road on-ramp (PM 23.9) (approximately 1 mile). Along with the lane additions, which would extend from PM 21.2 to 38.1, the proposed Project would include widening of up to 14 bridges; potential construction of noise barriers, retaining walls, and drainage systems; and implementation of electronic toll collection equipment and signs. Associated improvements for the toll lanes, including advance signage and transition striping, would extend approximately 2 miles from each end of the express lane limits to PM 20.3 in the south and PM 40.1 in the north. The proposed lane additions and supporting infrastructure are expected to be constructed primarily within the existing State ROW. This Project is included in the 2019 Federal Transportation Improvement Program (FTIP) as Project ID RIV170901. It is also included in SCAG's *Connect SoCal* 2020–2045 RTP/SCS as Project ID 3160001.

The wet season survey area included the project area, which is defined as the Caltrans Right-of-Way project limits of disturbance and 100-foot buffer, where access was granted. The majority of the survey area is heavily disturbed as a result of vehicular traffic, roadway maintenance, foot traffic, and development typical of the Caltrans Right of Way and adjacent areas. Several areas are also under construction for unrelated projects. All features included in the surveys (e.g., ruts along the shoulders of the roads, man-made impoundments associated with drainages and urban runoff) were heavily disturbed. Many of the features were unvegetated or they supported only non-native vegetation. Native vegetation was sparse at only a few of the features. All the surveyed features appeared to be filled by direct rainfall or surrounding surface flows.

Thirteen of the 49 features sampled during the 2020/2021 wet season surveys were also included in 2019/2020 wet season surveys because of access issues during the 2019/2020 surveys that precluded a complete wet season survey for these features.[1] Therefore, they were included in the 2020/2021 wet season surveys to collect a complete data set. The remaining 36 features sampled during the 2020/2021 wet season were either new features identified in northern and southern extensions that were added to the project in late 2020, or features located in areas where access was granted after the completion of the 2019/2020 wet season surveys.

SURVEY METHODS

The focused 2020/2021 wet-season fairy shrimp surveys were conducted in accordance with the current U.S. Fish and Wildlife Service (USFWS) survey guidelines[2]. Wet season surveys began on December 30, 2020 following 1.39 inches of accumulated rain that had fallen since November 7, 2020.

During each sampling round, all features were visited to determine if they were still retaining water. If a rain event occurred between sampling rounds, all known and potential features that may have been inundated by the rain event were visited, and the survey area was reassessed for new features.

During each sampling round, the biologists recorded information for each inundated feature including air temperature, water temperature, average depth, approximate size, habitat condition (e.g., disturbances), voucher information, and other relevant data. Each inundated feature was sampled by sweeping a hand-held net through the water, examining the net contents, and recording all aquatic species. Fairy shrimp were identified in the field with a hand lens or a microscope for immature specimens. The reproductive status and approximate number of fairy shrimp in each feature were noted. Sampling was completed once a feature desiccated and did not reinundate during the 2020/2021 season or once the feature sustained 120 days of continuous inundation. Mature male and female fairy shrimp voucher specimens were collected from a representative number of features sampled during the 2020/2021 wet-season surveys.

[1] ICF. 2020. *Survey Report for the 2019/2020 Protocol Wet-Season Branchiopod Surveys for the I-15 Express Lanes Project – Southern Extension, Riverside County, California.* October 14.

[2] U.S. Fish and Wildlife Service. 2017. *Survey Guidelines for the Listed Large Branchiopods*. November 13.

As previously noted, a complete sampling could not be done for some features because of access limitations within private parcels outside of the Right-of-Way or restrictions associated with active construction from unrelated projects. Many of the features in the 100-foot buffer are on private property, which requires written approval from each property owner before the area can be surveyed. In these instances where access was not permissible, when possible, a visual assessment from the property boundary was done, noting whether ponding was present. If access was granted, each featured was sampled until it dried up and did not reinundate or reached 120 days of continuous inundation after the date access was granted.

RESULTS

The 2020/2021 wet-season survey consisted of 18 sampling visits, which were conducted by USFWS-permitted biologists Frank Wegscheider (TE 038716-4) and Crysta Dickson (TE 067347-5). Surveys were initiated on December 30, 2020 and continued through April 17, 2021. **Table 1** provides a summary of the 2020/2021 wet-season survey effort.

Table 1. Survey Dates, Times, Personnel, and Conditions for the 2020/2021 Wet-Season Fairy Shrimp Surveys

Visit	Date	Time	Personnel	Weather Conditions
1	12/30/20	1200–1415	CD	68°F–70°F, winds 0–3 mph, 0%–0% cloud cover, good visibility
2	12/30/20	1135-1510	FW	68°F-86°F, winds 1-7 mph, 0-15 % cloud cover, good visibility
3	12/31/20	1000–1215	CD	64°F–64F, winds 0–3 mph, 10%–60% cloud cover, good visibility
4	1/06/21	1145-1430	FW	76°F-77°F, winds 1-4 mph, 50-20% cloud cover, good visibility
5	1/12/21	0755-1220	FW	49°F-61°F, winds 1-7 mph, 30-0 % cloud cover, good visibility
6	1/21/21	0940-1145	FW	68°F-74°F, winds 2-7 mph, 0% cloud cover, good visibility
7	1/27/21	0750-1230	FW	50°F-71°F, winds 1-3 mph, 80-30 % cloud cover, good visibility
8	2/04/21	0845-1440	FW	51°F-75F, winds 1-6 mph, 0% cloud cover, good visibility
9	2/11/21	0855-1240	FW	66°F-81°F, winds 2-4 mph, 0 % cloud cover, good visibility
10	2/18/21	0850-1150	FW	60°F-64°F, winds 1-8 mph, 0 % cloud cover, good visibility
11	2/25/21	1100-1315	FW	70°F-75°F, winds 1-5 mph, 0 % cloud cover, good visibility
12	3/04/21	0910-1520	FW	57°F-70°F, winds 2-8 mph, 0-15 % cloud cover, good visibility
13	3/11/21	0710-1535	FW	48°F-58°F, winds 2-9 mph, 0-50 % cloud cover, good visibility
14	3/19/21	0700-1055	FW	53°F-71°F, winds 0-4 mph, 0% cloud cover, good visibility
15	3/26/21	0800-1135	FW	52°F-69°F, winds 1-5 mph, 90-0 % cloud cover, good visibility
16	4/02/21	0805-1020	FW	41°F-72°F, winds 0-6 mph, 0% cloud cover, good visibility
17	4/09/21	0820-0950	FW	65°F, winds 3-6 mph, 0% cloud cover, good visibility
18	4/17/21	1255-1415	FW	79°F-81°F, winds 2-4 mph, 0% cloud cover, good visibility
*FW = Frank Wegscheider; CD = Crysta Dickson				

Summary of Rainfall for the 2020/2021 Wet Season

Rain events for the 2020/2021 rainy season were monitored using rainfall data from the National Oceanic and Atmospheric Administration (NOAA) website[3]. **Table 2** provides a summary of the monthly rainfall totals for the 2020/2021 survey season as well as the expected average monthly rainfall totals, based on the weather data for Elsinore, California.

Table 2. Summary of the 2020/2021 Rainfall Data

	Rainfall Total (inches)	
Month	**2020/2021**	**Average**
September 2020	0.00	0.51
October 2020	0.00	0.17
November 2020	0.36	0.59
December 2020	1.03	2.01
January 2021	1.58	2.97
February 2021	0.04	2.85
March 2021	1.40	1.49
April 2021	0.00	0.54
May 2021	0.00	0.21
June 2021	0.00	0.07
Total	**4.41**	**11.41**

The total rainfall recorded during the 2020/2021 rain season for the Lake Elsinore area was 4.41 inches, which was 7 inches below the 20-year average. In addition, the Palmer Drought Severity Index classified southern California as being in a moderate to severe (D1-D2) drought [4].

2020/2021 Wet-Season Sampling Results

The wet-season sampling effort was initiated on December 30, 2020, after approximately 1.39 inches of accumulated rain had occurred between September 1 and December 30, 2020. A total of 49 features supporting potentially suitable fairy shrimp habitat were sampled during the 2020/2021 wet season (**Figure 3**). Many of the features were road ruts, ditches, or other depressions that became inundated at some point during the wet season. None of the features sampled exhibited vernal pool indicators. The majority of the features were low-quality habitat and heavily disturbed by frequent vehicular traffic, foot traffic, and active construction associated with I-15 and adjacent to urban development. This level of disturbance, including the man-made aspect, created low-quality habitat conditions for fairy shrimp.

[3] National Oceanic and Atmospheric Administration. 2021. *NOWData – NOAA Online Weather Data*. National Weather Service Forecast Office, Elsinore, CA. Available at: https://w2.weather.gov/climate/xmacis.php?wfo=sgx. Accessed: July 8, 2021.

[4] National Integrated Drought Information Center. 2021. *U.S. Drought Portal*. Available at: https://www.drought.gov/drought/data-maps-tools/current-conditions. Accessed: July 8, 2021.

Of the 49 features identified, five were found to support the versatile fairy shrimp, *Branchinecta lindahli*. Four of these five features (Features 19, 44, 504, and 505) were partially sampled during the 2019/2020 wet season due to access constraints and the inability to sample the features on a weekly basis while ponded. However, when access was granted, the versatile fairy shrimp was found in these features, which is consistent with the 2020/2021 survey findings. During the 2019/2020 wet season survey, Feature 29 could not be accessed at all, but ponding was observed, and fairy shrimp of an unknown species could be seen through binoculars. During the 2020/2021 survey, Feature 29 could not be accessed in December and January, although ponding was observed. Once access was gained in February, the versatile fairy shrimp was also found in this Feature.

Two features, Features 41 and 323, could not be sampled at all as both of the sites were graded as a result of unrelated project activities following their identification. Therefore, it is unknown if these features supported fairy shrimp species. Fairy shrimp were not detected in the remaining 42 features sampled during the 2020/2021 wet season sampling efforts.

Figure 3 shows the locations of all the features sampled during the 2020/2021 wet-season surveys. **Attachment 2** provides a summary of the sampling results for each feature; the first entry notes the date the feature was first observed to be inundated and the last entry notes when the feature dried up for the season. **Attachment 3** includes representative photos of the types of features sampled. It should be noted that many of the features held water for only a short period of time during and immediately following a rain event and/or did not inundate until late in the season. Oftentimes, sampling occurred the day of a rain event or immediately following consecutive rain events. Therefore, many of the features were ponded during the sampling event but did not remain inundated more than 2 or 3 days following the rain event.

Representative aquatic species found in many of the features included water fleas (Order Cladocera), water boatman (Family Corixidae), midge larvae (Order Diptera), dragonfly/damselfly larvae (Order Odonata), backswimmer (Family Notonectidae), water scavenger beetle (Family Hydrophilidae), predaceous diving beetle (Family Dytiscidae), mosquito larva (Family Culicidae), water snails (Subclass Pulmonata), roundworms (Phylum Nematoda), western toad tadpoles (*Bufo boreas*), Pacific treefrog tadpoles/eggs (*Hyla regilla*), crayfish (Order Decapoda), mosquitofish (*Gambusia affinis*), and springtail (Subclass Collembola).

We certify that the information contained in this survey report and attached exhibits fully and accurately represents our work.

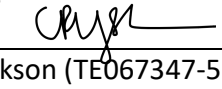
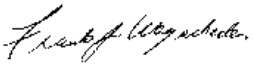
Signature: 	Signature: 
Crysta Dickson (TE067347-5)	Frank Wegscheider (TE 038716-5)
Date: July 25, 2021	Date: July 25, 2021

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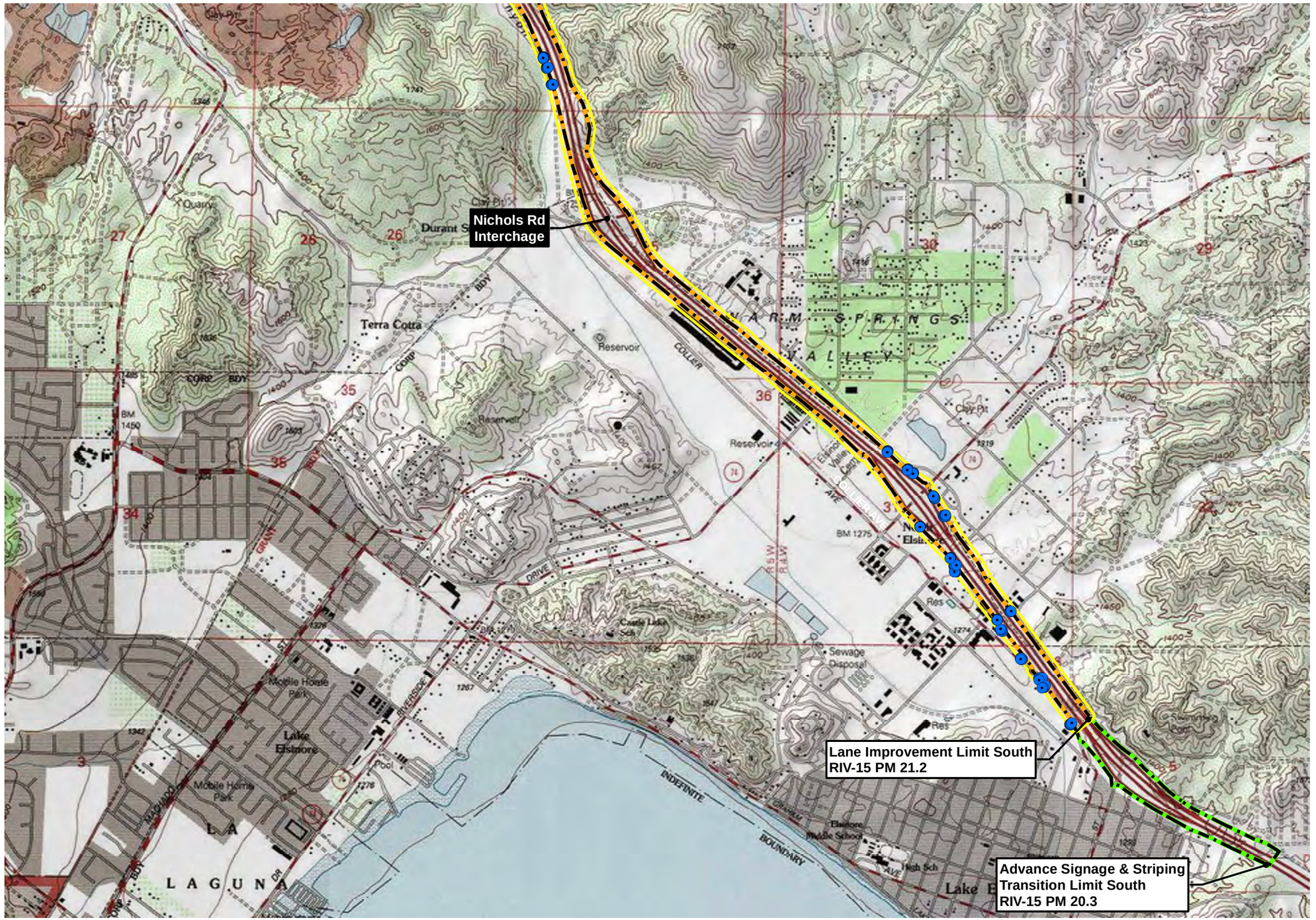
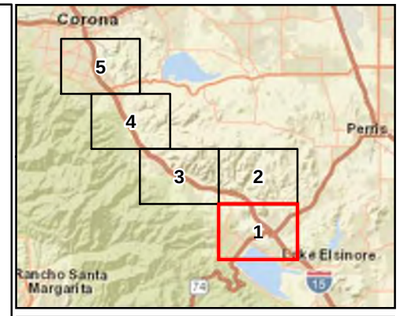
Figure 1
Regional Vicinity
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

- Wet Season Fairy Shrimp Survey Locations
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

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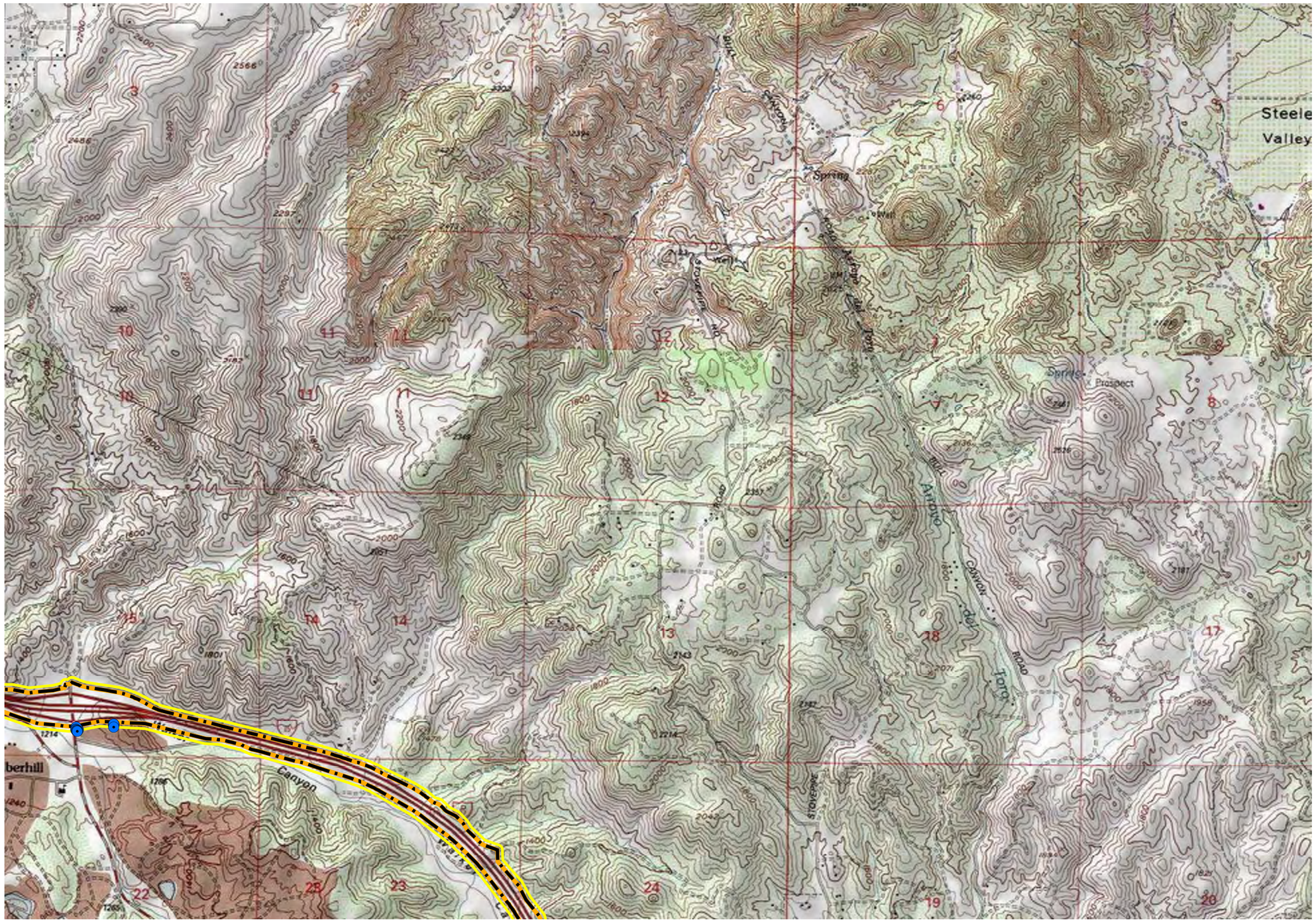
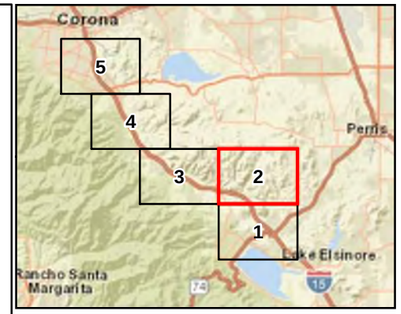
Figure 2, Sheet 1 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

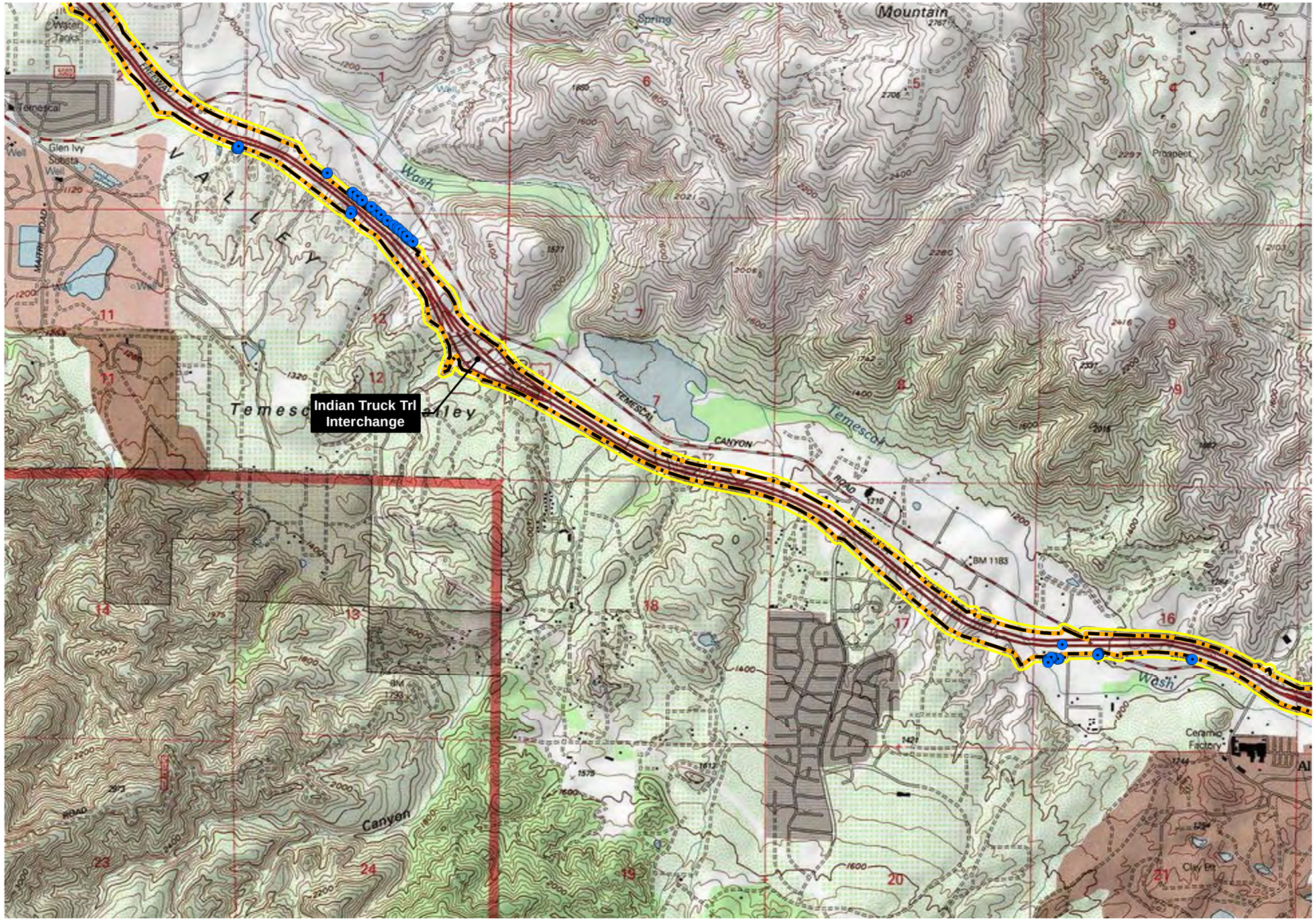
- Wet Season Fairy Shrimp Survey Locations
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 1,000 2,000 Feet

1:24,000

Figure 2, Sheet 2 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Wet Season Fairy Shrimp Survey Locations
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

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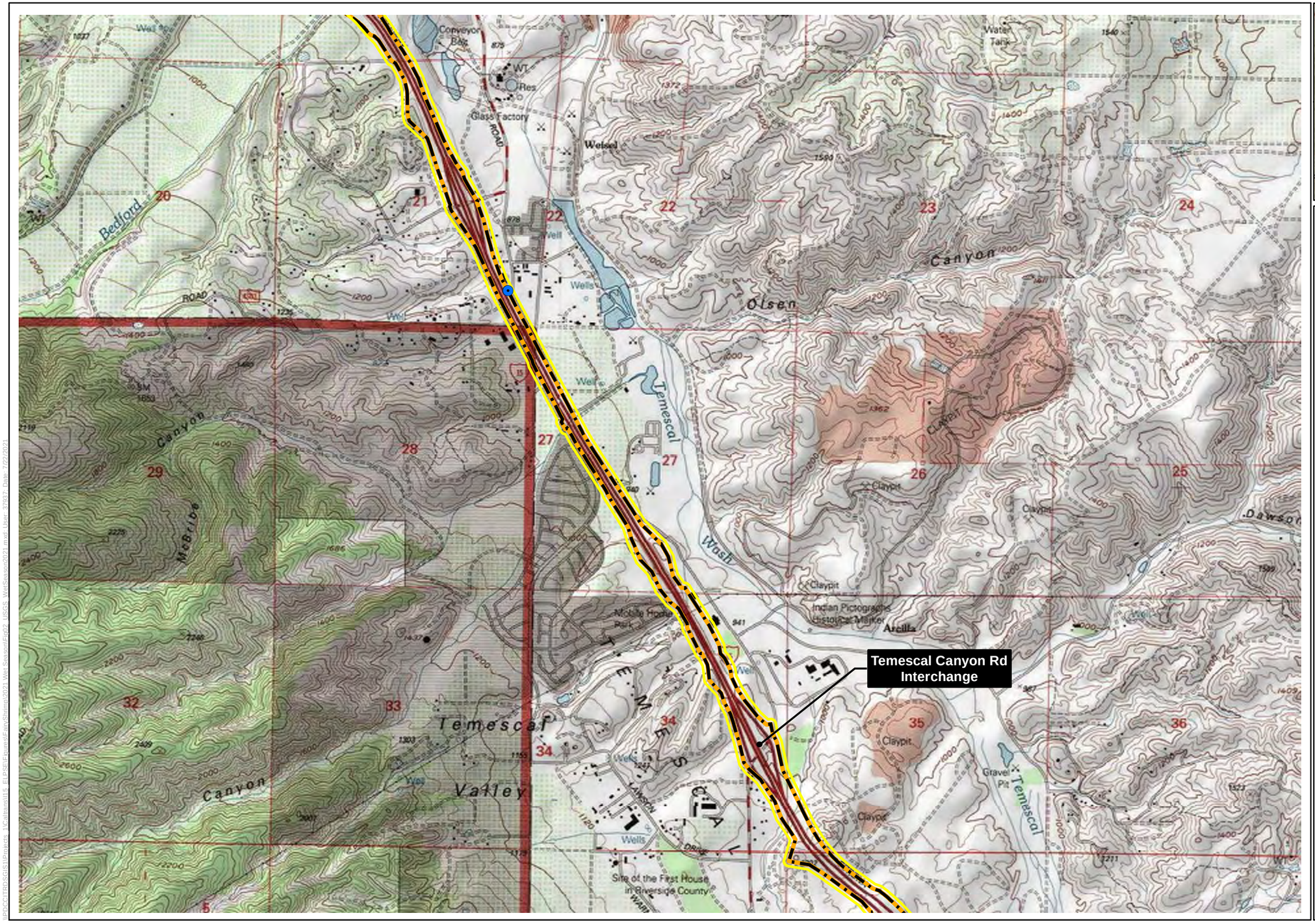
Figure 2, Sheet 3 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Wet Season Fairy Shrimp Survey Locations
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 1,000 2,000 Feet

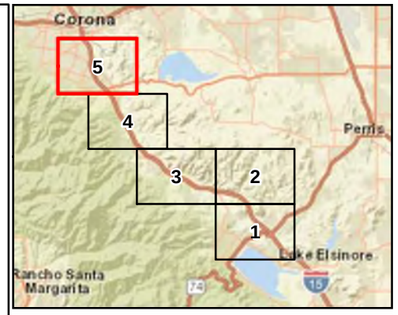
1:24,000

Figure 2, Sheet 4 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Advance Signage & Striping Transition Limit North RIV-15 PM 40.1

Lane Improvement Limit North RIV-15 PM 38.1

Cajalco Rd Interchange



Legend

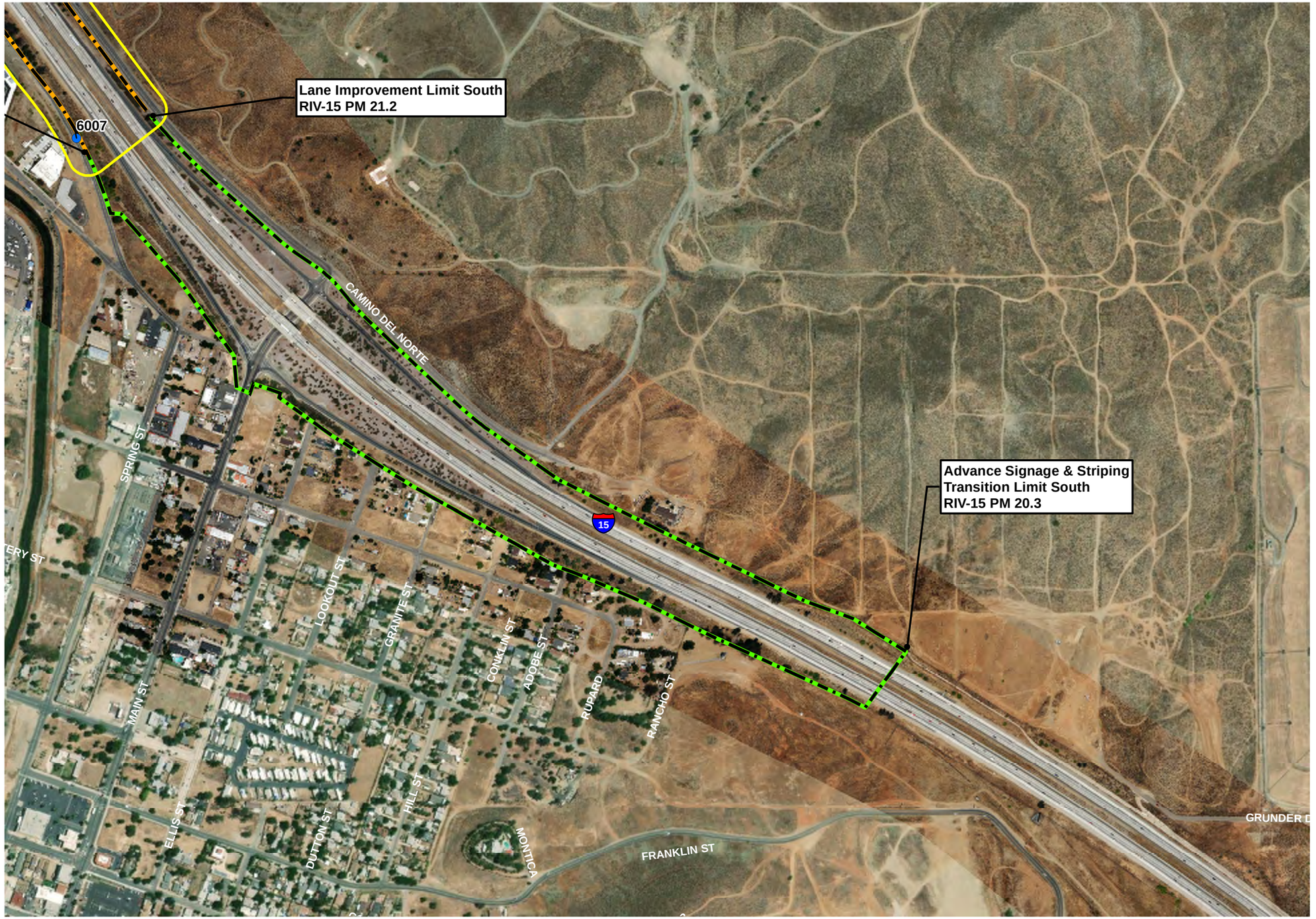
- Wet Season Fairy Shrimp Survey Locations
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 1,000 2,000 Feet

1:24,000

Figure 2, Sheet 5 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

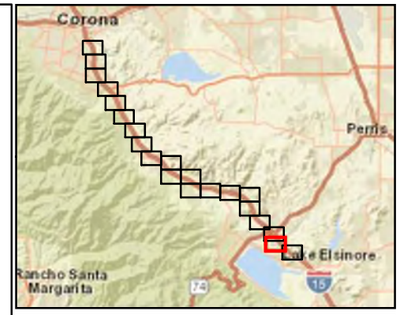
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 1 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

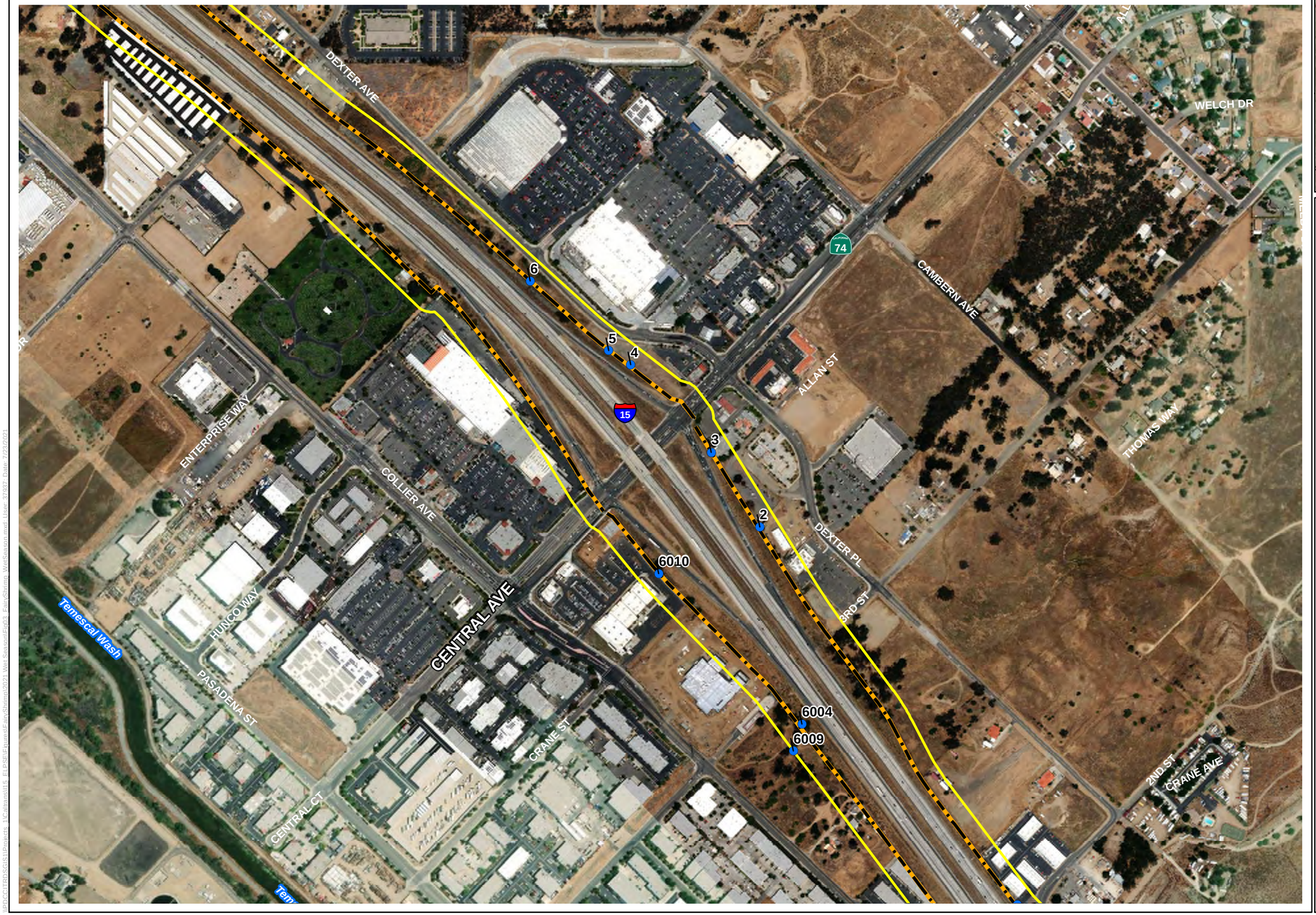
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

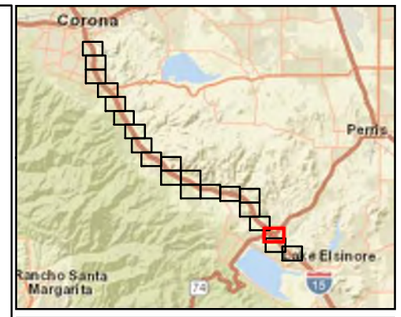
N

0 300 600 Feet

1:6,000

Figure 3, Sheet 2 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

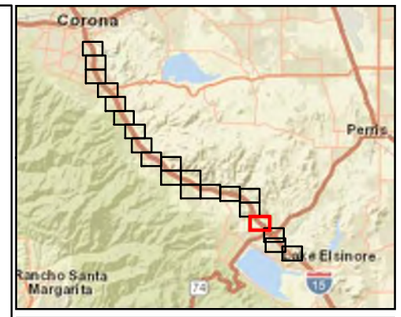
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 3 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

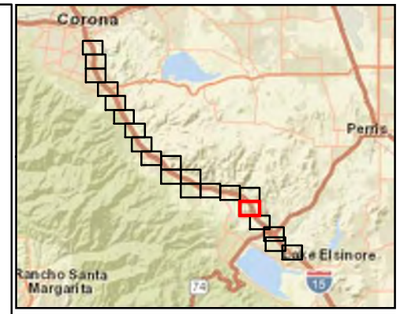
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 4 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 5 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

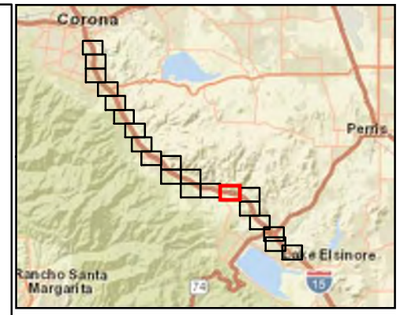
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 6 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 7 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

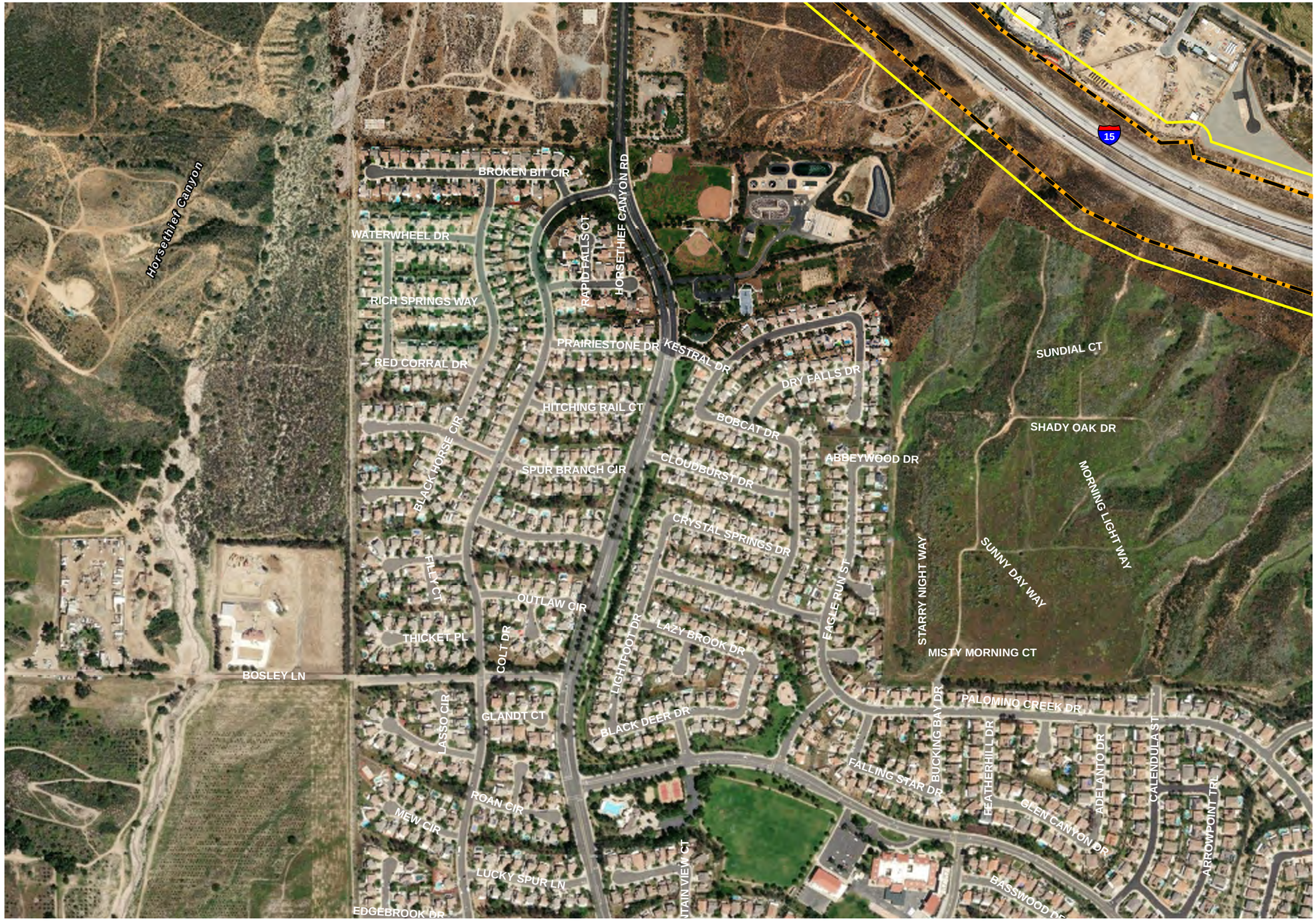
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

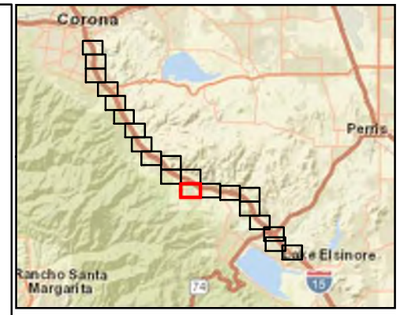
N

0 300 600 Feet

1:6,000

Figure 3, Sheet 8 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

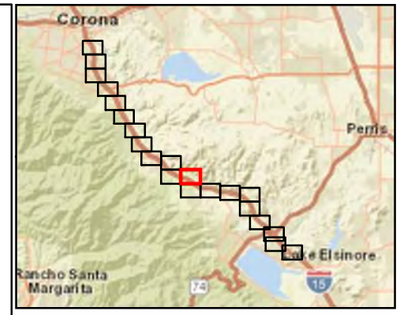
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 9 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 10 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

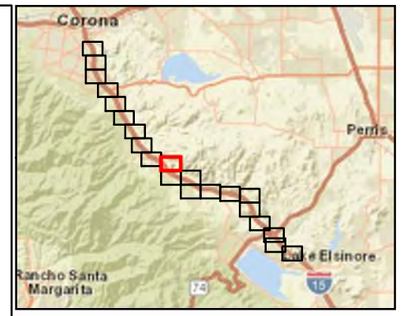
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 11 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

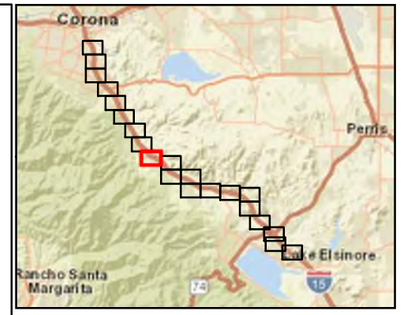
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 12 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

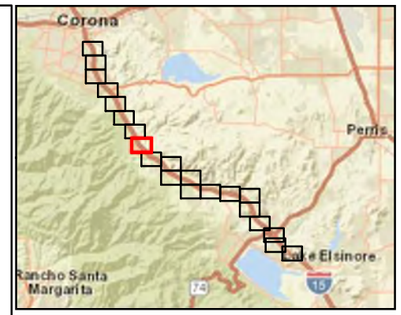
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 13 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 14 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

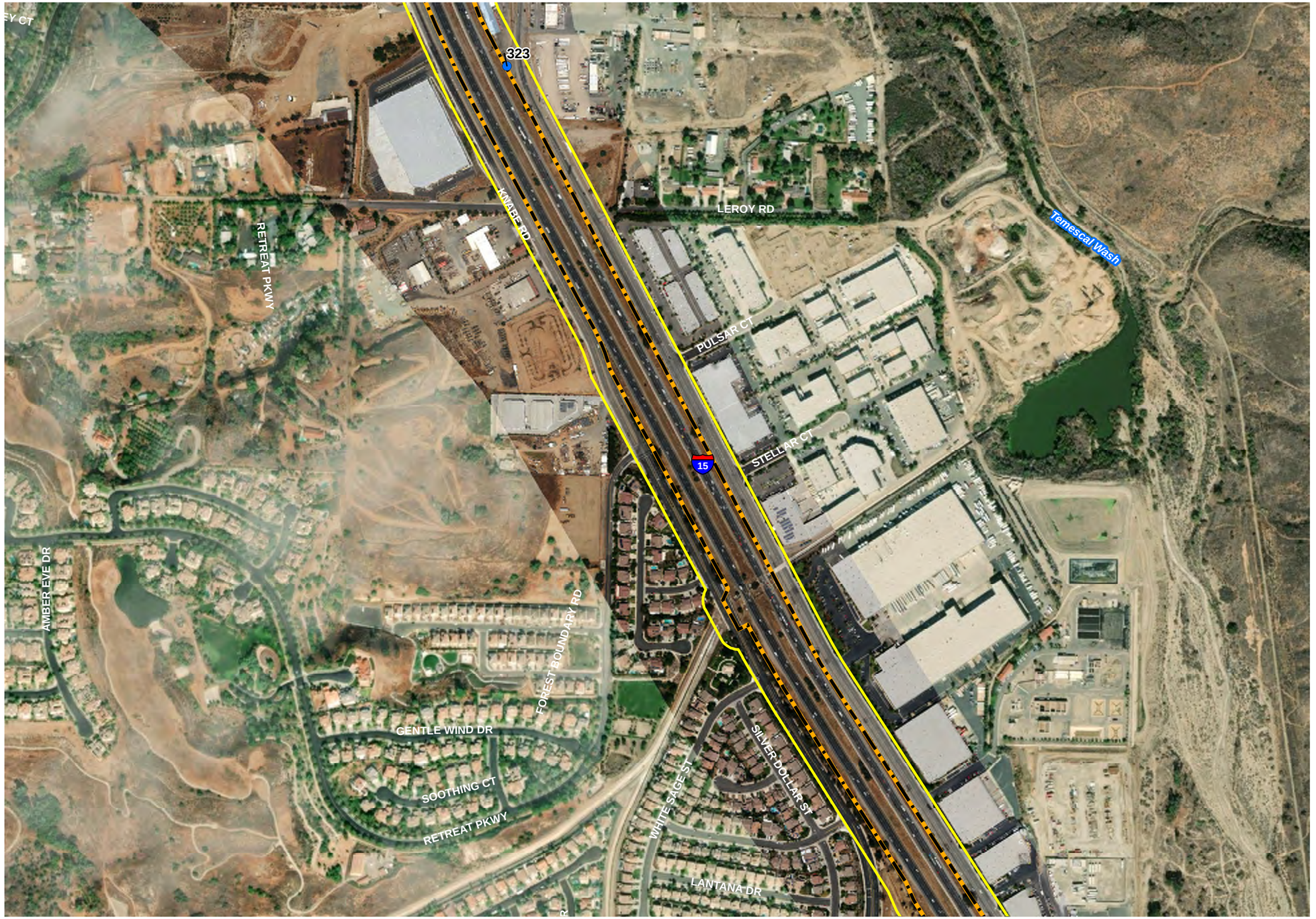
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 15 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 16 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet
1:6,000

Figure 3, Sheet 17 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
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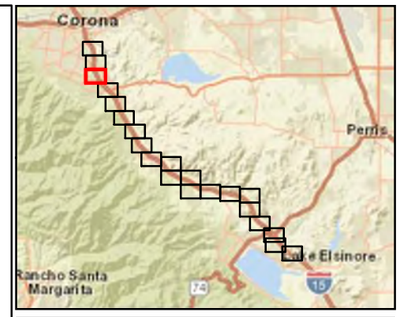
N

0 300 600 Feet

1:6,000

Figure 3, Sheet 18 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
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- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 19 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

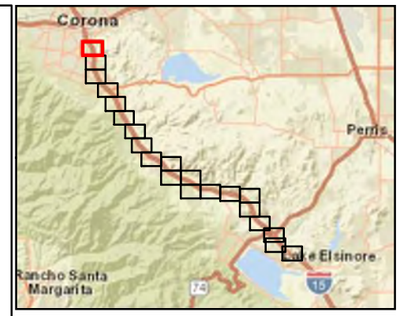
Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

0 300 600 Feet
1:6,000

N

Figure 3, Sheet 20 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 21 of 21
2019/2020 Wet Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Attachment 1
USGS Quads with Township, Range and Section

Alberhill Quadrangle	
Township 5 South, Range 5 West.	Sections 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35.
Township 5 South, Range 6 West.	Sections 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 35 and 36.
Township 6 South, Range 5 West.	Sections 2, 3, 4, 5, 6, 8, 9, 10, 11, 14, 15, 16, 17, 19, 20, 21, 22, 23, 26, 27, 28 and 29.
Corona South Quadrangle	
Township 3 South, Range 6 West	Sections 27, 28, 29, 30, 31, 32, 33 and 34.
Township 3 South, Range 7 West.	Sections 25, 26, 27, 28, 33, 34, 35 and 36.
Township 4 South, Range 6 West.	Sections 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33 and 34.
Township 4 Section, Range 7 West.	Sections 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 21, 22, 23, 24, 25, 26, 27, 28, 34, 35 and 36.
Township 5 South, Range 6 West.	Sections 3, 4, 5, 6, 7, 8, 9 and 10.
Township 5 South, Range 7 West.	Sections 1 and 2.
Lake Matthews Quadrangle	
Township 3 South, Range 5 West.	Sections 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35.
Township 3 South, Range 6 West.	Sections 25, 26, 27, 34, 35 and 36.
Township 4 South, Range 5 West.	Sections 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35.
Township 4 South, Range 6 West.	Sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35 and 36.
Township 5 South, Range 5 West.	Sections 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11.
Township 5 South, Range 6 West.	Sections 1, 2, 3, 10, 11, and 12.
Lake Elsinore Quadrangle	
Township 5 South, Range 4 West.	Sections 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, and 36.
Township 5 South, Range 5 West.	Sections 11, 12, 13, 14, 23, 24, 25, 26, 35 and 36.
Township 6 South, Range 4 West.	Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29 and 30.
Township 6 South, Range 5 West.	Sections 1, 2, 11, 12, 13, 14, 23, 24, 25 and 26.

Attachment 2
Summary of Sampling Results
2020/2021 Wet-Season Fairy Shrimp Surveys

Feature: 1						
Sampling Date	**Water Temp (C)**	**Avg Depth (cm)**	**Surface Area (m2)**	**TDS (ppm)**	**Fairy Shrimp Species & Magnitude**	**Notes**
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Saturated soils but no standing water
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	28.2	6	81	34.3	None	Inundated
2021-03-11	16.2	12	208	26.4	None	Currently raining
2021-03-19	-	-	-	-	-	Saturated soils but no standing water
2021-03-26	-	-	-	-	-	Dry

Feature: 2						
2020-12-30	-	6	-	-	None	Inundated
2021-01-06	-	-	-	-	-	Saturated soils but no standing water
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Saturated soils but no standing water
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	26.9	5	48	87.9	None	Inundated
2021-03-11	16.9	12	220	57.6	None	Recently raining
2021-03-19	-	-	-	-	-	Saturated soils but no standing water
2021-03-26	-	-	-	-	-	Dry

Feature: 3						
2020-12-30	-	6	-	-	None	Inundated
2021-01-06	-	-	-	-	-	Saturated soils but no standing water
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Saturated soils but no standing water
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	8	12	80.7	None	Inundated
2021-03-11	-	8	45	55.7	None	-
2021-03-19	-	2.5	-	91.8	None	-
2021-03-26	-	-	-	-	-	Dry

Feature: 4						
2020-12-30	-	<3	-	-	none	Inundated
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Dry
2021-03-11	21.8	<3	4.5	95.5	None	Inundated
2021-03-19	-	-	-	-	-	Dry

Feature: 5						
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	20.4	3	5	89.2	None	Inundated
2021-03-19	-	-	-	-	-	Dry

Feature: 6						
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	29.4	3	16	142	None	Inundated
2021-03-11	19.6	5	48	112	None	-
2021-03-19	-	-	-	-	-	Dry

Feature: 16						
2020-12-31	-	16	-	-	None	Inundated
2021-01-06	19.9	2	3	857	*Branchinecta* sp. nauplii 10s	-
2021-01-12	-	2	0.02	-	*Branchinecta* sp. too small to ID. 10s - 100's	Very small and imbedded in mud. Could not collect
2021-01-21	-	-	-	-	-	Dry

2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	15.5	5	21	196	*Branchinecta* sp. too small to ID. 10s - 100's	Inundated
2021-02-11	18.8	4	7	584	*B. lindahli* very small mid 10s	-
2021-02-18	-	0	-	-	*B. lindahli* high 10's still very small imbedded in mud.	Saturated soils but no standing water
2021-03-04	26.1	4	10	822	None	-
2021-03-11	15.7	8	36	532	None	-
2021-03-19	12.8	6	15	725	Immature *Branchinecta* sp. too small to id. 10's to low 100's	-
2021-03-26	26.4	4	7	960	Immature *Branchinecta* sp. 100's -1000's.	-
2021-04-02	-	-	-	-	-	Dry

Feature: 27						
2020-12-31	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	16.8	4	30	77.5	None	Inundated
2021-03-19	-	-	-	-	-	Dry

Feature: 29						
2020-12-30	-	~12+	-	-	-	Inundated. Access constraints
2021-01-06	-	~15	~140	-	-	Inundated. Access constraints

Feature: 29						
2021-01-12	-	~8	~92	-	-	Inundated. Access constraints
2021-01-27	-	~15	~112	-	-	Inundated. Access constraints
2021-02-04	14.8	22	369	40.9	*Branchinecta* sp. too small to ID. 1000's	-
2021-02-11	14.6	22	280	119	*B. lindahli* reproductive but small 10,000s	-
2021-02-18	12.5	-	182	140	None	-
2021-02-25	22.1	8	48	206	None	-
2021-03-04	178	12	160	349	None	-
2021-03-11	11.7	28	378	119	None	-
2021-03-19	13.8	22	304	136	Immature *Branchinecta* sp. 1000's	-
2021-03-26	12.4	20	248	153	Immature *Branchinecta* sp. 10's	-
2021-04-02	15.2	7	96	231	One female *B. lindahli* small.	-
2021-04-09	20.6	2.5	4	505	None	-
2021-04-17	-	-	-	-	-	Dry

Feature: 41						
2020-12-30	-	-	-	-	-	Site graded. Feature no longer present.

Feature: 44						
2020-12-30	-	-	16	-	-	Inundated
2021-01-06	-	-	-	-	-	Saturated soils but no standing water
2021-01-12	-	-	-	-	-	Dry
2021-01-27	-	15	16	-	None	Inundated
2021-02-04	14.5	7	10	74.7	*Branchinecta* sp. too small to ID. 10's - 100's	-
2021-02-11	-	-	-	-	-	Saturated soils but no standing water
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	15.4	21	45	262	none	Inundated

Feature: 44						
2021-03-11	10.1	30	112	109	Anostracan nauplii present too small to ID. Undetermined magnitude.	-
2021-03-19	10.0	8	14	177	Mature *B. lindahli* 100's. 2 cohorts	-
2021-03-26	-	-	-	-	-	Dry

Feature: 48a and 48b (complex)						
2020-12-30	-	-	-	-	-	Standing water visible through fence. Access constraints
2021-01-06	-	-	-	-	-	Both dry
2021-01-12	-	-	-	-	-	Both dry
2021-01-21	-	-	-	-	-	Both dry
2021-01-27	-	-	-	-	-	Both saturated but no standing water
2021-02-04	14	4	18	256	None	Inundated (SD-48a)
2021-02-04	15.2	3	24	217	None	Inundated (SD-48b)
2021-02-11	-	-	-	-	-	Saturated soils but no standing water (SD-48a)
2021-02-11	17.8	2	1	667	None	SD-48b
2021-02-18	-	-	-	-	-	Dry (SD-48b)
2021-02-25	-	-	-	-	-	Both dry
2021-03-04	22.2	2	1	170	None	Inundated (SD-48a)
2021-03-04	21.9	3	3	263	None	Inundated (SD-48b)
2021-03-11	11.9	7	70	472	None	Entire area has sustained considerable grading, tree and other veg. removal. SDs have been impacted
2021-03-11	11.3	5	49	214	None	SD-48b
2021-03-19	10.4	3	6	698	None	SD-48a
2021-03-19	10.1	3	12	544	None	SD-48b
2021-03-26	-	-	-	-	-	Dry (SD-48a)
2021-03-26	-	-	-	-	-	Dry (SD-48b)

Feature: 155						
2020-12-30	-	-	-	-	-	Dry

Feature: 155						
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 156						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Dry
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 157						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry

Feature: 157						
2021-03-04	-	-	-	-	-	Dry
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 158						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Dry
2021-03-11	17.2	1	2	30.4	None	Inundated
2021-03-19	-	-	-	-	-	Dry

Feature: 159						
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Dry
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 160						
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry

Feature: 160						
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 165						
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 166						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry

Feature: 166						
2021-03-04	-	-	-	-	-	Dry
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 167						
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Saturated soils but no standing water
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	17.1	3	3	36.8	None	Inundated
2021-03-19	-	-	-	-	-	Dry

Feature: 168						
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Dry
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 171						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry

Feature: 171						
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Dry
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Saturated soils but no standing water
2021-03-26	-	-	-	-	-	Dry

Feature: 172						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 173						
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry

Feature: 173						
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	18.4	3	4	15.8	None	Inundated
2021-03-19	-	-	-	-	-	Dry

Feature: 176						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	11.2	1.5	2.5	204	None	<3cm
2021-03-19	-	-	-	-	-	Dry

Feature: 178						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 179						
2020-12-30	-	-	-	-	-	Dry

Feature: 179						
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 180						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 182						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry

Feature: 182						
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Dry
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 197						
2020-12-30	17.4	5	4	34.7	None	Inundated
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	28.1	4	5	20.6	None	Inundated
2021-02-04	14.1	3	0.75	39.3	None	-
2021-02-11	-	-	-	-	-	Saturated soils but no standing water
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	19.6	2.5	.25	42.9	None	Inundated
2021-03-11	10.1	5	16	26.9	None	-
2021-03-19	-	-	-	-	-	Dry

Feature: 323						
2020-12-30	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	SD no longer present. Site has been asphalted

Feature: 504						
2020-12-31	-	20	-	-	None	Inundated
2021-01-06	22.8	5	15	662	Nauplii 100s - 1000s	-
2021-01-12	14.5	1	3	1090	*B. lindahli* Immature 100s	-
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	None	Inundated
2021-02-04	16	10	24	225	None	-
2021-02-11	18.4	9	30	645	*B. lindahli* 100s	-
2021-02-18	17.5	5	20	884	*B. lindahli* high 10's small	-
2021-03-04	26.2	3.5	10	1330	None	-

Feature: 504						
2021-03-11	14.6	10	35	700	None	-
2021-03-19	13.8	7	25	859	Immature Anostracans too small to ID. 100's to low 1000's.	-
2021-03-26	19.2	6	20	1200	Immature *Branchinecta* sp. too small to ID. 100's - 1000's	-
2021-04-02	-	-	-	-	-	Dry

Feature: 505						
2020-12-31	-	10	-	-	None	Inundated
2021-01-06	22.7	2	6	869	None	-
2021-01-12	-	-	-	-	-	Saturated soils but no standing water
2021-01-21	-	-	-	-	-	Saturated soils but no standing water
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	16	6	44	153	*Branchinecta* sp. too small to ID. 100's	Inundated
2021-02-11	19.5	4	21	502	*B. lindahli* hi 10s small	-
2021-02-18	16.5	3.5	10	815	*B. lindahli* mid 10's small	-
2021-03-04	26.1	3	15	884	None	-
2021-03-11	13.7	9	25	605	None	-
2021-03-19	12.5	6	27	731	Immature Anostracans too small to ID. High 10's to 100's.	-
2021-03-26	27.1	5	17.5	855	*Branchinecta* sp. immature. 1000's	
2021-04-02	-	-	-	-	-	Dry

Feature: 6002						
2020-12-30	-	-	-	-	-	Saturated but no standing water
2021-01-06	-	-	-	-	-	Dry

Feature: 6002						
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated but no standing water
2021-03-11	-	-	-	-	-	Saturated but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 6003						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Dry
2021-03-11	-	-	-	-	-	Dry

Feature: 6004						
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Saturated soils but no standing water
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	13.6	15	10	94.6	None	Inundated

Feature: 6004						
2021-03-11	10.2	20	20	60.8	None	Flowing water from culvert
2021-03-19	20.7	3	0.625	112	None	-
2021-03-26	-	-	-	-	-	Dry

Feature: 6005						
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Saturated soils but no standing water
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	18.1	2	1.2	125	None	Inundated. Water flowing from culvert
2021-03-19	-	-	-	-	-	Dry

Feature: 6006						
2020-12-30	-	-	-	-	-	Dry. Entire area has been disced
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 6007						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry

Feature: 6007						
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Dry
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 6008						
2020-12-30	-	6	-	-	None	Inundated
2021-01-06	-	-	-	-	-	Saturated soils but no standing water
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	5	0.5	-	None	Inundated
2021-02-11	22	4	10.5	72.5	None	-
2021-02-18	-	-	-	-	-	Saturated soils but no standing water
2021-02-25	-	-	-	-	-	Dry
2021-03-04	25.8	6	18	112	None	Inundated
2021-03-11	18.9	9	32.5	58.0	None	-
2021-03-19	24.9	5	15	149	None	-
2021-03-26	-	-	-	-	-	Dry

Feature: 6009						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry

Feature: 6009						
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Dry
2021-03-11	-	-	-	-	-	Saturated soils but no standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 6010						
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Dry
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	12.5	6	2	58.5	None	Inundated at culvert entrance
2021-03-19	-	-	-	-	-	Dry

Feature: 6011						
2020-12-30	14.8	7	6	728	None	Inundated
2021-01-06	12.5	7	14	642	None	-
2021-01-12	9.6	4	5	734	None	-
2021-01-21	14.0	5	9	788	None	-
2021-01-27	10.0	6	9	583	None	-
2021-02-04	10.5	5	6	468	None	-
2021-02-11	12.1	3	0.125	733	None	-
2021-02-18	9.7	3	2.5	84.9	None	-
2021-02-25		6	8	762	None	-
2021-03-04	11.6	7	10	974	None	-
2021-03-11	9.6	6	18	659	None	-
2021-03-19	8.1	4	6	799	None	-
2021-03-26	-	-	-	-	-	Dry

Feature: 6011						
2021-04-02	-	-	-	-	-	Dry

Feature: 6012						
2020-12-30	-	-	-	-	None	Inundated
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	10.8	3	1	538	None	-
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-11	8.1	4	2	443	None	Inundated
2021-03-19	-	-	-	-	-	Dry

Feature: 6013						
2020-12-29	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	11.2	4	12	204	None	Inundated
2021-02-04	-	-	-	-	-	Saturated soils but no standing water
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	13.9		15	239	None	Inundated
2021-03-11	8.5	6	15	99.7	None	-
2021-03-19	8.7	2	4.5	299	None	-
2021-03-26	-	-	-	-	-	Dry

Feature: 6014						
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry

Feature: 6014						
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Dry
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	-	1	0.4	-	None	<1 cm standing water
2021-03-19	-	-	-	-	-	Dry

Feature: 6015						
2020-12-30	-	-	-	-	-	Saturated soils but no standing water
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	-	-	-	-	Saturated soils but no standing water
2021-02-04	-	-	-	-	-	Saturated soils but no standing water
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	14.3	6	38x3	50.3	None	Inundated
2021-03-19	-	-	-	-	-	Dry

Feature: 6016						
2020-12-30	-	-	-	-	-	Dry
2021-01-06	-	-	-	-	-	Dry
2021-01-12	-	-	-	-	-	Dry
2021-01-21	-	-	-	-	-	Dry
2021-01-27	-	4	0.5	-	None	Inundated
2021-02-04	-	-	-	-	-	Saturated soils but no standing water
2021-02-11	-	-	-	-	-	Dry
2021-02-18	-	-	-	-	-	Dry
2021-02-25	-	-	-	-	-	Dry
2021-03-04	-	-	-	-	-	Saturated soils but no standing water
2021-03-11	14	7	5	96.8	None	Inundated

Feature: 6016						
2021-03-19	-	-	-	-	-	Dry

Attachment 3: Photographs

Photo 1: Feature16. Photo taken looking southeast.

Photo 2: Feature 29. Photo taken looking south.

Photo 3: Feature 158. Photo taken looking southeast.

Photo 4: Feature 167. Photo taken looking southeast.

Photo 5: Feature 173. Photo taken looking southeast.

Photo 6: Feature 504. Photo taken looking northeast.

Photo 7: Feature 505. Photo taken looking northeast.

Photo 8: Feature 6004. Photo taken looking northeast.

Photo 9: Feature 6008. Photo taken looking northeast.

Photo 10: Feature 6011. Photo taken looking northwest.

Photo 11: Feature 6012. Photo taken looking northwest.

Photo 12: Feature 6014. Photo taken looking north.

September 15, 2021

Ms. Stacey Love
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

RE: (Amended) Survey Report for the 2020 Protocol Dry-Season Branchiopod Surveys for the I-15 Express Lanes Project – Southern Extension, Riverside County, California

Dear Stacey:

This letter provides the results of the 2020 protocol dry-season surveys for federally listed vernal pool branchiopods (fairy shrimp) as part of the I-15 Express Lane Project – Southern Extension (ELPSE) in Riverside County, California. Dry season surveys were conducted by U.S. Fish and Wildlife Service (USFWS)-permitted biologists Frank Wegscheider (TE 038716-5) and Crysta Dickson (TE 067347-5). This report was previously submitted to the USFWS on July 25, 2021. Since the submittal, access was granted to Feature 29 so soils could be collected and processed. Therefore, this report was amended to include the results for Feature 29.

PROJECT DESCRIPTION AND LOCATION

The Riverside County Transportation Commission (RCTC), in cooperation with the California Department of Transportation (Caltrans), is proposing to construct toll lanes along Interstate 15 (I-15) between post mile (PM) 20.3 and PM 40.1 in Riverside County, California (**Figure 1**). Specifically, the proposed project would occur within the South Corona, Lake Matthews, Alberhill, and Lake Elsinore U.S. Geological Survey topographic quadrangles (**Figure 2**). **Attachment 1** provides a list of all the USGS Townships, Ranges and Sections associated with the proposed project location within each of the quadrangles.

The primary component of the I-15 Express Lanes Project Southern Extension (Project) would be the addition of two tolled express lanes in both the NB and SB directions within the median of I-15 from SR-74 (Central Avenue) (PM 22.3) in the City of Lake Elsinore, through the unincorporated Riverside County community of Temescal Valley, to El Cerrito Road (PM 38.1) in the City of Corona, for approximately 15.8 miles. The proposed Project would also add a southbound auxiliary lane between both the Main Street (PM 21.2) off-ramp and SR-74 (Central Avenue) on-ramp (approximately 0.75 mile), and the SR-74 (Central Avenue) off-ramp and Nichols Road on-ramp (PM 23.9) (approximately 1 mile). Along with the lane additions, which would extend from PM 21.2 to 38.1, the proposed Project would include widening of up to 14 bridges; potential construction of noise barriers, retaining walls, and drainage systems; and implementation of electronic toll collection equipment and signs. Associated improvements for the toll lanes, including advance signage and transition striping, would extend approximately 2 miles from each end of the express lane limits to PM 20.3 in the south and PM 40.1 in the north.

The proposed lane additions and supporting infrastructure are expected to be constructed primarily within the existing State ROW. This Project is included in the 2019 Federal Transportation Improvement Program (FTIP) as Project ID RIV170901. It is also included in SCAG's *Connect SoCal* 2020–2045 RTP/SCS as Project ID 3160001.

The dry season survey area included the project area (i.e., Caltrans Right-of-Way) and a 100-foot buffer around the project limits, where access was granted. The majority of the survey area is heavily disturbed as a result of vehicular traffic, roadway maintenance, foot traffic, and development. Several areas are also under construction for unrelated projects. All features included in the surveys (e.g., ruts along the shoulders of the roads, man-made impoundments associated with drainages and urban runoff) were heavily disturbed. Many of the features were unvegetated or they supported only non-native vegetation. Native vegetation was sparse at only a few of the features. All the surveyed features appeared to be filled by direct rainfall or surrounding surface flows. A total of 118 features were sampled during the dry season survey effort. Protocol wet-season surveys were conducted for these features during either the 2019/2020 or 2020/2021 rainy seasons. [1,2]

SURVEY METHODS

Soil Collection

Soil sample collection and processing followed the U.S. Fish and Wildlife Service (USFWS) Survey Guidelines for the Listed Large Branchiopods (USFWS, 2017). Briefly, the features were generally sampled at 10 ca. equidistant points starting at the edge of the ponded area continuing lengthwise and widthwise or, in the case of narrow depressions, samples were collected ca. equidistantly in a linear manner. SDs comprising surface areas larger than 24 m^2 were sampled at twenty-five points and fifty samples were collected from SDs larger than 235 m^2. Collection points were adjusted to include the deepest portions of the depressions especially where deposits of ostracod cysts/valves and/or cladocera ephippia were observed. Soil samples of ~100 milliliter (ml) aliquots were removed at each subsample site (for a total of 1 liter/ponded area) and transferred to individually labeled plastic bags for future analysis. Each SD was photographed, and hand-drawn sketches of subsample locations were recorded in field notes.

Soil Analysis

Soil analyses were conducted by USFWS-approved branchiopod biologist Frank Wegscheider. Soil samples were placed into a one-gallon plastic container and allowed to pre-soak in water. The resulting slurry was slowly poured into a graded set of stacked U.S. standard eight-inch soil sieves (710, 300, and 150 micron), while concurrently being gently washed with flowing water. Water was directed through the samples for a time period sufficient to wash all of the resting eggs

1 ICF. 2020. Survey Report for the 2019/2020 Protocol Wet-Season Branchiopod Surveys for the I-15 Express Lanes Project – Southern Extension, Riverside County, California. October 14.

2 ICF. 2021. Survey Report for the 2020/2010 Protocol Wet-Season Branchiopod Surveys for the I-15 Express Lanes Project – Southern Extension, Riverside County, California. July 12.

(cysts) into the 150-micron sieve. Soil remaining in the 150-micron sieve was used for analysis. The Project site lies outside of the currently documented range of the federally endangered vernal pool tadpole shrimp (*Lepidurus packardi*), which is endemic to California's Central Valley; therefore, it was unnecessary to examine the 300-micron samples.[3] Nonetheless, the 300-micron samples were periodically examined for the presence of cladoceran ephippia. To facilitate the analyses, the 150-micron samples were transferred to a 120 ml beaker, whereupon the organic components were thrice-decanted. The remaining decanted organics along with the supernatant were poured into a three-inch 150-micron sieve then examined under a Celestron dissecting microscope at 10-30X.

RESULTS

The 2020 dry-season soil collection was conducted by USFWS-permitted biologists Frank Wegscheider (TE 038716-5) and Crysta Dickson (TE 067347-5) during July, August, and September 2020. The soil sample processing and cyst identification was conducted by Frank Wegscheider.

Many of the features sampled were road ruts, ditches, or other depressions that became inundated at some point during the wet season. None of the features sampled exhibited vernal pool indicators. Many of the features were low-quality habitat and heavily disturbed by frequent vehicular traffic, foot traffic, and active construction associated with I-15 and nearby urban development. This level of disturbance, including the man-made aspect, created low-quality habitat conditions for fairy shrimp.

Of the 117 features sampled, 17 (Features 16, 18, 20, 29, 31, 44, 100, 402, 406, 407, 408, 409, 503, 504, 505, 506, and 507) were found to support *Branchinecta* sp. cysts. These results are consistent with the findings of the wet season surveys conducted in 2019/2020 and 2020/2021 which identified the versatile fairy shrimp *Branchinecta lindahli* in each of these features. An additional 11 features (Features 1, 2, 3, 32, 46, 250, 274, 276, 277, 333 and 6007) were also found to support *Branchinecta* sp. cysts. However, wet season surveys were negative for fairy shrimp in these features. Except for Features 276, 277 and 333, only one cyst was found in Features 1, 2, 3, 32, 46, 250, 274, and 6007). **Figure 3** shows the locations of all the features sampled during the 2020 dry-season survey. **Attachment 2** provides a summary of the sampling results for each feature. **Attachment 3** includes representative photos of the types of features sampled.

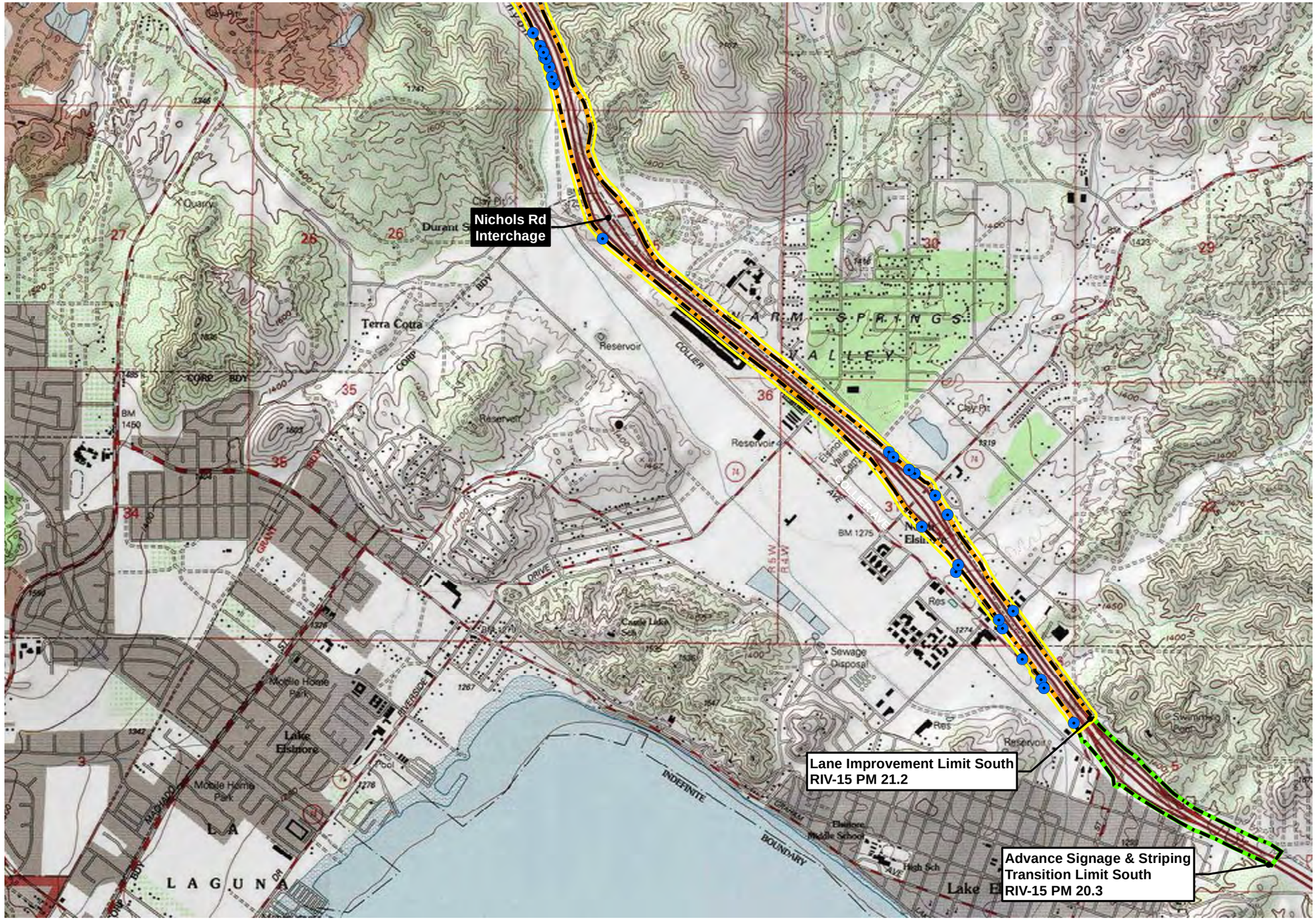
We certify that the information contained in this survey report and attached exhibits fully and accurately represents our work.

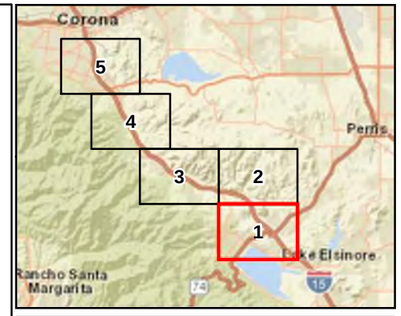
Signature: Crysta Dickson	Signature: Frank J. Wegscheider
Crysta Dickson (TE067347-5)	Frank Wegscheider (TE 038716-5)
Date: September 15, 2021	Date: September 15, 2021

[3] *Rogers, D.C. 2001. Revision of the Nearctic Lepidurus (Notostraca). Journal of Crustacean Biology 21: 99–1006*

\\PDCCITRDSGIS1\Projects_1\Caltrans\I15_ELPSE\Figures\Fig01_Regional_Vicinity.mxd Date: 10/8/2020 37937

Figure 1
Regional Vicinity
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

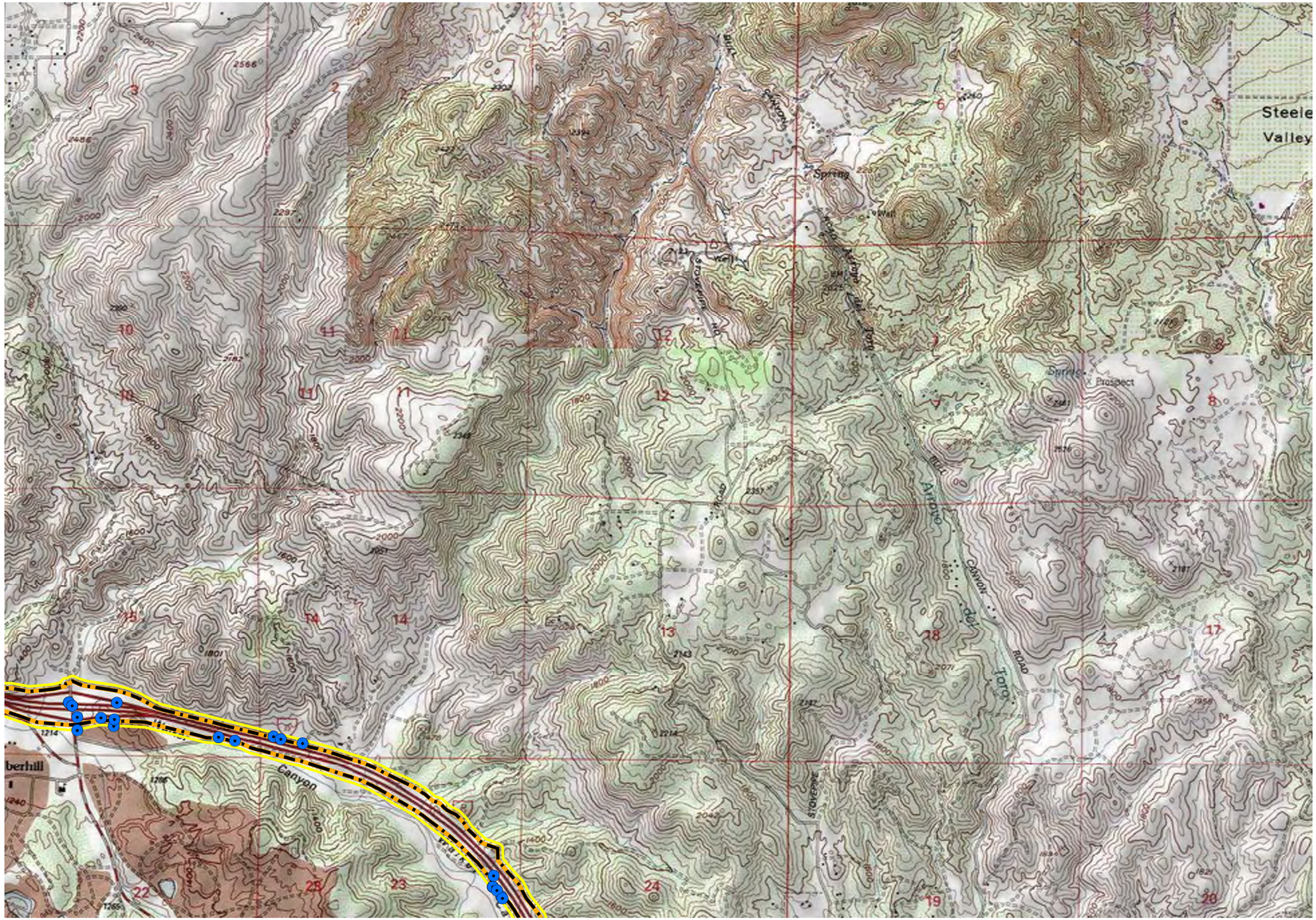




Legend

- Dry Season Fairy Shrimp Survey Locations
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

Figure 2, Sheet 1 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

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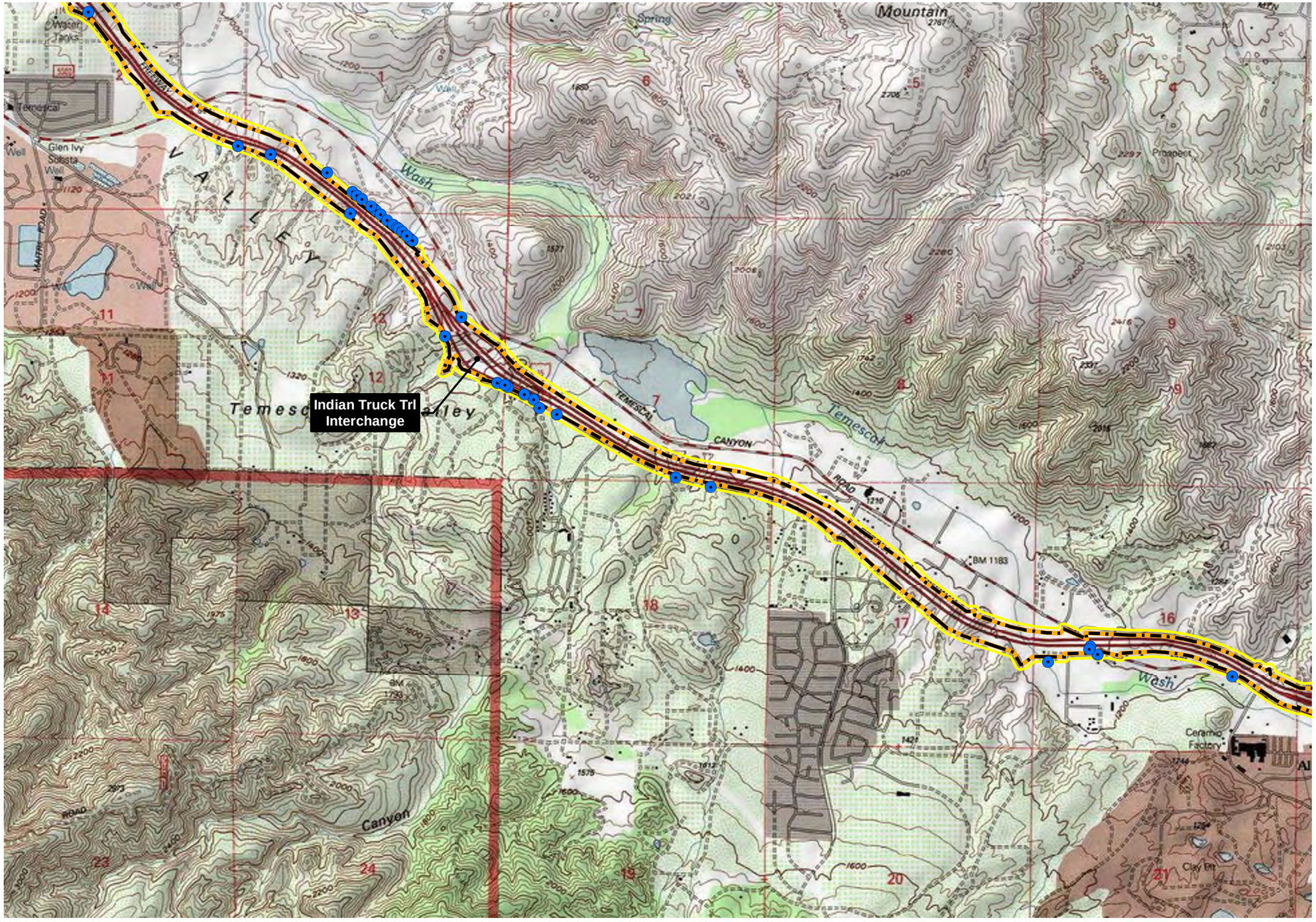
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 1,000 2,000 Feet

1:24,000

Figure 2, Sheet 2 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Dry Season Fairy Shrimp Survey Locations
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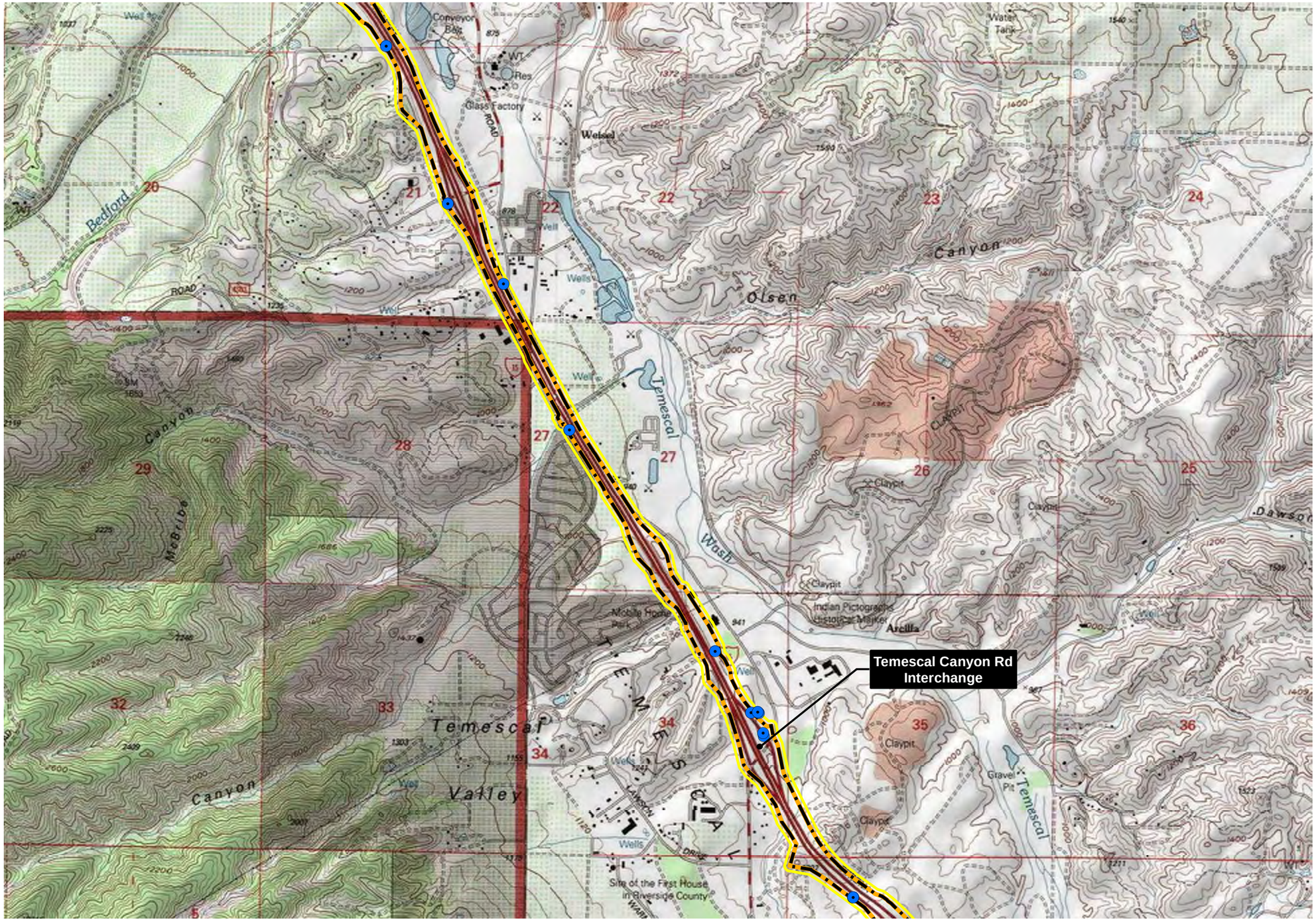
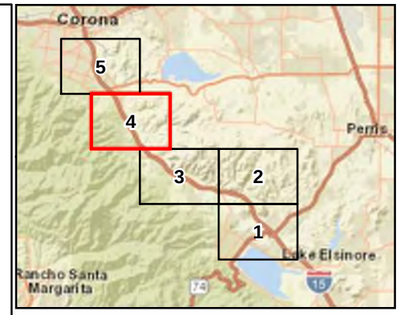
N

0 1,000 2,000 Feet

1:24,000

Figure 2, Sheet 3 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

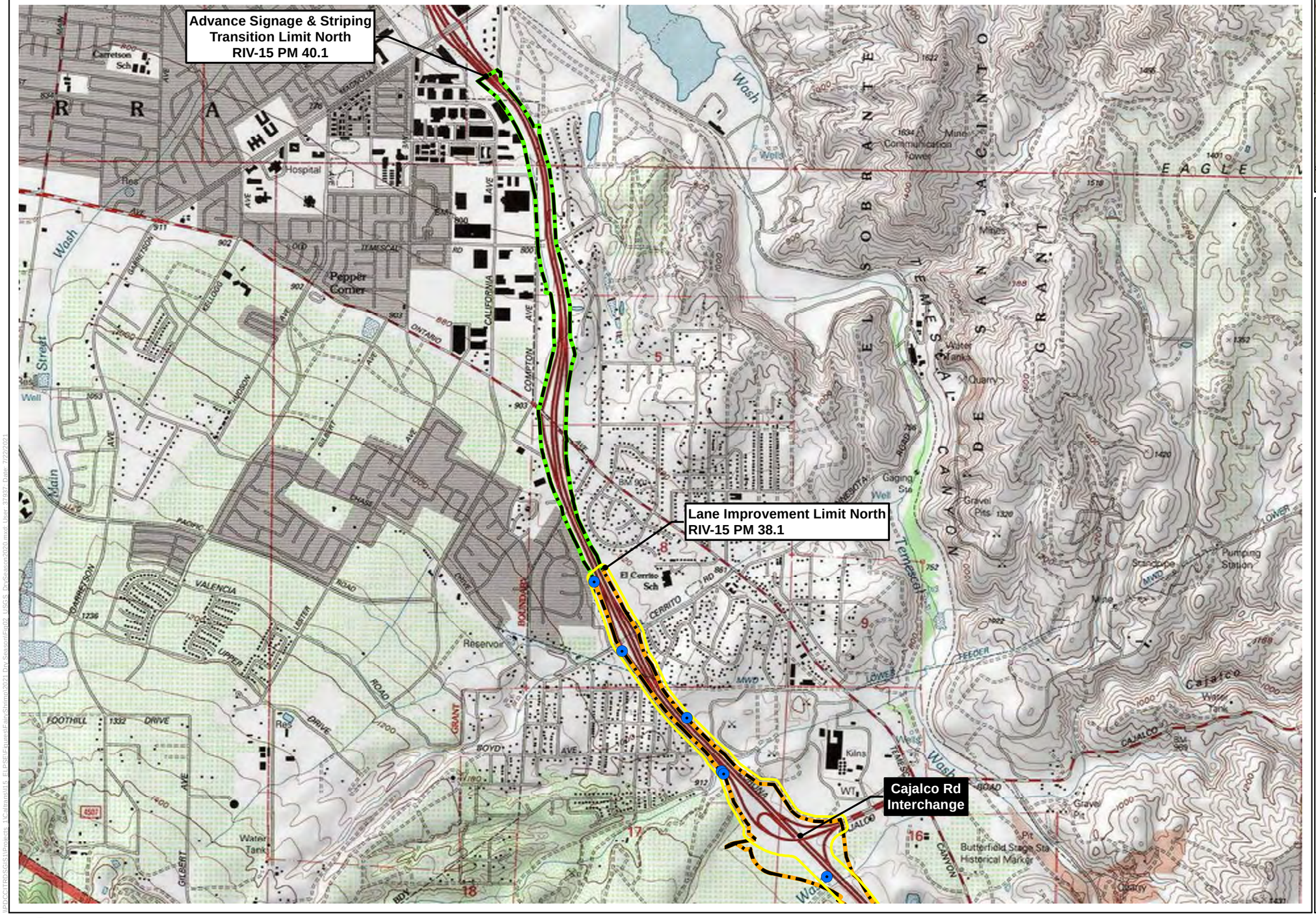
- Dry Season Fairy Shrimp Survey Locations
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 1,000 2,000 Feet

1:24,000

Figure 2, Sheet 4 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

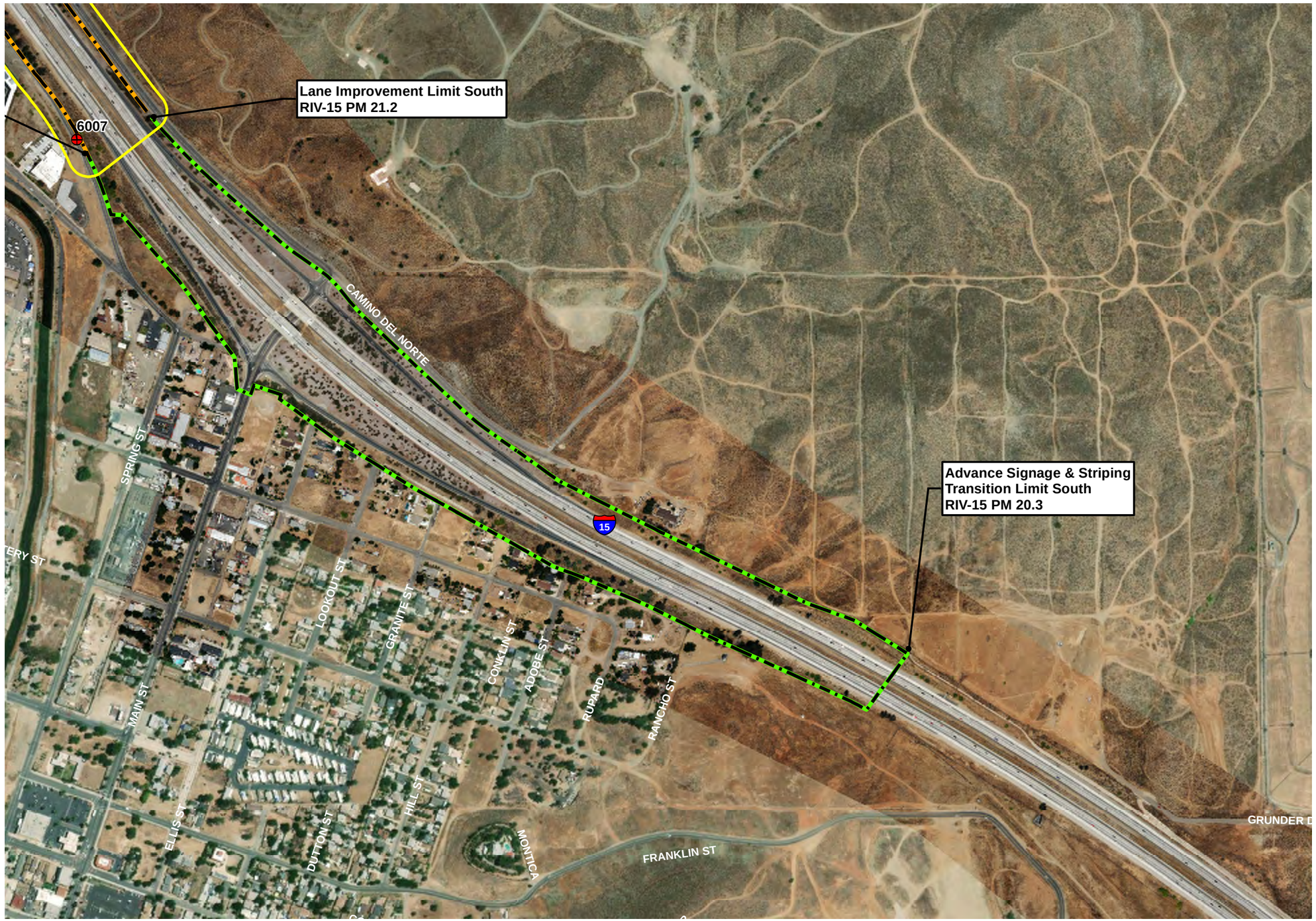
- Dry Season Fairy Shrimp Survey Locations
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 1,000 2,000 Feet

1:24,000

Figure 2, Sheet 5 of 5
USGS Topographic Maps
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

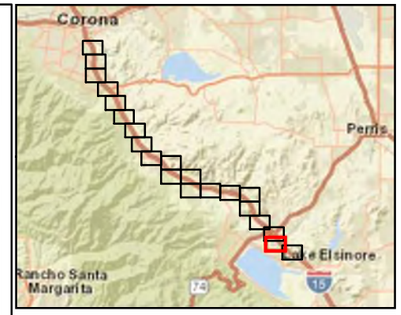
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 1 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

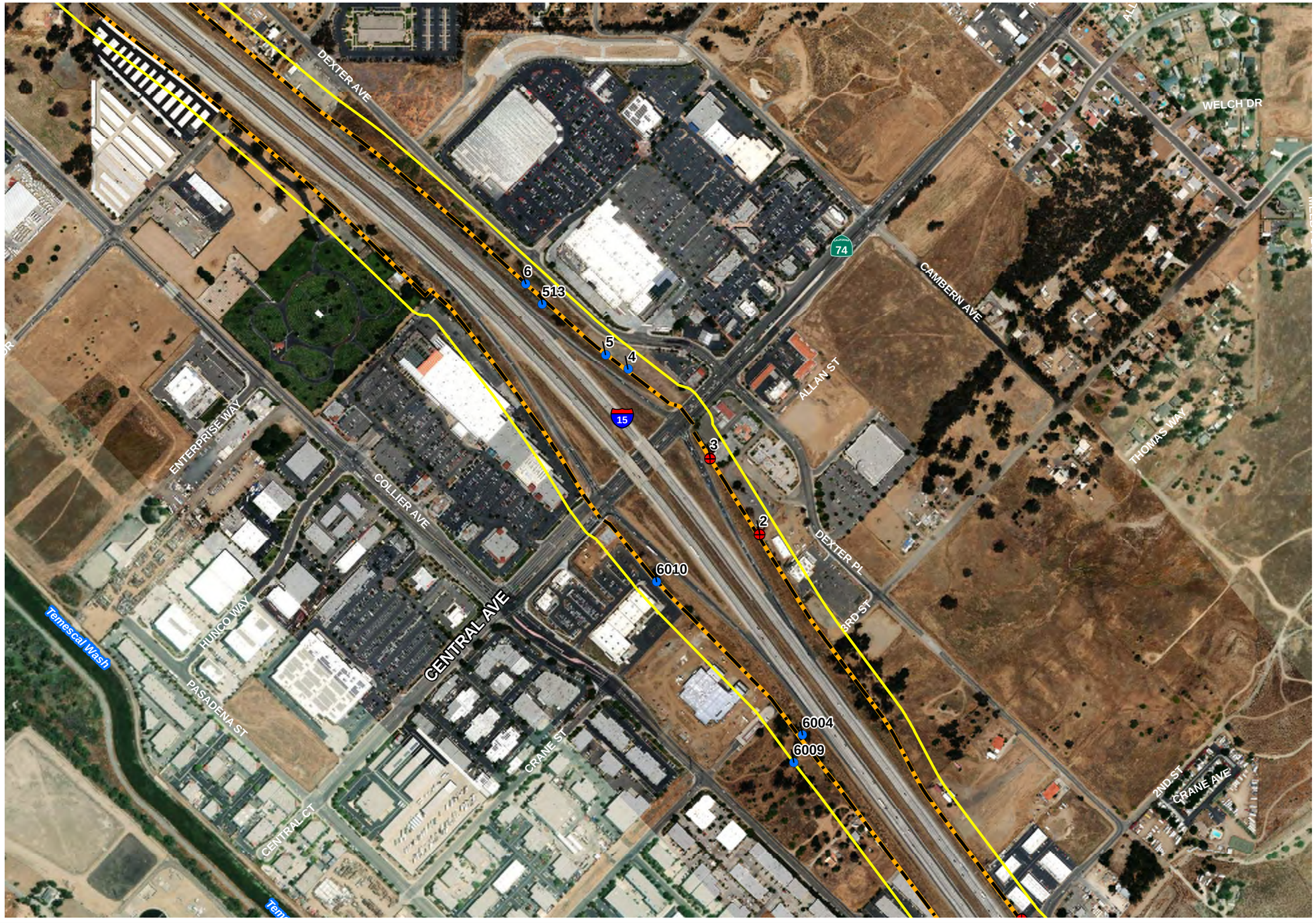
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

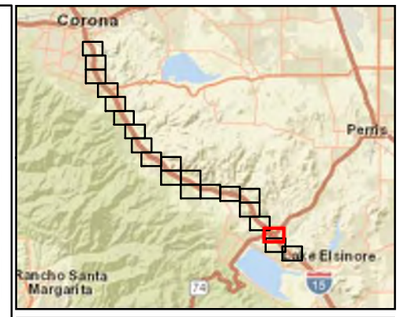
N

0 300 600 Feet

1:6,000

Figure 3, Sheet 2 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

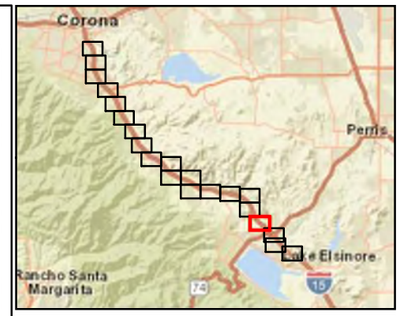
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 3 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 4 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 5 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

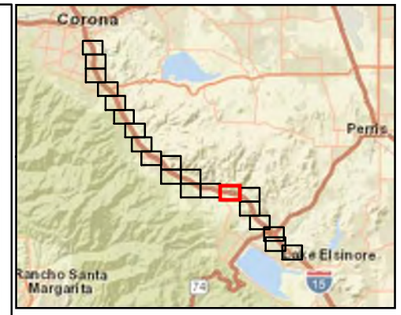
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 6 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 7 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

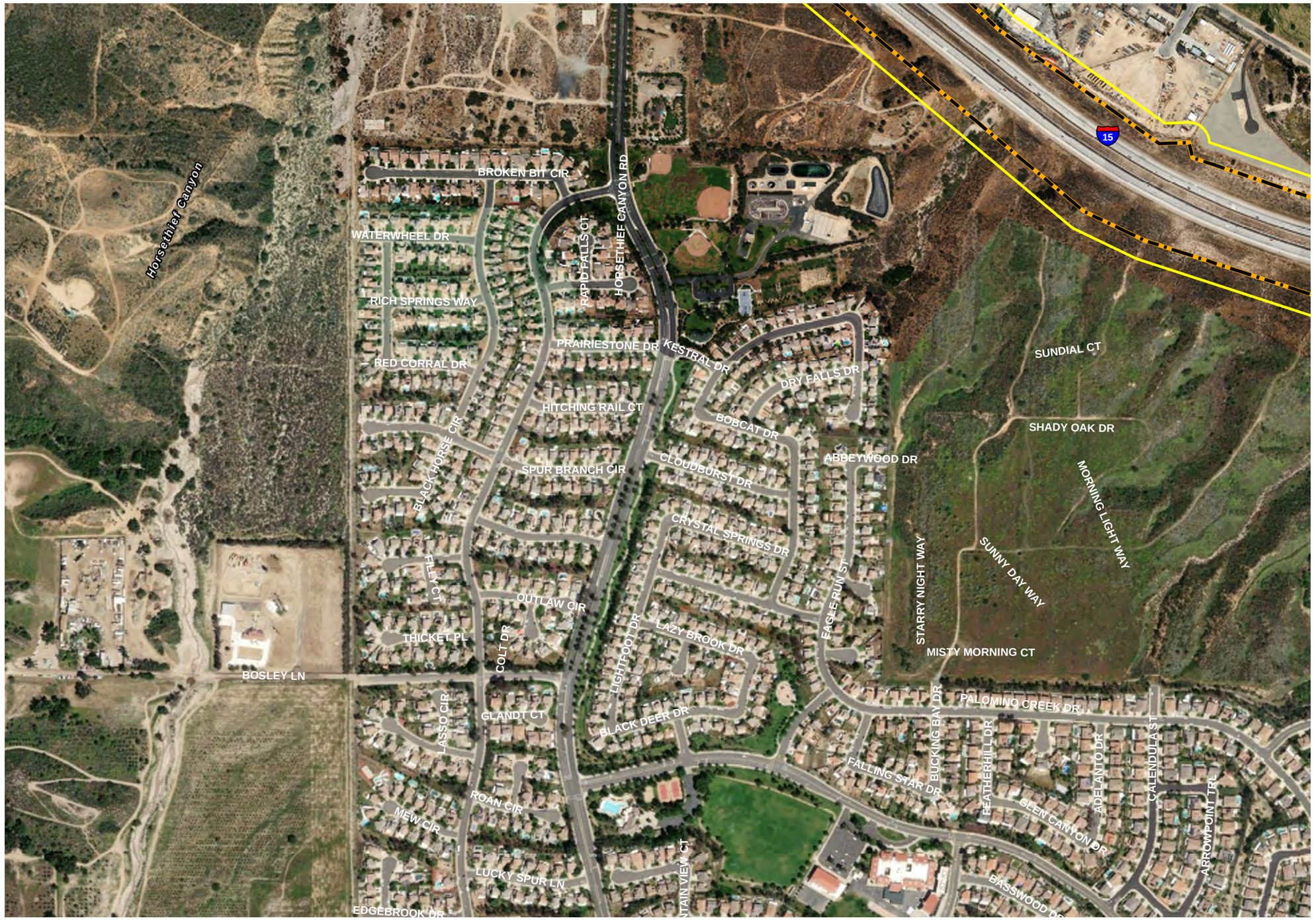
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

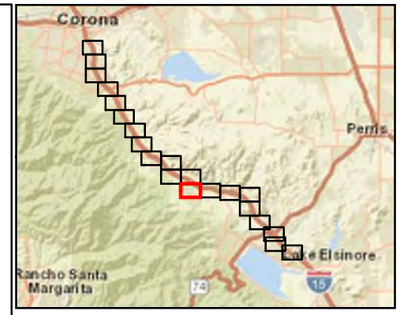
N

0 300 600 Feet

1:6,000

Figure 3, Sheet 8 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





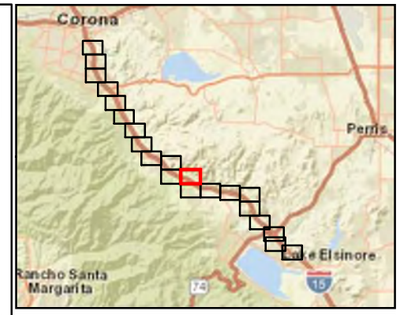
Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

0 300 600 Feet
1:6,000

N

Figure 3, Sheet 9 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 10 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

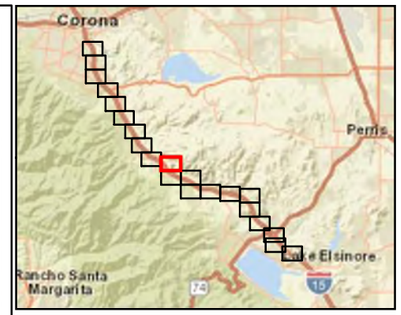
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 11 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

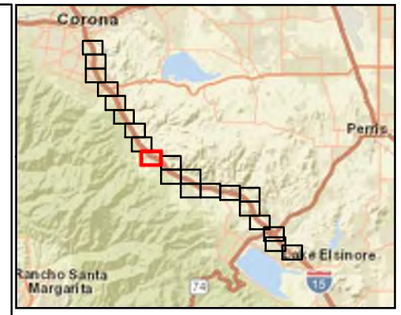
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 12 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

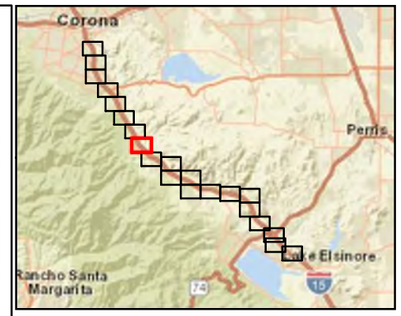
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 13 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 14 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 15 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 16 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet
1:6,000

Figure 3, Sheet 17 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 18 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 19 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Legend

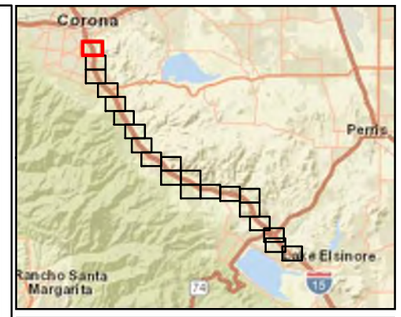
- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 20 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)



Legend

- Fairy Shrimp Survey Locations
- *Branchinecta lindahli*
- Study Area (100-ft Buffer)
- Existing Right-of-Way (2008)
- Advance Signage/Striping Areas (PM 20.3/40.1)
- Project Limits (PM 21.2./38.1)

N

0 300 600 Feet

1:6,000

Figure 3, Sheet 21 of 21
2020 Dry Season Fairy Shrimp Survey Locations
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)

Attachment 1
USGS Quads with Township, Range and Section

Alberhill Quadrangle	
Township 5 South, Range 5 West.	Sections 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35.
Township 5 South, Range 6 West.	Sections 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 35 and 36.
Township 6 South, Range 5 West.	Sections 2, 3, 4, 5, 6, 8, 9, 10, 11, 14, 15, 16, 17, 19, 20, 21, 22, 23, 26, 27, 28 and 29.
Corona South Quadrangle	
Township 3 South, Range 6 West	Sections 27, 28, 29, 30, 31, 32, 33 and 34.
Township 3 South, Range 7 West.	Sections 25, 26, 27, 28, 33, 34, 35 and 36.
Township 4 South, Range 6 West.	Sections 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33 and 34.
Township 4 Section, Range 7 West.	Sections 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 21, 22, 23, 24, 25, 26, 27, 28, 34, 35 and 36.
Township 5 South, Range 6 West.	Sections 3, 4, 5, 6, 7, 8, 9 and 10.
Township 5 South, Range 7 West.	Sections 1 and 2.
Lake Matthews Quadrangle	
Township 3 South, Range 5 West.	Sections 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35.
Township 3 South, Range 6 West.	Sections 25, 26, 27, 34, 35 and 36.
Township 4 South, Range 5 West.	Sections 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35.
Township 4 South, Range 6 West.	Sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35 and 36.
Township 5 South, Range 5 West.	Sections 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11.
Township 5 South, Range 6 West.	Sections 1, 2, 3, 10, 11, and 12.
Lake Elsinore Quadrangle	
Township 5 South, Range 4 West.	Sections 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, and 36.
Township 5 South, Range 5 West.	Sections 11, 12, 13, 14, 23, 24, 25, 26, 35 and 36.
Township 6 South, Range 4 West.	Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29 and 30.
Township 6 South, Range 5 West.	Sections 1, 2, 11, 12, 13, 14, 23, 24, 25 and 26.

Attachment 2
2020 Dry Season Fairy Shrimp
Summary of Sampling Results

Feature 1 (81 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	1	*Branchinecta*	0	0	0
8	0	N/A	0	+	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0
11	0	N/A	0	0	0
12	0	N/A	0	0	0
13	0	N/A	0	0	0
14	0	N/A	0	0	0
15	0	N/A	0	0	0
16	0	N/A	0	0	0
17	0	N/A	0	0	0
18	0	N/A	0	0	0
19	0	N/A	0	0	0
20	0	N/A	0	0	0
21	0	N/A	0	0	0
22	0	N/A	0	0	0
23	0	N/A	0	0	0
24	0	N/A	0	0	0
25	0	N/A	0	0	0

Feature 2 (48 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0

Feature 2 (48 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	+	0
9	0	N/A	0	0	0
10	0	N/A	0	+	0
11	1	*Branchinecta*	0-	+	0
12	0	N/A	0	+	0
13	0	N/A	0	0	0
14	0	N/A	0	+	0
15	0	N/A	0	0	0
16	0	N/A	0	+	0
17	0	N/A	0	+	0
18	0	N/A	0	0	0
19	0	N/A	0	+++	0
20	0	N/A	0	0	0
21	0	N/A	0	0	0
22	0	N/A	0	++	0
23	0	N/A	0	0	0
24	0	N/A	0	+	0
25	0	N/A	0	+	

Feature 3 (45 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	+	0

Feature 3 (45 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
5	0	N/A	0	+	0
6	0	N/A	0	0	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0
11	1	*Branchinecta*	0	0	0
12	0	N/A	0	+	0
13	0	N/A	0	+	0
14	0	N/A	0	0	0
15	0	N/A	0	++	0
16	0	N/A	0	++	0
17	0	N/A	0	+	0
18	0	N/A	0	+	0
19	0	N/A	0	0	0
20	0	N/A	0	0	0
21	0	N/A	0	+++	21
22	0	N/A	0	0	22
23	0	N/A	0	+	23
24	0	N/A	0	0	24
25	0	N/A	0	+	25

Feature 4 (64 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	++++	0
3	0	N/A	0	+++	0
4	0	N/A	0	+	0
5	0	N/A	0	0	0
6	0	N/A	0	+++	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	+++	0
10	0	N/A	0	0+	0

Feature 5 (16 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	+	0

Feature 6 (70 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	+	+	0
9	0	N/A	+	+	0
10	0	N/A	0	+	0
11	0	N/A	0		0
12	0	N/A	0	0	0
13	0	N/A	0	0	0
14	0	N/A	0	0	0
15	0	N/A	0	0	0
16	0	N/A	0	+	0
17	0	N/A	0	0	0
18	0	N/A	0	+	0
19	0	N/A	0	0	0
20	0	N/A	0	0	0

Feature 6 (70 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
21	0	N/A	0	0	0
22	0	N/A	0	0	0
23	0	N/A	0	0	0
24	0	N/A	0	0	0
25	0	N/A	0	0	0

Feature 7 (15 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	++	0
2	0	N/A	0	+++	0
3	0	N/A	0	++	0
4	0	N/A	0	+++++	0
5	0	N/A	0	++++	0
6	0	N/A	0	++	0
7	0	N/A	0	+	0
8	0	N/A	0	++	0
9	0	N/A	0	++	0
10	0	N/A	0	++	0

Feature 9 (120 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	+	0
9	0	N/A	0	0	0
10	0	N/A	0	++	0
11	0	N/A	0	+	0
12	0	N/A	0	+	0
13	0	N/A	0	+	0

Feature 9 (120 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
14	0	N/A	0	+	0
15	0	N/A	0	0	0
16	0	N/A	0	+	0
17	0	N/A	0	0	0
18	0	N/A	0	+	0
19	0	N/A	0	0	0
20	0	N/A	0	+	0
21	0	N/A	0	0	0
22	0	N/A	0	+	0
23	0	N/A	0	+	0
24	0	N/A	0	+	0
25	0	N/A	0	0	0

Feature 11 (22 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0
6	0	N/A	0	++	0
7	0	N/A	0	+	0
8	0	N/A	0	+	0
9	0	N/A	0	0	0
10	0	N/A	0	+	0

Feature 13 (12 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0

Feature 13 (12 m²)					
7	0	N/A	0	+	0
8	0	N/A	0	+	0
9	0	N/A	0	0	0
10	0	N/A	0	+	0

Feature 14 (16 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0

Feature 16 (60 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	15	*Branchinecta*	0	0	+
2	64	*Branchinecta*	0	0	++
3	69	*Branchinecta*	0	0	+
4	35	*Branchinecta*	0	0	0
5	23	*Branchinecta*	+	+	+
6	28	*Branchinecta*	+	+	+
7	477	*Branchinecta*	+	0	+++
8	573	*Branchinecta*	+	+	+++
9	92	*Branchinecta*	+	+	++
10	360	*Branchinecta*	+	+	++
11	360	*Branchinecta*	0	+	++
12	269	*Branchinecta*	0	+	++
13	326	*Branchinecta*	0	+	+++
14	498	*Branchinecta*	+	++	++
15	209	*Branchinecta*	+	+	+

Feature 16 (60 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
16	111	*Branchinecta*	+	0	+
17	169	*Branchinecta*	+	+	+
18	308	*Branchinecta*	+	+	+++
19	355	*Branchinecta*	+	+	++
20	230	*Branchinecta*	+	0	++
21	327	*Branchinecta*	+	++	++
22	247	*Branchinecta*	+	++	++
23	181	*Branchinecta*	0	0	+
24	302	*Branchinecta*	+	+	++
25	296	*Branchinecta*	0	+	++

Feature 17 (12 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	+	0
10	0	N/A	0	0	0

Feature 18 (390 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	109	*Branchinecta*	0	0	0
2	64	*Branchinecta*	0	0	0
3	145	*Branchinecta*	0	0	0
4	129	*Branchinecta*	0	0	0
5	141	*Branchinecta*	0	0	0
6	124	*Branchinecta*	0	0	0
7	78	*Branchinecta*	0	0	0
8	196	*Branchinecta*	0	0	0

Feature 18 (390 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
9	52	*Branchinecta*	0	0	0
10	103	*Branchinecta*	0	0	0
11	177	*Branchinecta*	++++++	++	+++++
12	217	*Branchinecta*	++++++	++	+++++
13	161	*Branchinecta*	+++++	+	++++
14	150	*Branchinecta*	+++++	++	++++
15	108	*Branchinecta*	++++	0	+++
16	152	*Branchinecta*	++++++	+	++++
17	898	*Branchinecta*	++++	+	+++
18	203	*Branchinecta*	+++++	0	+++
19	168	*Branchinecta*	++++++	+	++++
20	129	*Branchinecta*	++++++	+	+++++
21	277	*Branchinecta*	++++++	+	+++
22	172	*Branchinecta*	+++++	+	+++
23	233	*Branchinecta*	+++++	++	+++
24	114	*Branchinecta*	+++++	0	+++
25	135	*Branchinecta*	+++++	0	+++++
26	255	*Branchinecta*	++++++	+	++++
27	218	*Branchinecta*	++++++	+	++++
28	228	*Branchinecta*	+++++	++	++++
29	207	*Branchinecta*	++++++	++	++++
30	201	*Branchinecta*	++++++	0	+++++
31	84	*Branchinecta*	+++	0	+++
32	82	*Branchinecta*	+++	+	+++
33	111	*Branchinecta*	+++++	+	++++
34	87	*Branchinecta*	+++++	0	+++
35	60	*Branchinecta*	+++++	0	++++
36	58	*Branchinecta*	+++	+	+++++
37	67	*Branchinecta*	+++	+	+++
38	73	*Branchinecta*	+++++	0	+++++
39	109	*Branchinecta*	+++++	+	++++
40	77	*Branchinecta*	+++++	+	++++
41	91	*Branchinecta*	+++++	0	+++
42	65	*Branchinecta*	++++	0	++++

Feature 18 (390 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
43	69	*Branchinecta*	+++++	0	+++
44	60	*Branchinecta*	++++	0	+++
45	73	*Branchinecta*	++++	+	++++
46	280	*Branchinecta*	++++++	++	+++++
47	163	*Branchinecta*	++++++	+	++++
48	93	*Branchinecta*	++++	0	+++
49	106	*Branchinecta*	+++	++	+++
50	127	*Branchinecta*	++++	0	+++

Feature 20 (2 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	2	*Branchinecta*	0	+	+
3	24	*Branchinecta*	0	+	0

Feature 22 (4 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0

Feature 23 (12 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	+	0
9	0	N/A	0	0	0

Feature 23 (12 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
10	0	N/A	0	+	0

Feature 24 (4 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	++	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	++	0

Feature 25 (20 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0

Feature 26 (24 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	+	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	+	0

Feature 26 (24 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
10	0	N/A	0	+	0

Feature 28 (60 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	+	0
11	0	N/A	0	+	0
12	0	N/A	0	+	0
13	0	N/A	0	0	0
14	0	N/A	0	0	0
15	0	N/A	0	0	0
16	0	N/A	0	+	0
17	0	N/A	0	0	0
18	0	N/A	0	0	0
19	0	N/A	0	+	0
20	0	N/A	0	0	0
21	0	N/A	0	+	0
22	0	N/A	0	+	0
23	0	N/A	0	+	0
24	0	N/A	0	+	0
25	0	N/A	0	0	0

Feature 29 (228 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	563	*Branchinecta*	0	0	0
2	232	*Branchinecta*	0	0	0

Feature 29 (228 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
3	453	*Branchinecta*	+++++	0	0
4	517	*Branchinecta*	+++++	0	0
5	402	*Branchinecta*	+++++	0	0
6	672	*Branchinecta*	+++++	0	0
7	186	*Branchinecta*	++++++	0	0
8	279	*Branchinecta*	+++++++	+	0
9	570	*Branchinecta*	++++	0	0
10	80	*Branchinecta*	+++	+	0
11	240	*Branchinecta*	+++	++	0
12	266	*Branchinecta*	+	++	0
13	192	*Branchinecta*	++	+	0
14	18	*Branchinecta*	0	0	0
15	35	*Branchinecta*	+	0	0
16	182	*Branchinecta*	+	0	0
17	120	*Branchinecta*	0	+	0
18	245	*Branchinecta*	+	0	0
19	~2500	*Branchinecta*	0	0	0
20	302	*Branchinecta*	0	0	+
21	1267	*Branchinecta*	0	+	0
22	1178	*Branchinecta*	++	0	0
23	874	*Branchinecta*	0	+	0
24	247	*Branchinecta*	++++	0	0
25	641	*Branchinecta*	+++	+	0
26	56	*Branchinecta*	++	0	0
27	430	*Branchinecta*	+++	0	0
28	101	*Branchinecta*	++	0	0
29	677	*Branchinecta*	+++	+	0
30	548	*Branchinecta*	+	0	0
31	848	*Branchinecta*	++++++	0	0
32	1206	*Branchinecta*	+++	+	0
33	871	*Branchinecta*	+++++++	0	0
34	752	*Branchinecta*	+++++++	+	0
35	442	*Branchinecta*	+++++	0	0
36	712	*Branchinecta*	+++++	++	+

Feature 29 (228 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
37	291	*Branchinecta*	++++++	+	0
38	889	*Branchinecta*	++++	0	0
39	398	*Branchinecta*	++++++	+	0
40	N/R	N/A	++++	+	0
41	355	*Branchinecta*	++	0	0
42	537	*Branchinecta*	N/R	N/R	N/R
43	617	*Branchinecta*	++++	0	+
44	449	*Branchinecta*	++++	0	0
45	413	*Branchinecta*	++++	+	0
46	733	*Branchinecta*	+++	0	0
47	109	*Branchinecta*	++++	0	0
48	118	*Branchinecta*	++	0	0
49	503	*Branchinecta*	+++	0	0
50	275	*Branchinecta*	++	0	0

Feature 31 (100 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	13	*Branchinecta*	0	++	0
2	1	*Branchinecta*	0	+	0
3	3	*Branchinecta*	0	+	0
4	6	*Branchinecta*	0	+	0
5	6	*Branchinecta*	0	++	0
6	2	*Branchinecta*	0	++	0
7	2	*Branchinecta*	0	+	0
8	0	N/A	0	++	0
9	1	*Branchinecta*	0	++	0
10	0	N/A	0	++	0
11	2	*Branchinecta*	0	0	0
12	1	*Branchinecta*	0	0	0
13	6	*Branchinecta*	0	+	0
14	3	*Branchinecta*	0	+	0
15	8	*Branchinecta*	0	++	0
16	0	N/A	0	++++	0
17	0	N/A	0	+++	0

Feature 31 (100 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
18	0	N/A	0	++++	0
19	1	*Branchinecta*	0	++	0
20	1	*Branchinecta*	0	+++	0
21	0	N/A	0	++++	0
22	0	N/A	0	+++	0
23	3	*Branchinecta*	0	++	0
24	6	*Branchinecta*	0	++	0
25	1	*Branchinecta*	0	+++0	0

Feature 32 (3 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	++	0
2	3	*Branchinecta*	0	++	0
3	0	N/A	0	+++	0

Feature 35 (3 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	++	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0

Feature 36 (2 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0

Feature 39 (18 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	+	0

Feature 39 (18 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	0	0
8	0	N/A	0	+	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0

Feature 40 (23 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	+	0
3	0	N/A	0	0	0
4	0	N/A	0	+	0
5	0	N/A	+	0	0
6	0	N/A	0	0	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	++	0

Feature 42 (16 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	+	0
3	0	N/A	0	0	0
4	0	N/A	0	+	0
5	0	N/A	0	0	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0

Feature 44 (150 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	234	*Branchinecta*	++	+	+
2	4000+	*Branchinecta*	+++	+	+
3	1500+	*Branchinecta*	+++	+	++
4	1300	*Branchinecta*	+++++	+	++
5	389	*Branchinecta*	+++	0	+
6	N/R	N/R	N/R	N/R	N/R
7	214	*Branchinecta*	+++	+	+++
8	1050	*Branchinecta*	++	+	++
9	635	*Branchinecta*	+++	+	+
10	120	*Branchinecta*	++	+	+++++
11	303	*Branchinecta*	+++	+	++
12	316	*Branchinecta*	0	0	++
13	305	*Branchinecta*	0	0	++
14	127	*Branchinecta*	0	0	++
15	203	*Branchinecta*	0	0	+
16	176	*Branchinecta*	0	0	+
17	239	*Branchinecta*	0	0	++
18	174	*Branchinecta*	0	0	++
19	106	*Branchinecta*	0	0	+
20	91	*Branchinecta*	0	0	+
21	614	*Branchinecta*	0	0	+
22	532	*Branchinecta*	0	0	+
23	179	*Branchinecta*	0	0	+
24	292	*Branchinecta*	0	0	+
25	111	*Branchinecta*	0	0	+++

Feature 45 (40 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	+	0
6	0	N/A	0	0	0

Feature 45 (40 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
7	0	N/A	0	0	0
8	0	N/A	0	+	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0
11	0	N/A	0	0	0
12	0	N/A	0	0	0
13	0	N/A	0	+	0
14	0	N/A	0	+	0
15	0	N/A	0	0	0
16	0	N/A	0	+	0
17	0	N/A	0	0	0
18	0	N/A	0	0	0
19	0	N/A	0	0	0
20	0	N/A	0	0	0
21	0	N/A	0	+	0
22	0	N/A	0	0	0
23	0	N/A	0	+	0
24	0	N/A	0	+	0
25	0	N/A	0	+	0

Feature 46 (2 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	1	*Branchinecta*	0	+	0
3	0	N/A	0	+	0

Feature 48 (24 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0

Feature 48 (24 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0

Feature 91 (15 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0

Feature 100 (170 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	309	*Branchinecta*	0	+	0
2	128	*Branchinecta*	0	+	0
3	171	*Branchinecta*	0	+	0
4	388	*Branchinecta*	0	+	0
5	261	*Branchinecta*	0	+	0
6	271	*Branchinecta*	0	+	0
7	192	*Branchinecta*	0	+	0
8	290	*Branchinecta*	0	+	0
9	442	*Branchinecta*	0	+	0
10	254	*Branchinecta*	0	+	0
11	111	*Branchinecta*	0	++	0
12	125	*Branchinecta*	0	++	0
13	108	*Branchinecta*	0	+	0
14	69	*Branchinecta*	0	+	0

Feature 100 (170 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
15	72	*Branchinecta*	0	++	0
16	80	*Branchinecta*	0	+	0
17	74	*Branchinecta*	0	+	0
18	79	*Branchinecta*	0	+	0
19	77	*Branchinecta*	0	0	0
20	87	*Branchinecta*	0	+	0
21	85	*Branchinecta*	0	++	0
22	98	*Branchinecta*	0	+	0
23	77	*Branchinecta*	0	++	0
24	58	*Branchinecta*	0	++	0
25	75	*Branchinecta*	0	+	0

Feature 123 (22 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	++	0
9	0	N/A	0	++	0
10	0	N/A	0	+	0

Feature 124 (160 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	++	0

Feature 124 (160 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
8	0	N/A	0	+	0
9	0	N/A	0	0	0
10	0	N/A	0	+++	0
11	0	N/A	0	+	0
12	0	N/A	0	0	0
13	0	N/A	0	0	0
14	0	N/A	0	0	0
15	0	N/A	0	0	0
16	0	N/A	0	0	0
17	0	N/A	0	0	0
18	0	N/A	0	0	0
19	0	N/A	0	0	0
20	0	N/A	0	0	0
21	0	N/A	0	0	0
22	0	N/A	0	+	0
23	0	N/A	0	0	0
24	0	N/A	0	0	0
25	0	N/A	0	0	0

Feature 125 (15 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	++++	0
3	0	N/A	0	+++	0
4	0	N/A	0	+	0
5	0	N/A	0	0	0
6	0	N/A	0	+++	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	+++	0
10	0	N/A	0	+	0

Feature 126 (6 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0

Feature 129 (70 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	+	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	0	0
8	0	N/A	0	+	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0
11	0	N/A	0	+	0
12	0	N/A	0	++	0
13	0	N/A	0	++	0
14	0	N/A	0	+	0
15	0	N/A	0	+	0
16	0	N/A	0	++	0
17	0	N/A	0	+	0
18	0	N/A	0	+	0
19	0	N/A	0	0	0
20	0	N/A	0	+	0
21	0	N/A	0	+	0

Feature 129 (70 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
22	0	N/A	0	+	0
23	0	N/A	0	+	0
24	0	N/A	0	+	0
25	0	N/A	0	0	0

Feature 130 (2 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0

Feature 131 (2 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0

Feature 143 (13 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	0	0
4	0	N/A	0	+	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	++	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0

Feature 146 (3 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	++	0
2	0	N/A	0	+	0

Feature 146 (3 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
3	0	N/A	0	+	0

Feature 148 (15 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	++	0
2	0	N/A	0	++++	0
3	0	N/A	0	+	0
4	0	N/A	0	++	0
5	0	N/A	0	+++	0
6	0	N/A	0	++++	0
7	0	N/A	0	++++	0
8	0	N/A	0	+++	0
9	0	N/A	0	0	0
10	0	N/A	0	++	0

Feature 155 (10 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0
6	0	N/A	0	0	0
7	0	N/A	0	++	0
8	0	N/A	0	+	0
9	0	N/A	0	++	0
10	0	N/A	0	+	0

Feature 157 (15 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0

Feature 157 (15 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	+	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0

Feature 158 (2 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0

Feature 159 (3 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	++++	0
2	0	N/A	0	+++	0
3	0	N/A	0	+++++	0

Feature 160 (10 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	++	0
2	0	N/A	0	++	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	+	0
7	0	N/A	0	++	0
8	0	N/A	0	0	0
9	0	N/A	0	+	0
10	0	N/A	0	0	0

Feature 163 (2 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0

Feature 164 (2 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	0	0

Feature 166 (4 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0

Feature 167 (2 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0

Feature 168 (4 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+++++	0
2	0	N/A	0	+++++	0
3	0	N/A	0	++++	0
4	0	N/A	0	++++++	0
5	0	N/A	0	++++	0

Feature 170 (8 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0

Feature 171 (3 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0

Feature 172 (3 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0

Feature 173 (20 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	+	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	+	0

Feature 173 (20 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
10	0	N/A	0	0	0

Feature 174 (15 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0

Feature 177 (12 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0

Feature 178 (18 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0

Feature 178 (18 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0

Feature 179 (15 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	+	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0

Feature 180 (5m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	++	0

Feature 182 (2 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	++	0
3	0	N/A	0	0	0
4	0	N/A	0	++	0
5	0	N/A	0	+	0

Feature 187 (25 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	+	0
3	0	N/A	+	++++	0
4	0	N/A	+	+	0
5	0	N/A	+	0	0
6	0	N/A	+	+	0
7	0	N/A	+	++++	0
8	0	N/A	0	++	0
9	0	N/A	+	+	0
10	0	N/A	+	0	0

Feature 189 (5 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	++++	0
2	0	N/A	0	++	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	+	0
9	0	N/A	0	+	0
10	0	N/A	0	0	0

Feature 191 (20 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	++	0
3	0	N/A	0	+	0
4	0	N/A	0	++	0
5	0	N/A	0	++	0
6	0	N/A	0	++	0
7	0	N/A	0	+	0
8	0	N/A	0	+	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0

Feature 197 (23 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0

Feature 250 (105 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	++	0
6	0	N/A	0	0	0
7	0	N/A	0	++	0
8	0	N/A	0	+++	0

Feature 250 (105 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
9	0	N/A	0	+	0
10	0	N/A	0	++	0
11	0	N/A	0	+	0
12	0	N/A	0	+	0
13	1	*Branchinecta*	0	0	0
14	0	N/A	0	0	0
15	0	N/A	0	+	0
16	0	N/A	0	+	0
17	0	N/A	0	+	0
18	0	N/A	0	+	0
19	0	N/A	0	+	0
20	0	N/A	0	++	0
21	0	N/A	0	+	0
22	0	N/A	0	+	0
23	0	N/A	0	0	0
24	0	N/A	0	+	0
25	0	N/A	0	0	0

Feature 260 (23 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	++++	+	0
3	0	N/A	+	0	0
4	0	N/A	+	+	0
5	0	N/A	++	+	0
6	0	N/A	++	0	0
7	0	N/A	+	+	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	+	+	0

Feature 274 (2 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	++	0
3	1	*Branchinecta*	0	+	0

Feature 275 (3 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	0	0

Feature 276 (5m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	425	*Branchinecta*	0	++++	0
2	440	*Branchinecta*	0	++++	0
3	380	*Branchinecta*	0	+++	0
4	586	*Branchinecta*	0	++++	0
5	285	*Branchinecta*	0	++++	0
6	191	*Branchinecta*	0	++	0
7	240	*Branchinecta*	0	+++	0
8	345	*Branchinecta*	0	++++	0
9	350	*Branchinecta*	0	++++	0
10	260	*Branchinecta*	0	++	0

Feature 277 (8m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	230	*Branchinecta*	0	++	0
2	360	*Branchinecta*	0	++	0
3	135	*Branchinecta*	0	+++	0
4	14	*Branchinecta*	0	+	0
5	26	*Branchinecta*	0	+	0
6	5	*Branchinecta*	0	+	0
7	9	*Branchinecta*	0	0	0
8	260	*Branchinecta*	0	+	0
9	34	*Branchinecta*	0	+	0

Feature 277 (8m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
10	180	*Branchinecta*	0	+	0

Feature 278 (6 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	+	0
9	0	N/A	0	0	0
10	0	N/A	0	+	0

Feature 288 (0.5 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	+	++	0
2	0	N/A	+	+	0
3	0	N/A	+	+	0
4	0	N/A	0	0	0
5	0	N/A	0	+	0
6	0	N/A	+	0	0
7	0	N/A	0	0	0
8	0	N/A	+	+	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0

Feature 313 (3 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	++	0
3	0	N/A	0	+++	0

Feature 325 (20 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	+	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0

Feature 330 (20 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	0	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	++	0
9	0	N/A	0	++	0
10	0	N/A	0	+	0

Feature 333 (22 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	24	*Branchinecta*	0	0	0
2	18	*Branchinecta*	0	0	0
3	13	*Branchinecta*	0	0	0
4	17	*Branchinecta*	0	0	0
5	18	*Branchinecta*	0	+	0
6	19	*Branchinecta*	0	0	0
7	11	*Branchinecta*	0	0	0
8	9	*Branchinecta*	0	0	0

Feature 333 (22 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
9	19	*Branchinecta*	0	0	0
10	3	*Branchinecta*	0	0	0

Feature 401 (40 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	0	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	+	0
9	0	N/A	0	+	0
10	0	N/A	0	0	0
11	0	N/A	0	++	0
12	0	N/A	0	+	0
13	0	N/A	0	+	0
14	0	N/A	0	0	0
15	0	N/A	0	+	0
16	0	N/A	0	+	0
17	0	N/A	0	+	0
18	0	N/A	0	+	0
19	0	N/A	0	+	0
20	0	N/A	0	+	0
21	0	N/A	0	0	0
22	0	N/A	0	+	0
23	0	N/A	0	+	0
24	0	N/A	0	+	0
25	0	N/A	0	+	0

Feature 402 (70m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	1	*Branchinecta*	0	+	0
2	1	*Branchinecta*	0	0	0
3	121	*Branchinecta*	0	+	0
4	87	*Branchinecta*	0	+	0
5	4	*Branchinecta*	0	+	0
6	292	*Branchinecta*	0	+	0
7	0	*Branchinecta*	0	0	0
8	0	*Branchinecta*	0	+	0
9	0	*Branchinecta*	0	0	0
10	0	*Branchinecta*	0	0	0
11	13	*Branchinecta*	0	0	0
12	12	*Branchinecta*	0	0	0
13	7	*Branchinecta*	0	0	0
14	8	*Branchinecta*	0	0	0
15	15	*Branchinecta*	0	0	0
16	9	*Branchinecta*	0	0	0
17	16	*Branchinecta*	0	0	0
18	5	*Branchinecta*	0	0	0
19	3	*Branchinecta*	0	0	0
20	9	*Branchinecta*	0	0	0
21	8	*Branchinecta*	0	0	0
22	10	*Branchinecta*	0	0	0
23	7	*Branchinecta*	0	0	0
24	11	*Branchinecta*	0	0	0
25	4	*Branchinecta*	0	0	0

Feature 403 (40 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	+	0
6	0	N/A	0	0	0

Feature 403 (40 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	+	0
10	0	N/A	0	0	0
11	0	N/A	0	0	0
12	0	N/A	0	0	0
13	0	N/A	0	+	0
14	0	N/A	0	+	0
15	0	N/A	0	+	0
16	0	N/A	0	0	0
17	0	N/A	0	+	0
18	0	N/A	0	+	0
19	0	N/A	0	+	0
20	0	N/A	0	+	0
21	0	N/A	0	0	0
22	0	N/A	0	+	0
23	0	N/A	0	+	0
24	0	N/A	0	+	0
25	0	N/A	0	+	0

Feature 404 (10 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	++	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	++	0

Feature 405 (8 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	++++	0
2	0	N/A	0	+++	0
3	0	N/A	0	+++++	0
4	0	N/A	0	+++	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	+	0
9	0	N/A	0	+	0
10	0	N/A	0	+++	0

Feature 406 (30 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	7	*Branchinecta*	0	0	+
2	18	*Branchinecta*	0	0	0
3	82	*Branchinecta*	0	+	+
4	72	*Branchinecta*	+	+	+
5	47	*Branchinecta*	+	+	+
6	32	*Branchinecta*	+	+	+
7	126	*Branchinecta*	+	+	+++
8	115	*Branchinecta*	+	+	++
9	22	*Branchinecta*	+	0	+
10	9	*Branchinecta*	+	0	+
11	10	*Branchinecta*	+	+	+
12	7	*Branchinecta*	0	0	+
13	49	*Branchinecta*	0	0	0
14	7	*Branchinecta*	0	+	0
15	16	*Branchinecta*	0	0	+
16	29	*Branchinecta*	+	0	++
17	11	*Branchinecta*	+	0	+
18	49	*Branchinecta*	+	+	++
19	111	*Branchinecta*	+	+	+++
20	110	*Branchinecta*	0	0	++
21	79	*Branchinecta*	+	+	+

Feature 406 (30 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
22	68	*Branchinecta*	+	+	+
23	182	*Branchinecta*	+	+	++
24	0132	*Branchinecta*	+	0	++
25	120	*Branchinecta*	+	0	+++

Feature 407 (18 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	13	*Branchinecta*	+	0	+
2	328	*Branchinecta*	+++	+	++
3	15	*Branchinecta*	+	+	+
4	9	*Branchinecta*	+	0	0
5	0	N/A	+	0	0
6	5	*Branchinecta*	+	0	+
7	134	*Branchinecta*	+++	+	+
8	160	*Branchinecta*	++++	0	+
9	192	*Branchinecta*	+++	+	++
10	127	*Branchinecta*	++++	++	++

Feature 408 (30 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	2	*Branchinecta*	+	+	0
2	4	*Branchinecta*	+++	+	0
3	46	*Branchinecta*	++++	+	0
4	45	*Branchinecta*	++++	+	0
5	11	*Branchinecta*	+	0	0
6	1	*Branchinecta*	+	+	0
7	17	*Branchinecta*	+	+	0
8	0	N/A	+	+	0
9	11	*Branchinecta*	+	+	0
10	0	N/A	+	0	0
11	49	*Branchinecta*	+++++	0	0
12	36	*Branchinecta*	++++	0	0
13	9	*Branchinecta*	+++	0	0
14	31	*Branchinecta*	+++	0	0

Feature 408 (30 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
15	23	*Branchinecta*	++++	0	+
16	33	*Branchinecta*	+++	+	0
17	20	*Branchinecta*	+++	0	0
18	21	*Branchinecta*	+++	+	0
19	22	*Branchinecta*	+++	+	0
20	34	*Branchinecta*	++++	0	0
21	23	*Branchinecta*	+++	0	0
22	33	*Branchinecta*	++++	0	0
23	19	*Branchinecta*	++++	+	0
24	44	*Branchinecta*	+++++	++	0
25	45	*Branchinecta*	++++	+	0

Feature 409 (3 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	6	*Branchinecta*	0	0	0
2	89	*Branchinecta*	0	+	0
3	93	*Branchinecta*	0	+	0
4	72	*Branchinecta*	0	0	0
5	0	N/A	0	0	0

Feature 500 (20 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	+	0
3	0	N/A	0	0	0
4	0	N/A	0	++	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0

Feature 501 (59 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	0	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	+	0

Feature 503 (90 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	485	*Branchinecta*	+++++	++	++
2	767	*Branchinecta*	++++	++	++
3	117	*Branchinecta*	+	+	+
4	36	*Branchinecta*	+	+	+
5	8	*Branchinecta*	+	+	+
6	48	*Branchinecta*	++	0	+
7	516	*Branchinecta*	++++	+	++
8	1100	*Branchinecta*	++	+	++++++
9	395	*Branchinecta*	++++	+	++++
10	437	*Branchinecta*	++++	+	++
11	119	*Branchinecta*	++++	+	+
12	152	*Branchinecta*	++++	+	++
13	47	*Branchinecta*	++++	++	++
14	32	*Branchinecta*	+++	+	+
15	59	*Branchinecta*	++++	0	+
16	142	*Branchinecta*	++++	+	+
17	122	*Branchinecta*	+++	+	+
18	150	*Branchinecta*	++++	+	++
19	111	*Branchinecta*	++++	++	++
20	82	*Branchinecta*	+++	+	+
21	169	*Branchinecta*	++++	0	+

Feature 503 (90 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
22	134	*Branchinecta*	++++	+	+
23	146	*Branchinecta*	++++	0	+
24	160	*Branchinecta*	++++	0	+
25	147	*Branchinecta*	++++	+	0

Feature 504 (80 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	151	*Branchinecta*	++++	+	++++
2	155	*Branchinecta*	+++	+	++++++
3	193	*Branchinecta*	+++	+	++++
4	234	*Branchinecta*	+++	0	++++
5	271	*Branchinecta*	++++++	+	++
6	222	*Branchinecta*	+++	+	+
7	835	*Branchinecta*	+++++	+	++++++
8	658	*Branchinecta*	+++++	+	++++
9	21	*Branchinecta*	+	0	+
10	9	*Branchinecta*	++++	+	++++
11	197	*Branchinecta*	+++++	0	+++++
12	176	*Branchinecta*	++++++	+	++++++
13	175	*Branchinecta*	+++++	+	++++
14	52	*Branchinecta*	++++	0	+++
15	194	*Branchinecta*	+++++	0	++++
16	19	*Branchinecta*	++	++	++
17	199	*Branchinecta*	+++++	0	++++
18	146	*Branchinecta*	+++++	0	++++
19	173	*Branchinecta*	++++++	+	++++
20	199	*Branchinecta*	++++++	0	+++++
21	146	*Branchinecta*	+++++	0	++++
22	218	*Branchinecta*	+++++	+	+++++
23	208	*Branchinecta*	+++++++	+	++++++
24	159	*Branchinecta*	++++++	+	+++++
25	262	*Branchinecta*	+++++++	+	++++++

Feature 505 (55 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	12	*Branchinecta*	+	+	0
2	15	*Branchinecta*	+	+	+
3	227	*Branchinecta*	+	+	+
4	283	*Branchinecta*	+	+	0
5	52	*Branchinecta*	+	0	0
6	31	*Branchinecta*	+	0	0
7	37	*Branchinecta*	+	+	0
8	26	*Branchinecta*	+	+	+
9	152	*Branchinecta*	+	+	+
10	228	*Branchinecta*	+	+	+
11	110	*Branchinecta*	+++	+	+
12	129	*Branchinecta*	+++	+	++
13	109	*Branchinecta*	+++	+	+
14	91	*Branchinecta*	+++	+	+
15	100	*Branchinecta*	++	+	0
16	105	*Branchinecta*	++	+	+
17	107	*Branchinecta*	+++	+	0
18	105	*Branchinecta*	++	0	0
19	84	*Branchinecta*	++	+	0
20	92	*Branchinecta*	++	0	0
21	91	*Branchinecta*	++	+	++
22	105	*Branchinecta*	++	+	+
23	108	*Branchinecta*	++	+	+
24	137	*Branchinecta*	+	+	0
25	82	*Branchinecta*	+	0	+

Feature 506 (15 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	85	*Branchinecta*	0	+	0
2	212	*Branchinecta*	0	+	0
3	64	*Branchinecta*	0	0	0
4	245	*Branchinecta*	0	+	0
5	188	*Branchinecta*	0	+	0
6	213	*Branchinecta*	0	+	0

Feature 506 (15 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
7	118	*Branchinecta*	0	+	0
8	203	*Branchinecta*	0	+	0
9	170	*Branchinecta*	0	+	0
10	23	*Branchinecta*	0	0	0

Feature 507 (15 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	3	*Branchinecta*	0	+	0
3	12	*Branchinecta*	0	+	0
4	66	*Branchinecta*	0	0	0
5	37	*Branchinecta*	0	+	0
6	36	*Branchinecta*	0	+	0
7	8	*Branchinecta*	0	0	0
8	2	*Branchinecta*	0	+	0
9	0	N/A	0	+	0
10	1	*Branchinecta*	0	++	0

Feature 508 (3 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0

Feature 509 (22 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	+	0

Feature 509 (22 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
9	0	N/A	0	0	0
10	0	N/A	0	+	0

Feature 510 (25 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	+	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	+	0
9	0	N/A	0	+	0
10	0	N/A	0	0	0

Feature 511 (20 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	+	0
9	0	N/A	0	+	0
10	0	N/A	0	++	0

Feature 512 (20 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0

Feature 512 (20 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
4	0	N/A	0	0	0
5	0	N/A	0	++	0
6	0	N/A	0	0	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0

Feature 513 (20 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	+	0
8	0	N/A	0	+	0
9	0	N/A	0	0	0
10	0	N/A	0	+	0

Feature 6002 (1 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0

Feature 6003 (4.5 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0

Feature 6003 (4.5 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	+	0

Feature 6004 (10 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	++	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0

Feature 6005 (20 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	+	0

Feature 6006 (200 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	+	0
10	N/R	N/R	N/R	N/R	N/R
11	0	N/A	0	+	0
12	0	N/A	0	+	0
13	0	N/A	0	+	0
14	0	N/A	0	+	0
15	0	N/A	0	+	0
16	0	N/A	0	0	0
17	0	N/A	0	+	0
18	0	N/A	0	+	0
19	0	N/A	0	+	0
20	0	N/A	0	0	0
21	0	N/A	0	+	0
22	0	N/A	0	0	0
23	0	N/A	0	+	0
24	0	N/A	0	0	0
25	0	N/A	0	0	0

Feature 6007 (48 m²)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	++	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0
6	0	N/A	0	++	0

Feature 6007 (48 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
7	0	N/A	0	+	0
8	0	N/A	0	++	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0
11	0	N/A	0	0	0
12	0	N/A	0	+	0
13	0	N/A	0	++	0
14	0	N/A	0	0	0
15	1	*Branchinecta*	0	0	0
16	0	N/A	0	0	0
17	0	N/A	0	0	0
18	0	N/A	0	0	0
19	0	N/A	0	0	0
20	0	N/A	0	0	0
21	0	N/A	0	0	0
22	0	N/A	0	0	0
23	0	N/A	0	+	0
24	0	N/A	0	0	0
25	0	N/A	0	0	0

Feature 6008 (2 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	+	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0

Feature 6009 (5 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	0	0
4	0	N/A	0	+	0
5	0	N/A	0	++	0
6	0	N/A	0	0	0
7	0	N/A	0	+	0
8	0	N/A	0	+	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0

Feature 6010 (12 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	+	0

Feature 6011 (24 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	+	0
6	0	N/A	0	++	0
7	0	N/A	0	+	0

Feature 6011 (24 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
8	0	N/A	0	+	0
9	0	N/A	0	++++	0
10	0	N/A	0	++	0

Feature 6012 (156 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	+++	0
4	0	N/A	0	++++	0
5	0	N/A	0	+++	0
6	0	N/A	0	++	0
7	0	N/A	0	++++	0
8	0	N/A	0	++	0
9	0	N/A	0	+	0
10	0	N/A	0	++	0
11	0	N/A	0	++	0
12	0	N/A	0	0	0
13	0	N/A	0	0	0
14	0	N/A	0	+++	0
15	0	N/A	0	+++++	0
16	0	N/A	0	++++	0
17	0	N/A	0	+++	0
18	0	N/A	0	+++	0
19	0	N/A	0	+	0
20	0	N/A	0	+	0
21	0	N/A	0	++	0
22	0	N/A	0	++	0
23	0	N/A	0	0	0
24	0	N/A	0	+	0
25	0	N/A	0	++	0

Feature 6013 (10 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	0	0
3	0	N/A	0	0	0
4	0	N/A	0	++	0
5	0	N/A	0	+	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	0	0
9	0	N/A	0	0	0
10	0	N/A	0	0	0

Feature 6014 (20 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	0	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	++	0
6	0	N/A	0	+	0
7	0	N/A	0	+	0
8	0	N/A	0	0	0
9	0	N/A	0	+	0
10	0	N/A	0	+	0

Feature 6015 (10 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	+	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	+	0
7	0	N/A	0	0	0
8	0	N/A	0	+	0

Feature 6015 (10 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
9	0	N/A	0	0	0
10	0	N/A	0	0	0

Feature 6016 (24 m^2)					
Subsample No.	**Cyst Qty.**	**Genus/Species**	**Ostracod Cysts**	**Hexapod Exoskeleton**	**Cladocera Ephippia**
1	0	N/A	0	+	0
2	0	N/A	0	0	0
3	0	N/A	0	+	0
4	0	N/A	0	0	0
5	0	N/A	0	0	0
6	0	N/A	0	0	0
7	0	N/A	0	+	0
8	0	N/A	0	+	0
9	0	N/A	0	0	0
10	0	N/A	0	+	0

Attachment 3
Photographs

Photo 1: Feature 18. Photo taken looking northwest.

Photo 2: Feature 28. Photo taken looking northeast.

Photo 3: Feature 31. Photo taken looking south.

Photo 4: Feature 44. Photo taken looking east.

Photo 5: Feature 100. Photo taken looking east.

Photo 6: Feature 106. Photo taken looking northeast.

Photo 7: Feature 124. Photo taken looking east.

Photo 8: Feature 129. Photo taken looking east.

Photo 9: Feature 131. Photo taken looking east.

Photo 10: Feature 156. Photo taken looking east.

Photo 11: Feature 166. Photo taken looking west.

Photo 12: Feature 402. Photo taken looking east.

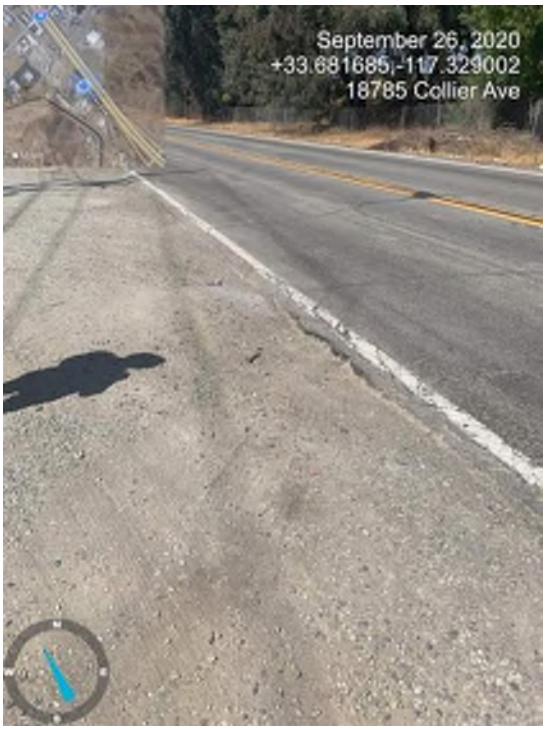


Photo 13: Feature 6008. Photo taken looking northwest.

Photo 14: Feature 6014. Photo taken looking southeast.

Photo 15: Feature 6011. Photo taken looking southeast.

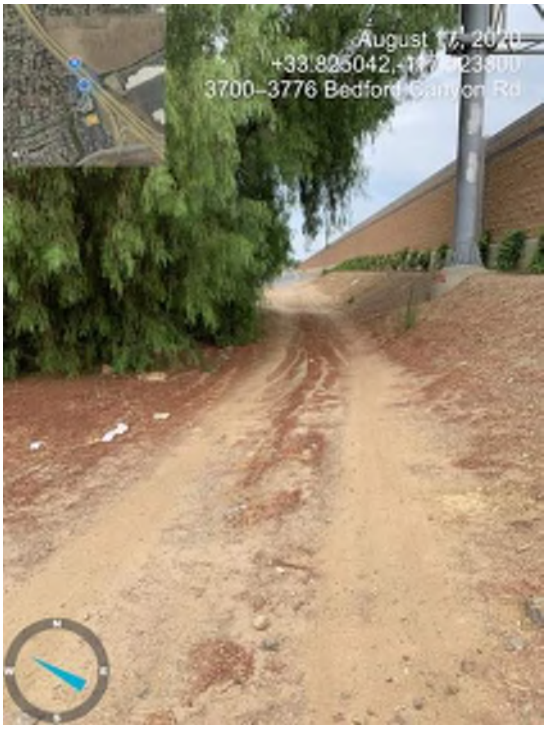


Photo 16: Feature 6012. Photo taken looking northwest.

Appendix N Western Riverside County Multiple Species Habitat Conservation Plan Consistency Analysis Memorandum

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Interstate 15 Express Lanes Project Southern Extension (ELPSE)

Western Riverside County
Multiple Species Habitat Conservation Plan Consistency Analysis

Cities of Lake Elsinore, Corona, and unincorporated Riverside County, California

DISTRICT 8 – RIV–15 PM 20.3 TO PM 40.1

EA: RIV 08-0J0820 / ID: 08-18000063

August 2022

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

RCTC

Table of Contents

Tables

Figures

Acronyms and Abbreviations

BMPs	best management practices
BSAs	Biological Study Areas
Caltrans	California Department of Transportation
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
DBESP	Determination of Biologically Equivalent or Superior Preservation
FE	federally listed as endangered
FT	federally threatened
I-15	Interstate 15
JPR	Joint Project Review
LOD	limits of disturbance
MSHCP/Plan	Western Riverside County Multiple Species Habitat Conservation Plan
NES	Natural Environmental Study
NPDES	National Pollutant Discharge Elimination System
PM	post mile
PQP	Public/Quasi-Public
Project	Interstate 15 Express Lanes Project Southern Extension
RCA	Regional Conservation Authority
RCTC	Riverside County Transportation Commission
ROW	right of way
SE	state listed endangered
SR-	State Route
SSC	species of special concern
ST	state listed as threatened
SWFL	southwestern willow flycatcher

Executive Summary

The Natural Environmental Study (NES) provides an evaluation of the biological and aquatic resources potentially affected by the Project. This Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP or the Plan) MSHCP consistency analysis report has been prepared to support documentation for compliance with the MSHCP or the Plan, with the California Environmental Quality Act (CEQA), the Federal Endangered Species Act (FESA), and the California Endangered Species Act (CESA), as well as to support the regulatory permitting processes for the U.S. Army Corps of Engineers (USACE), Clean Water Act (CWA) Section 404, Regional Water Quality Control Board (RWQCB), CWA Section 401, Porter-Cologne Water Quality Control Act, and California Department of Fish and Wildlife (CDFW)/California Department of Fish and Game (CDFG) Code Section 1600.

The Riverside County Transportation Commission (RCTC), in cooperation with the California Department of Transportation (Caltrans), is proposing to develop a tolled express lane network to meet existing and future travel demand, enhance mobility, and afford greater user flexibility on Interstate 15 (I-15) in Riverside County. The primary component of the I-15 Express Lanes Project Southern Extension (Project) would be the addition of two tolled express lanes[1] in both the northbound (NB) and southbound (SB) directions within the median of Interstate (I-) 15 from State Route (SR-) 74 (Central Avenue) (post mile [PM] 22.3) in the city of Lake Elsinore, through the unincorporated Riverside County community of Temescal Valley to El Cerrito Road (PM 38.1) in the city of Corona for a distance of approximately 15.8 miles (**Figures 1 and 2**). The Project would also add a SB auxiliary lane between both Main Street (PM 21.2) Off-Ramp and SR-74 (Central Avenue) On-Ramp (approximately 0.75 mile), and SR-74 (Central Avenue) Off-Ramp and Nichols Road On-Ramp (PM 23.9) (approximately one mile). In addition to the lane additions, which extend from PM 21.2 to PM 38.1, the Project would include widening of up to 14 bridges; potential construction of noise barriers, retaining walls, drainage systems; and implementation of electronic toll collection equipment and signs. Associated improvements, including advance signage and transition striping, would extend two miles from each end of the project limits to PM 20.3 in the south and PM 40.1 in the north. The proposed lane additions and supporting infrastructure are expected to be constructed primarily within the existing state right of way (ROW) with the majority of the improvements occurring within the existing I-15 median (**Figure 3**). The Project is intended to improve and manage traffic operations, congestion, and travel times along the corridor.

Biological Study Areas (BSAs) were developed for the Project to address potential direct and indirect effects. Direct effects are evaluated within the Project's limits of disturbance (LOD). The LOD represents the area proposed for direct impact, including permanent, temporary, and shading effects. The BSA includes a survey area consisting of buffer surrounding the LOD. The size of the buffer depends on the biological resource (e.g., a 50-foot buffer surrounding the LOD was used as the BSA for jurisdictional resources [i.e., waters and wetlands]; a 100-foot buffer for rare plants, bats, and fairy shrimp; a 300-foot buffer for least Bell's vireo and southwestern willow flycatcher; and a 500-foot buffer for burrowing owl and general biological resources, such as vegetation mapping and wildlife corridors).

[1] Express lanes are traffic lanes that are separated from general purpose lanes where users are charged a toll to use the lanes.

The MSHCP requires the Project to fulfill the requirements presented in MSHCP Volume I, Sections 6.1.2, 6.1.3, and 6.3.2 (Riverside County Integrated Project 2003). Portions of the Project would occur in the following MSHCP survey areas:

- Criteria Area Species Survey Area 1 (Section 6.3.2 of the MSHCP) (**Figure 4)**
    - Criteria Area Plant Species Survey Area 1 Species:
        - Thread-leaved brodiaea (*Brodiaea filifolia*; federally threatened [FT], state listed endangered [SE], California Rare Plant Rank [CRPR] 1B.1)
        - Davidson's saltscale (*Atriplex serenana* var. *davidsonii*; CRPR 1B.2)
        - Parish's saltscale (*Atriplex parishii*; CRPR 1B.1)
        - Round-leaved filaree (*California macrophylla*)
        - Smooth tarplant (*Centromadia pungens* spp. *laevis;* CRPR 1B.1)
        - Coulter's goldfields (*Lasthenia glabrata* spp. *coulteri*; CRPR 1B.1)
        - Little mousetail (*Myosurus minimus* spp. *apus*; CRPR 3.1)
- Narrow Endemic Plant Species Survey Areas (Section 6.1.3 of the MSHCP) 1 and 7 (**Figure 5**)
    - Narrow Endemic Plant Species Survey Area 1 Species:
        - Munz's onion (*Allium munzii*; federally listed endangered [FE], state listed threatened [ST], CRPR 1B.1)
        - San Diego Ambrosia (*Ambrosia pumila*; FE, CRPR 1B.1)
        - Slender-horned spineflower (*Dodecahema leptoceras*; FE, SE, CRPR 1B.1)
        - Many-stemmed dudleya (*Dudleya multicaulis*; CRPR 1B.2)
        - Spreading navarretia (*Navarretia fossalis*; FT, CRPR 1B.1)
        - California orcutt grass (*Orcuttia californica*; FE, SE, CRPR 1B.1)
        - San Miguel savory (*Clinopodium chandleri*; CRPR 1B.2)
        - Hammitt's clay-cress (*Sibaropsis hammittii*; CRPR 1B.2)
        - Wright's trichocoronis (*Trichocoronis wrightii var. wrightii*; CRPR 2.1)
    - Narrow Endemic Plant Species Survey Area 7 Species:
        - San Diego ambrosia
        - Brand's phacelia (*Phacelia stellaris*; CRPR 1B.1)
        - San Miguel savory
- Burrowing owl (*Athene cunicularia*; California Department of Fish and Wildlife [CDFW] species of special concern [SSC]) Survey Area (**Figure 6)** (Section 6.3.2, Figure 6-4 of the MSHCP)

The protection of riparian/riverine areas and vernal pools (Section 6.1.2 of the MSHCP) requires procedures to ensure the biological functions and values of these areas throughout the MSHCP Plan Area are maintained for the species within the MSHCP Conservation Areas. As a part of this effort, riparian/riverine areas and vernal pools are identified through surveys, mapping, and documentation. If during the mapping process suitable habitat is identified for the species identified below and the Project cannot avoid the identified habitat, then focused surveys for these species are required. If the species are detected, then minimization and avoidance measures are required in accordance with the species-specific objectives for those species.

- Least Bell's vireo (*Vireo bellii pusillus*; FE, SE; LBV)
- Southwestern willow flycatcher (*Empidonax traillii extimus*; FE, SE; SWWF)
- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*; FT, SE)
- Riverside fairy shrimp (*Streptocephalus woottoni*; FE)
- Santa Rosa Plateau fairy shrimp (*Linderiella santarosae*)
- Vernal pool fairy shrimp (*Branchinecta lynchi*; FT)

In addition to the requirements above, the Project must be consistent with Sections 6.1.4 (Guidelines Pertaining to the Urban/Wildlands Interface), 7.5.1 (Guidelines for the Siting and Design of Planned Roads within the Criteria Area and Public/Quasi-Public Lands), 7.5.2 (Guidelines for Construction of Wildlife Crossings), and 7.5.3 (Construction Guidelines), and the best management practices (BMPs) in Appendix C of the MSHCP.

Minimization and avoidance measures, as well as compensatory measures, are presented throughout this report, and the complete text of each measure is included in **NES, Appendix L**.

Summarized within Table 2 are the biological surveys required for the Project to be consistent with the MSHCP; the survey results; temporary, permanent, and shading impacts; and proposed minimization and avoidance and compensatory measures.

The Project is identified in the MSHCP as a Planned Road and a Covered Activity (MSHCP Volume I, Section 7.3.5). Portions of the Project lie both inside and outside of Criteria Areas. Coverage under the MSHCP provides an expedited process for biological resource permitting and approvals, as well as compensatory mitigation under CEQA. For those MSHCP covered resources, no additional mitigation or requirements beyond those necessitated by the MSHCP would be applied to the Project.

Habitat evaluations were performed for special-status species, including Narrow Endemic and Criteria Area plant species, Riverside fairy shrimp (*Streptocephalus woottoni*), vernal pool fairy shrimp (*Branchinecta lynchi*), San Diego fairy shrimp (*Branchinecta sandiegonensis*), burrowing owl (*Athene cunicularia*), least Bell's vireo (*Vireo bellii pusillus*; LBV), southwestern willow flycatcher (*Empidonax traillii extimus*; SWFL), and species not adequately covered by the MSHCP. Focused surveys for these special-status species were performed where suitable habitat occurred. In addition, a review of riparian-riverine and vernal pool resources was performed, and a Federal and State jurisdictional waters and wetlands delineation was conducted. Focused studies for SWFL and LBV were conducted in the

Temescal Wash and associated tributaries. Surveys were conducted for rare plants, fairy shrimp, and burrowing owl. Focused surveys were negative for all Narrow Endemic and Criteria Area plant species, fairy shrimp, and SWFL. LBV was detected during surveys and 11 use areas were identified for LBV. Measures to avoid indirect effects on these species will be implemented as a part of the Project.

MSHCP riparian-riverine resources are present within the Project's study area and are proposed for removal. The Build Alternative would result in the removal of 7.14 acres of riparian-riverine resources, with 2.26 acres of this being riparian vegetated acreage and the remainder riverine.

MSHCP cores are located within the study area: Proposed Existing Core C (Lake Mathews/Estelle Mountain), Proposed Extension of Existing Core 2, Proposed Core 1, Proposed Linkage 1, Proposed Linkage 2, Proposed Constrained Linkage 3, Proposed Constrained Linkage 5, and Proposed Constrained Linkage 6. The Project would not appreciably affect the ability of the cores and linkages to function as needed for the MSHCP due to the project design.

There is potential for the Project to impact non-listed special-status plants and wildlife. Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina;* California Rare Plant Rank [CRPR] 1B.2, MSHCP Covered Species) was found within the BSA.

Thirty-four species of non-listed, special-status animals were initially determined to have potential for occurrence in the study area based on known range and the presence of suitable habitat (Appendix B). These include arroyo chub (*Gila orcuttii*), coast range newt (*Taricha torosa torosa*), western spadefoot (*Scaphiopus hammondii*), California glossy snake (*Arizona elegans occidentalis*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), Belding's orange-throated whiptail (*Aspidocelis hyperythrus beldingi*), California legless lizard (*Anniella stebbinsi*), red-diamond rattlesnake (*Crotalus ruber*), Coronado skink (*Eumeces skiltonianus interparietalis*), coast western patch-nosed snake (*Salvadora hexalepis virgultea*), San Diego coast horned lizard (*Phrynosoma coronatum blainvillii*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus hudsonius*), golden eagle (*Aquila chrysaetos*), peregrine falcon (*Falco peregrinus anatum*), burrowing owl, long-eared owl (*Asio otus*), loggerhead shrike (*Lanius ludovicianus*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), grasshopper sparrow (*Ammodramus savannarum*), yellow warbler (*Setophaga petechia*), yellow-breasted chat (*Icteria virens*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), western red bat (*Lasiurus blossevillii*), western yellow bat (*Lasiurus xanthinus*), pocketed free-tailed bat (*Nyctinomops* [=*Tadarida*] *femorosaccus*), big free-tailed bat (*Nyctinomops macrotis*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), Dulzura pocket mouse (*Chaetodipus californicus femoralis*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), San Diego desert woodrat (*Neotoma lepida intermedia*), and American badger (*Taxidea taxus*). Twenty-two of these species are fully covered under the MSHCP, and twelve are not covered under the MSHCP or require additional study under the Plan. Of these, Belding's orange-throated whiptail, yellow-breasted chat, and yellow warbler were observed, all of which are fully covered under the MSHCP. With the exception of burrowing owl, presence/absence surveys were not required for any of these species as a part of the environmental review process. A focused survey was conducted for burrowing owl, which is a Covered species requiring additional study under the Plan (see Chapter 4 for details). The survey was conducted in 2020 and 2021, and no burrowing owls were detected.

Critical Habitat for coastal California gnatcatcher and San Diego ambrosia occurs within the wildlife and rare plant BSA, respectively. However, the Critical Habitat for these species was designated as excluded within the Plan boundary. Refer to Chapter 4 for details.

Table S-1 lists the biological resources that could be affected by the Build Alternative; the MSHCP coverage for these species; the impact type; the avoidance, minimization, and mitigation measures; and any required compensatory measures. The No-Build Alternative has not been included in Table S-1.

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
Riversidian Sage Scrub	Fully covered	3.27	133.53	0.07	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans**	None
Chaparral	Fully covered	0.00	1.49	0.00	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans**	None
Native Grasslands	Fully covered	0.00	0.31	0.00	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans**	None
Wildflower Fields	Fully covered	0.09	2.29	0.00	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans**	None

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
Riparian Sensitive Natural Communities[1]	Not covered	None	1.86	0.18	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans**	None
Protected Trees	Not covered	none	Up to 3oak trees	none	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access;** and **BIO-12, Water Pollution and Erosion Control Plans**	Measure **BIO-19, Oak Tree Management**
MSHCP Riparian/Riverine[1]	Covered - Section 6.1.2	0.36	5.44	1.34	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-15, DBESP; ; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings; BIO-22, Temescal Wash – Biological Monitoring; BIO-24, Waste Management; BIO-26, Bat Management Plan;** and **BIO-28, Nesting Bird Management Plan**	Measures **BIO-15 (Determination of Biologically Equivalent or Superior Preservation [DBESP]), BIO-16, Riparian-Riverine Compensation; BIO-17, Compensatory Mitigation;**

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
Habitat Connectivity	N/A	N/A	N/A	N/A	**BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-18, Night Lighting Management;** and **BIO-20, Wildlife Undercrossings**	Measures **BIO-15, DBESP; BIO-16, Riparian-Riverine Compensation; BIO-17, Compensatory Mitigation;**
Threatened and Endangered Plants	N/A	None	None	None	None	None
MSHCP Non-Listed Special-Status Plants	covered/A	None	None	None	None	None
Listed Fairy Shrimp[1]	Covered - species survey requirement	Absent	Absent	Absent	None, species absent.	None
Quino Checkerspot Butterfly	Fully covered	13.57	232.53	0.29	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-22, Temescal Wash – Biological Monitoring;**	None

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
Arroyo Toad	Fully-covered	None	2.22	0.22	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-20, Wildlife Undercrossings; BIO-22, Temescal Wash – Biological Monitoring;** and **BIO-24, Waste Management**	None
Least Bell's Vireo[1]	Covered[1]-species survey requirement	0.00	2.90	0.15	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings; BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-22, Temescal Wash – Biological Monitoring; BIO-24, Waste Management;** and **BIO-28, Nesting Bird Management Plan**	Measures **BIO-15, DBESP; BIO-23 LBV Habitat Compensation; BIO-29, MSHCP Species Conservation;**
Southwestern Willow Flycatcher[1]	Covered[1]-species survey requirement	None	None	None	None	None
Tricolored Blackbird	Fully-covered	None	2.99	0.19	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5,**	None

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
					Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings;BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-24, Waste Management; and **BIO-28, Nesting Bird Management Plan**	
Coastal California Gnatcatcher	Fully-covered	3.27	134.10	0.07	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-18, Night Lighting Management; BIO-24, Waste Management;** and **BIO-28, Nesting Bird Management Plan**	None
Stephens' Kangaroo Rat (SKR)	Fully covered	13.47	231.84	0.47	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings;** and **BIO-24, Waste Management**	None

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
San Bernardino Kangaroo Rat (SBKR)	Fully covered	13.40	193.92	0.47	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings;** and **BIO-24, Waste Management**	None
Mountain Lion	Fully covered	13.58	239.84	0.66	Measures **BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-18, Night Lighting Management; BIO-20, Wildlife Undercrossings;** and **BIO-24, Waste Management**	None
Burrowing Owl	Covered - species survey requirement	20.65	100.00	0.16	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-18, Night Lighting Management; BIO-24, Waste Management;** and **BIO-25, Burrowing Owl Management Plan**	None

Table S-1. Biological Resources Potentially Affected by the Build Alternative and Associated Avoidance, Minimization, and Mitigation Measures

Biological Resource	MSHCP Coverage	Suitable Habitat Impact (Acres)			Avoidance/Minimization Measure	Compensatory Measure
		Permanent	Temporary	Shading		
Grasshopper Sparrow[2]	Not yet fully covered[3]	10.30	97.47	0.22	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-18, Night Lighting Management; BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-24, Waste Management;** and **BIO-28, Nesting Bird Management Plan**	None
Non-Listed MSHCP-Fully Covered Animal Species	Fully covered	13.58	239.84	0.66	Measures **BIO-1, Vegetation Clearing Restrictions; BIO-2, Dust Control; BIO-3, Fire Suppression; BIO-4, Biological Training; BIO-5, Biological Monitoring; BIO-6, Construction and Project Limits; BIO-7, Exotic Species; BIO-8, Equipment Cleaning; BIO-9, Minimizing Disturbance; BIO-10, Revegetation; BIO-11, Access; BIO-12, Water Pollution and Erosion Control Plans; BIO-13, LODs and ESAs; BIO-14, MSHCP Covered Species Avoidance; BIO-15, DBESP; BIO-16, Riparian-Riverine Compensation; BIO-17, Compensatory Mitigation; BIO-18, Night Lighting Management; BIO-19, Oak Tree Management; BIO-20, Wildlife Undercrossings; BIO-21, Temescal Wash – Nesting Season Noise Requirements; BIO-22, Temescal Wash – Biological Monitoring;** and **BIO-28, Nesting Bird Management Plan**	None

[1] Requires evaluation under Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools of the MHSCP, to be met.

[2]Species-specific conservation objectives that need to be met before this is a MSHCP fully covered species.

Permits, reviews, and approvals necessary for the Project are listed and described in Table S-2.

Table S-2. Permits and Approvals

Agency	Permit/Approval	Status
California Department of Fish and Wildlife	1602 Streambed Alternation Agreement	Application to be submitted during the plans, specifications and estimate (PS&E) phase
	Joint Project Review (JPR) for MSHCP Consistency	To provide request to CDFW for concurrence with MSHCP consistency prior to final approval of the CEQA/NEPA document
Regional Water Quality Control Board	Porter-Cologne Act and CWA Section 401 Water Quality Certification	Application to be submitted during PS&E
U.S. Army Corps of Engineers	CWA Section 404 Nationwide Permit	Application to be submitted during PS&E
Regional Conservation Authority (RCA)	JPR for MSHCP Consistency	To provide request to RCA for MSHCP consistency determination prior to final approval of the CEQA/NEPA document
U.S. Fish and Wildlife Service (USFWS)	Federal Endangered Species Act Section 7 consultation/ JPR for MSHCP consistency	To provide request to USFWS for concurrence with MSHCP consistency prior to final approval of the CEQA/NEPA document

1 Introduction

The purpose of this report is to demonstrate that the Project is consistent with the goals and objectives of the MSHCP reserve system and implementation structure. The Project will maintain habitat functions and values and protect species as required by the MSHCP. This report is included as an appendix to the NES and provides the necessary documentation for the JPR process. The biological documentation for the project includes a large number of figures and photographs. Subsequently, this MSHCP Consistency Analysis incorporates the figures and photographs from the NES by reference rather than reproducing them herein. Full descriptions of methodologies, impacts, minimization and avoidance measures, etc. are also included in the NES and referenced in this document, where appropriate. The purpose of this document is to concisely summarize the Project's consistency with the MSHCP.

1.1 Project Description

The Project is a Covered Road under the MSHCP (Volume 1, Section 7.3.5, Planned Roads, within the criteria area), and there is no change in the road ROW. RCTC, in cooperation with Caltrans, is proposing to develop a tolled express lane network to improve and manage traffic operations, congestion, and travel times along the corridor; expand travel mode choice along the corridor; provide an option for travel time reliability; provide a cost-effective mobility solution; and expand and maintain compatibility with the express lane network in the region. The primary component of the Project would be the addition of two tolled express lanes[2] in both the northbound and southbound directions within the median of I-15 from SR-74 (Central Avenue) (post mile [PM] 22.3) in the city of Lake Elsinore, through the unincorporated Riverside County community of Temescal Valley, to El Cerrito Road (PM 38.1) in the city of Corona for a distance of approximately 15.8 miles (**Figures 1 and 2**). The Project would also add a southbound auxiliary lane both between the Main Street (PM 21.2) off-ramp and SR-74 (Central Avenue) on-ramp (approximately 0.75 mile), and the SR-74 (Central Avenue) off-ramp and Nichols Road on-ramp (PM 23.9) (approximately one mile). In addition to the lane additions, which extend from PM 21.2 to PM 38.1, the Project would include widening of up to 14 bridges; potential construction of noise barriers, retaining walls, and drainage systems; and implementation of electronic toll collection equipment and signs. Associated improvements, including advance signage and transition striping, would extend two miles from each end of the project limits to PM 20.3 in the south and PM 40.1 in the north. The proposed lane additions and supporting infrastructure are expected to be constructed primarily within the existing state ROW, with the majority of the improvements occurring within the existing I-15 median (**Figure 3**). Construction is anticipated to begin in June 2024 and would continue through December 2027. Operation of the Project is anticipated to begin in 2028.

Permanent impacts would result from grading for the addition of two tolled express lanes within the median of I-15 from SR-74 to El Cerrito Road, and for the addition of southbound auxiliary lanes between the Main Street off-ramp and SR-74 on-ramp and SR-74 off-ramp and Nichols Road on-ramp. The Project also includes the widening of up to 14 bridges and potential construction of noise barriers, retaining walls, and drainage systems. Temporary impacts would occur within the ROW in staging areas

[2] Express lanes are traffic lanes that are separated from general purpose lanes where users are charged a toll to use the lanes.

\\PDCCITRDSGIS1\Projects_1\Caltrans\I15_ELPSE\Figures\BioNES\2021_Jun\Fig01_Regional_Vicinity.mxd Date: 6/13/2021 19316

Figure 1
Regional Vicinity
Interstate 15 Express Lanes Project Southern Extension

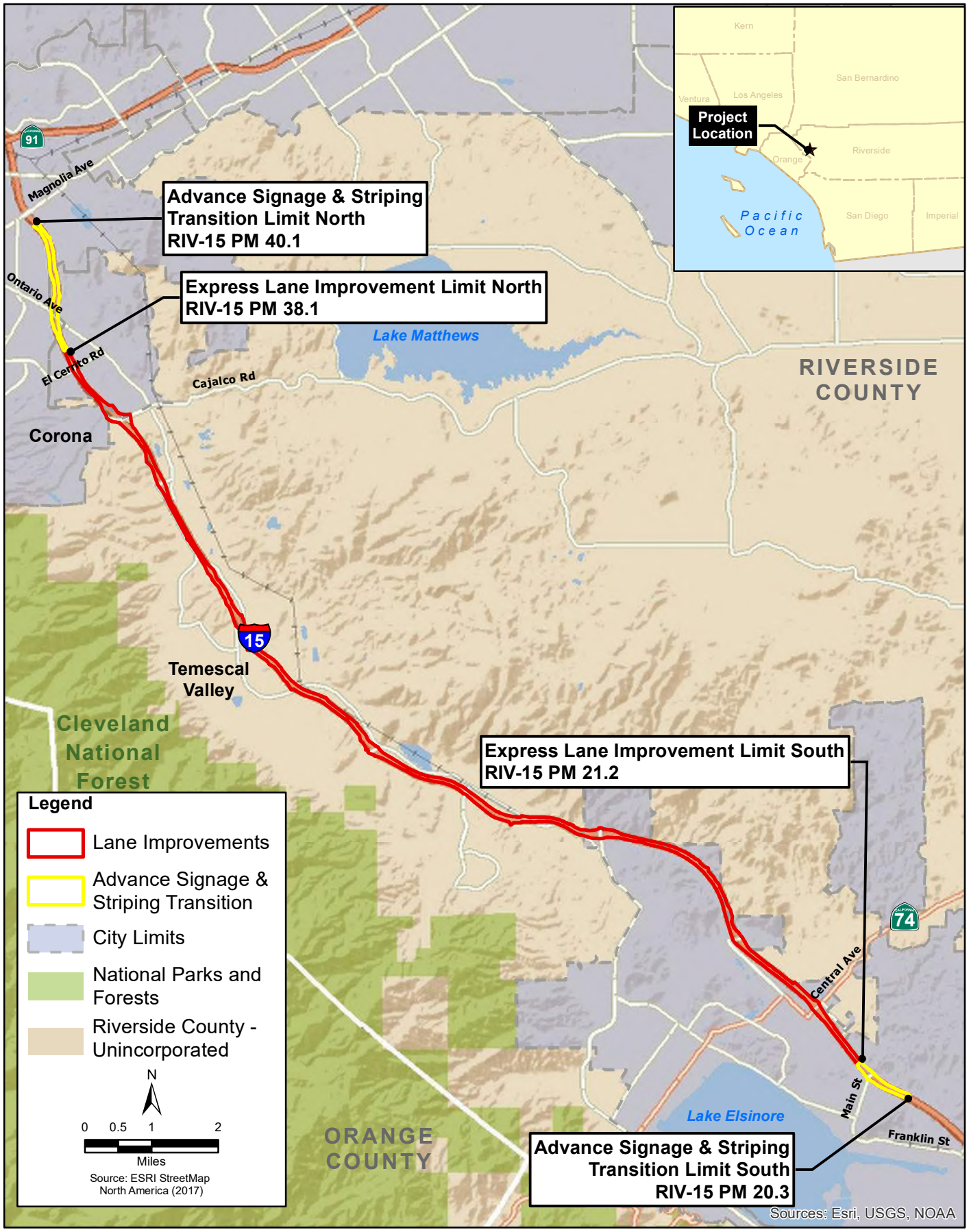
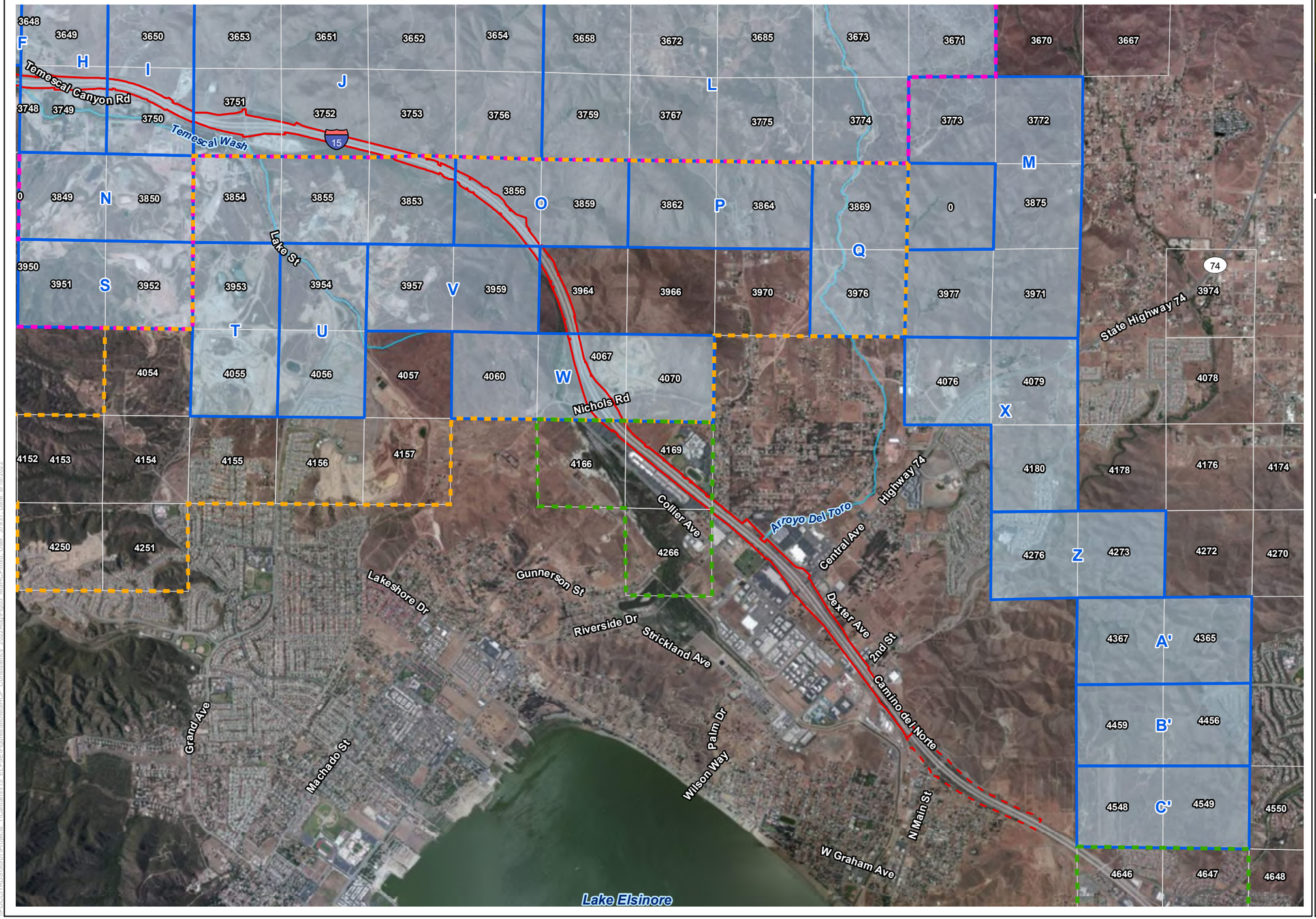
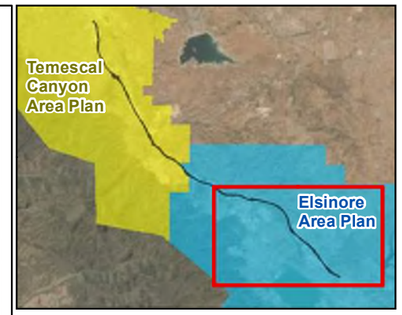


Figure 2
Project Location
Interstate 15 Express Lanes Project Southern Extension (I-15 ELPSE)





Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Elsinore Area Plan

Temescal Canyon Area Plan

Elsinore Area Plan - SU1 - Estelle Mtn/Indian Cyn

Elsinore Area Plan - SU2 - Alberhill

Elsinore Area Plan - SU3 - Elsinore

Temescal Canyon Area Plan - SU3 - Temescal Wash West

Temescal Canyon Area Plan - SU5 - Temescal/Santa Ana Mtns

Elsinore MSHCP Criteria Cell Groups

Temescal Canyon MSHCP Criteria Cell Groups

MSHCP Criteria Cells

Source: ESRI USA Imagery

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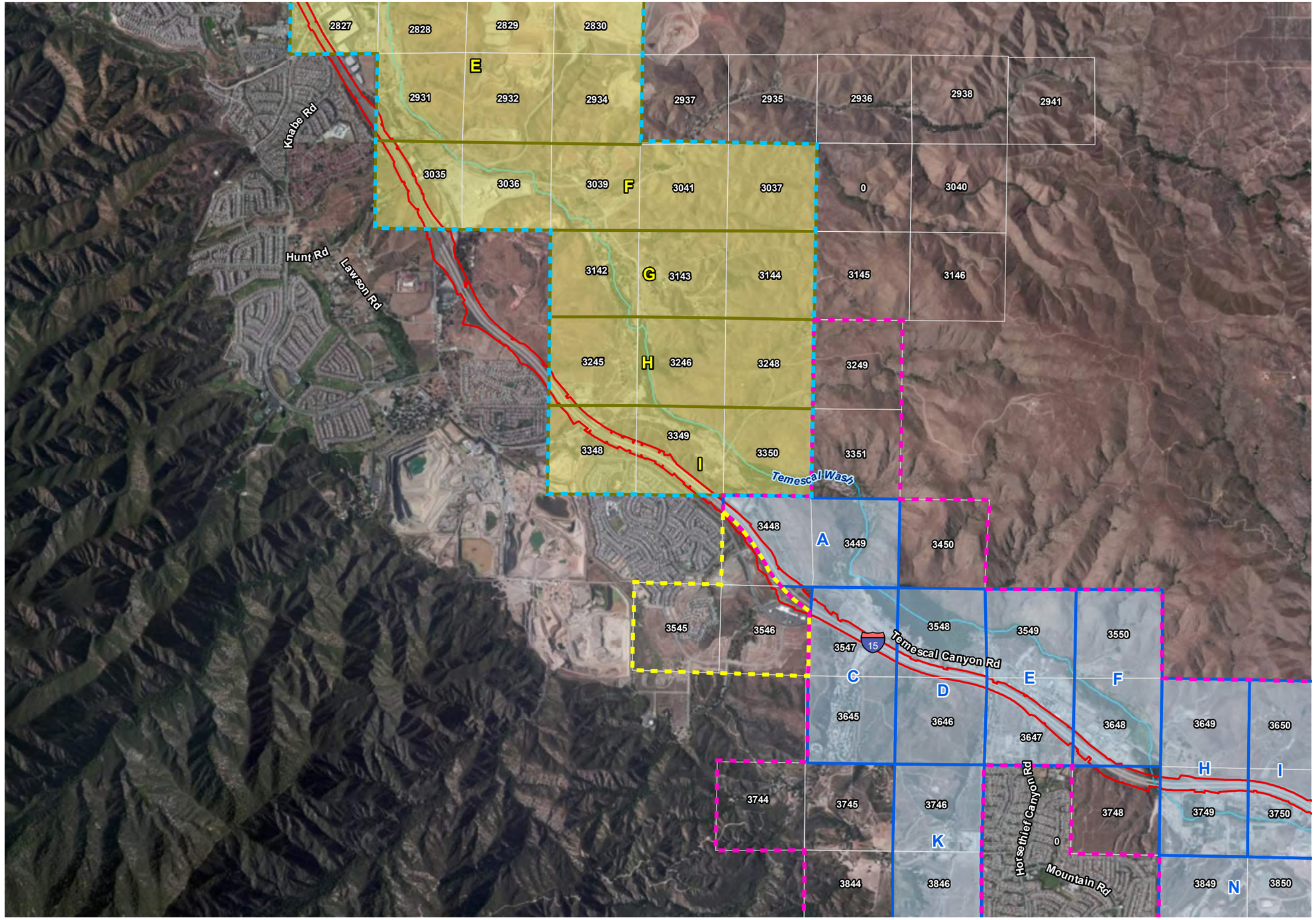
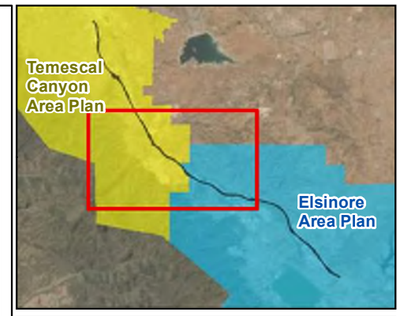
Figure 3 - Sheet 1
MSHCP Area Plans, Subunits, Criteria Cells and Cells Groups
Interstate 15 Express Lanes Project Southern Extension





Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Elsinore Area Plan

Temescal Canyon Area Plan

Elsinore Area Plan - SU1 - Estelle Mtn/Indian Cyn

Elsinore Area Plan - SU2 - Alberhill

Elsinore Area Plan - SU3 - Elsinore

Temescal Canyon Area Plan - SU3 - Temescal Wash West

Temescal Canyon Area Plan - SU5 - Temescal/Santa Ana Mtns

Elsinore MSHCP Criteria Cell Groups

Temescal Canyon MSHCP Criteria Cell Groups

MSHCP Criteria Cells

Source: ESRI USA Imagery

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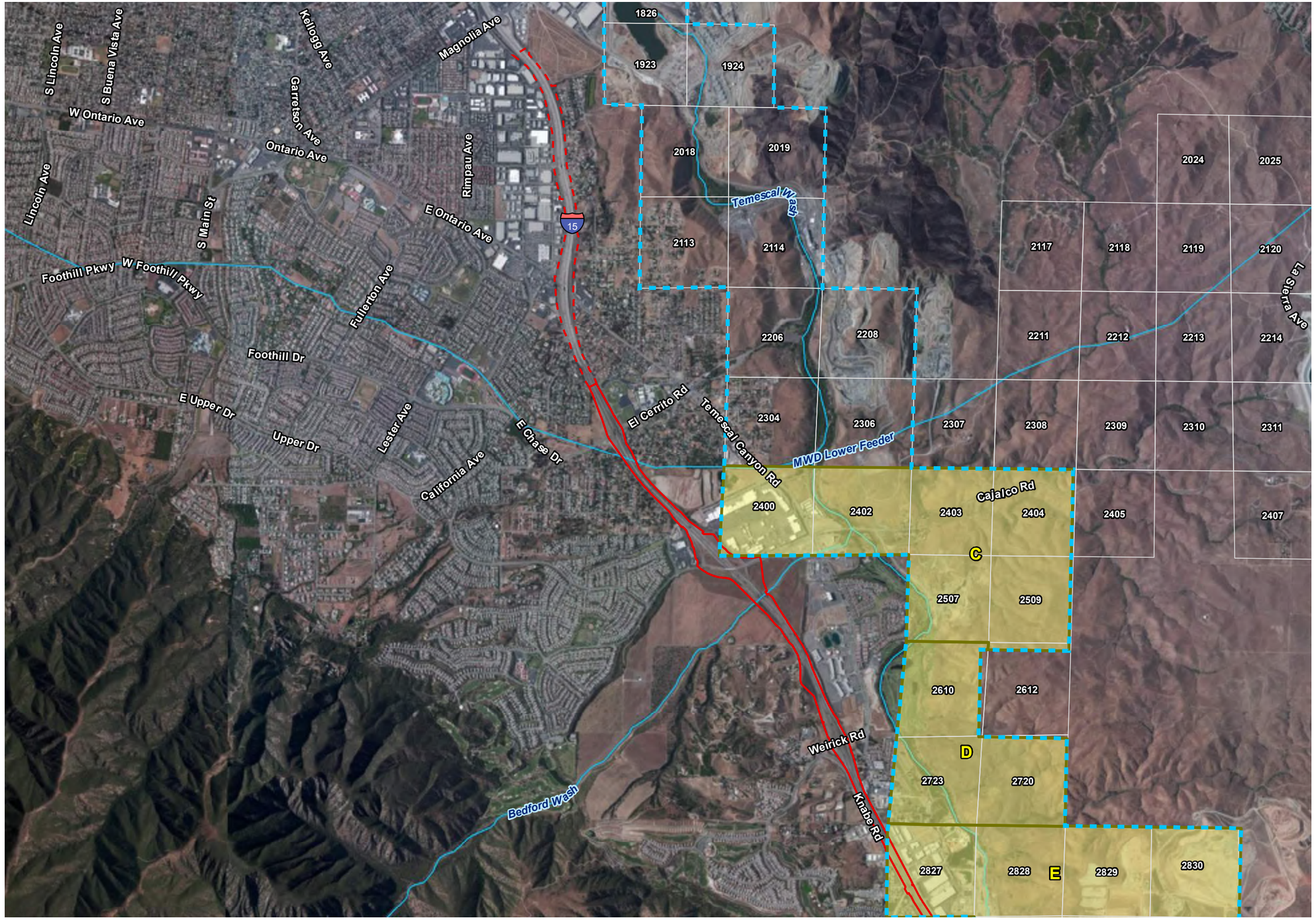
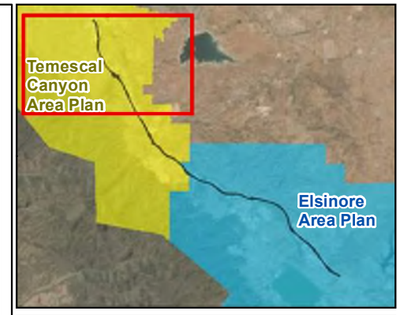
Figure 3 - Sheet 2
MSHCP Area Plans, Subunits, Criteria Cells and Cells Groups
Interstate 15 Express Lanes Project Southern Extension





Legend

Project Limits

Advance Signage/Striping Areas (PM 20.3/40.1)

Limits of Disturbance (PM 21.2/38.1)

Elsinore Area Plan

Temescal Canyon Area Plan

Elsinore Area Plan - SU1 - Estelle Mtn/Indian Cyn

Elsinore Area Plan - SU2 - Alberhill

Elsinore Area Plan - SU3 - Elsinore

Temescal Canyon Area Plan - SU3 - Temescal Wash West

Temescal Canyon Area Plan - SU5 - Temescal/Santa Ana Mtns

Elsinore MSHCP Criteria Cell Groups

Temescal Canyon MSHCP Criteria Cell Groups

MSHCP Criteria Cells

Source: ESRI USA Imagery

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Figure 3 - Sheet 3
MSHCP Area Plans, Subunits, Criteria Cells and Cells Groups
Interstate 15 Express Lanes Project Southern Extension

and temporary construction areas. Temporary impact areas would be returned to original contours, with soils decompacted/scarified and these areas being reseeded with Caltrans-approved native seed mix following the completion of the Project construction. All temporary impact areas would occur within the Project area.

1.2 Project Area

The Project would not include off-site improvements or staging areas. Staging and supporting infrastructure are expected to be constructed primarily within the existing state ROW, with the majority of the improvements occurring within the existing I-15 median. No weed abatement or fuel modification zones are part of the Project. The Project occurs within Assessor Parcel Numbers:

- 283-110-065
- 283-110-066
- 283-110-017
- 347-292-008
- 377-040-024
- 377-050-036
- 377-050-082
- 377-040-023
- 377-040-025
- 377-040-026
- 377-050-081
- 377-060-008
- 377-070-029
- 377-110-005
- 377-050-050
- 394-060-003
- 394-070-002
- 377-050-004

1.3 Covered Roads

The Project is identified in the MSHCP as a Planned Road and a Covered Activity (MSHCP Volume I, Section 7.3.5). Portions of the Project lie both inside and outside of Criteria Areas (Figure 4). The Project involves the construction of a Covered Road (MSHCP Figure 7-1). The Project is subject to the siting, design, and construction criteria in Section 7.5.1 of the MSHCP. (Riverside County Integrated Project 2003.)

The siting, design, and construction of Covered Roads are subject to guidelines provided in Section 7.5.1 the MSHCP. Those guidelines related to the Project are presented below, along with information regarding how the Project complies with the guidelines.

- *Planned roads will be located in the least environmentally sensitive location feasible including disturbed and developed areas or areas that have been previously altered. Alignments will follow existing roads, easements, ROWs and disturbed areas, as appropriate to minimize habitat fragmentation.* The Project is currently in the environmental document and design phase. Sensitive natural communities, LBV Use Areas, and riparian/riverine areas have been mapped, and preliminary recommendations to avoid and/or minimize potential impacts on these resources have been communicated to the engineering team. Impacts would be further avoided, minimized,

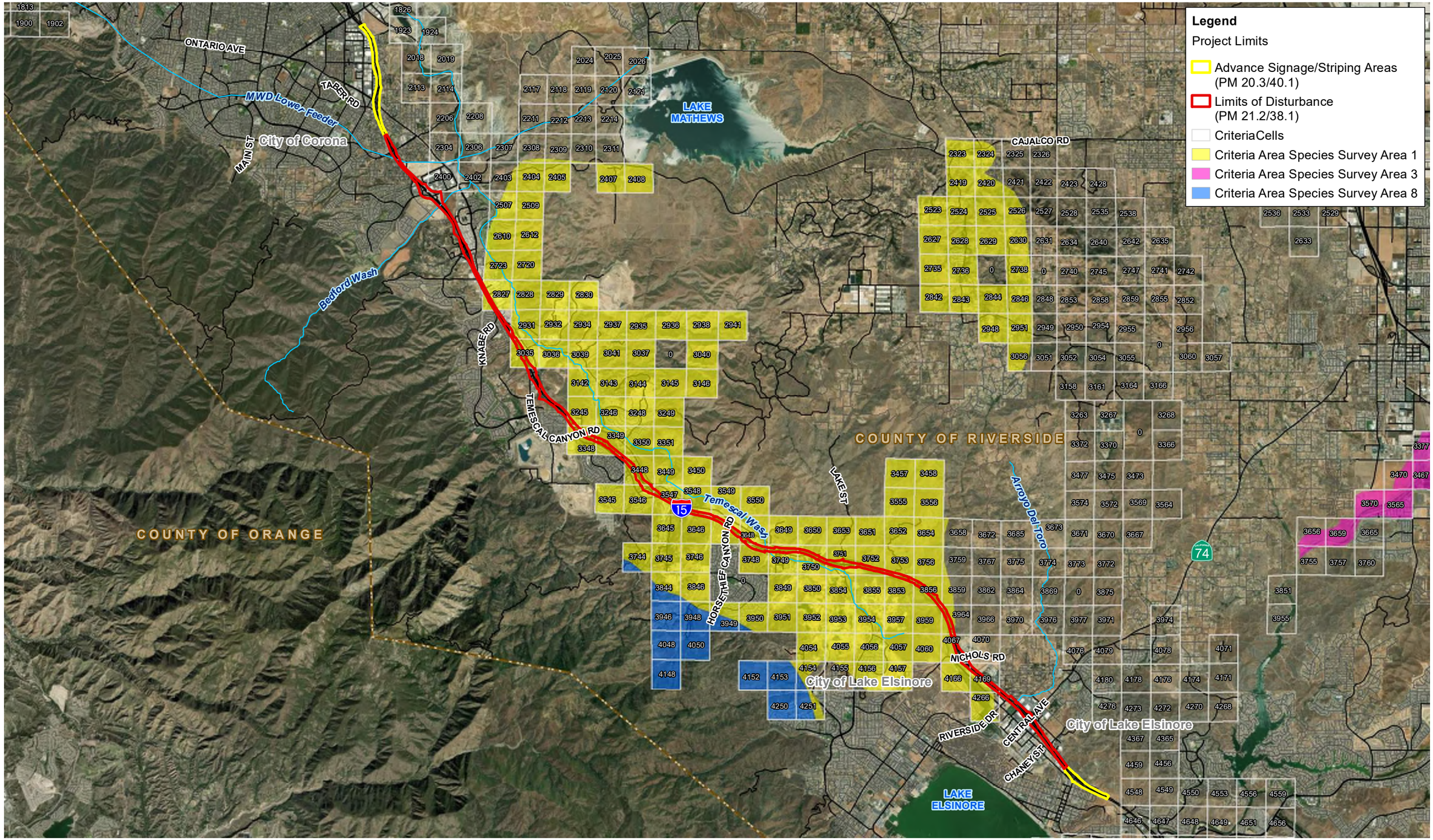

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Figure 4
MSHCP Survey Areas - Criteria Area Species Survey Area
Interstate 15 Express Lanes Project Southern Extension

and compensated by Minimization and Avoidance Measures **BIO-1** through **21**, **BIO-24**, **BIO-26**, and **BIO-28**, which are included in **NES, Appendix L**.

- *Planned roads will avoid, to the greatest extent feasible, impacts on covered species and wetlands. If wetlands avoidance is not possible, then any impacts to wetlands will require issuance of and mitigation in accordance with a federal 404 and/or state 1600 permit.* The Project is currently in the environmental document design phase. Sensitive natural communities, LBV Use Areas, and riparian/riverine areas have been mapped, and preliminary recommendations to avoid and/or minimize potential impacts on these resources have been communicated to the engineering team. However, some wetlands/other waters and one LBV Use Area are anticipated to be affected. The specific impacts are described in this document, and anticipated minimization, avoidance, and compensatory mitigation for these resources are described in Minimization and Avoidance Measures and Compensatory Mitigation Measures **BIO-1** through **18**, **BIO-21** through **24**, **BIO-26**, and **BIO-28**, which are included in **NES, Appendix L**.
- *The design of planned roads will consider wildlife movement requirements, as further outlined below under Guidelines for Construction of Wildlife Corridors*. The Project's effect on existing wildlife movement was reviewed in the NES. The Project is not expected to result in an appreciable decline in the number of species or individuals using the Proposed Cores, Proposed Linkages, and Proposed Constrained Linkages, nor is the Project expected to increase the mortality rate of species currently using existing undercrossings. Construction activities could temporarily deter animals from moving into an area while construction is occurring, but Minimization and Avoidance Measures **BIO-18** and **BIO-20**, which are included in **NES, Appendix L**, would avoid or minimize this temporary effect.
- *Narrow Endemic plant species will be avoided and if avoidance is not feasible, then mitigation as described in the Narrow Endemics Plant Policy will be implemented*. A rare plant survey was performed in 2020 and previously inaccessible areas are scheduled to be surveyed in 2021. No Narrow Endemic species required to be analyzed for the Project have been found to date during focused surveys. No measures are recommended.
- *Clear natural vegetation outside the active breeding season (March 1 through June 30).* This has been incorporated into the NES as Minimization and Avoidance Measure **BIO-1**, which is included in **NES, Appendix L**.
- *Conduct biological surveys within the BSA for the facility, including vegetation mapping and species surveys and/or wetland delineations*. Studies were conducted and preliminary recommendations to avoid and/or minimize potential impacts on sensitive biological resources were communicated to the engineering team.

Although the Project may be subject to the Guidelines for the construction of wildlife crossings (Section 7.5.2) and design considerations for wildlife crossings, no new culverts or crossings are proposed for the Project as all improvements would occur within the existing road median.

1.4 Best Management Practices (Volume 1, Appendix C) and Construction Guidelines (Section 7.5.3)

Fifteen BMPs are described in Appendix C of the MSHCP. This is demonstrated in Table 1-1, which includes the BMPs from Appendix C, their general description, and the corresponding equivalent Project minimization and avoidance measures (**NES, Appendix L**). Table 1-1 also includes Construction Guidelines from Section 7.5.3 of the MSHCP as these Guidelines overlap in scope with Appendix C. The Project is consistent with both Appendix C and Section 7.5.3 of the MSHCP with the implementation of the relevant Project minimization and avoidance measures.

Table 1-1. Best Management Practices (MSHCP Appendix C) Requirements and Relevant Project Minimization and Avoidance Measures

Construction Guidelines (Section 7.5.3)	Best Management Practices (MSHCP Appendix C) Requirement	Relevant Project Minimization and Avoidance Measure
Water pollution and erosion control plans - sediment and hazardous materials control, dewatering or diversion structures, fueling and equipment management practices, use of plant material for erosion control. Plans will be reviewed and approved by the County of Riverside prior to construction.	2 - Water pollution and erosion control plans, consistent with RWQCB requirements.	**BIO-12**, Water Pollution and Erosion Control Plans
Nesting birds - habitat clearing will be avoided during species active breeding season defined as March 1 to June 30.	N/A	**BIO-1**, Vegetation Clearing Restrictions
Sediment and erosion control measures - implemented until soils are stabilized	N/A	**BIO-12**, Water Pollution and Erosion Control Plans
Short-term stream diversions - use of sandbags or other methods, minimal instream impacts, consider effects on wildlife	7 - If stream flows must be diverted, diversions will be conducted using sandbags or other methods requiring minimal instream impacts.	**BIO-12**, Water Pollution and Erosion Control Plans
Silt fencing/sediment trapping materials installed at the downstream end of construction activities to minimize the transport of sediments off-site	N/A	**BIO-12**, Water Pollution and Erosion Control Plans
Settling ponds - cleaning will prevent sediment from re-entering the stream or damaging/disturbing adjacent areas	N/A	**BIO-12**, Water Pollution and Erosion Control Plans
No erodible materials deposited into water courses - no stockpiling of brush, debris etc. within stream channels/ adjacent banks	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.	**BIO-12**, Water Pollution and Erosion Control Plans
Minimize disturbance - access on pre-existing access routes to the greatest extent possible	3 - Minimize disturbance to the maximum extent feasible and use existing access routes to the greatest extent possible.	**BIO-9**, Minimizing Disturbance
Equipment storage, fueling and staging areas will be sited on non-sensitive upland habitat types with minimal risk of direct discharge into riparian areas or other sensitive habitat types.	8 - Equipment storage, fueling, and staging areas will be located on upland sites with minimal risks of direct drainage into riparian areas or other sensitive habitats.	**BIO-12**, Water Pollution and Erosion Control Plans
LOD, including the upstream, downstream and lateral extents, will be clearly defined and marked in the field. Monitoring	4 - Upstream and downstream and lateral limits of disturbance will be delineated on streams in	**BIO-13**, LODs and ESAs

Table 1-1. Best Management Practices (MSHCP Appendix C) Requirements and Relevant Project Minimization and Avoidance Measures

Construction Guidelines (Section 7.5.3)	Best Management Practices (MSHCP Appendix C) Requirement	Relevant Project Minimization and Avoidance Measure
personnel will review the LOD prior to initiation of construction activities.	the field and reviewed by a biologist prior to work.	
The placement of equipment within the stream or on adjacent banks or adjacent upland habitats occupied by Covered Species that are outside of the project footprint will be avoided.	5 - Projects should be designed to avoid equipment and personnel being placed in the stream channel or on sand and gravel bars, banks, and adjacent uplands used by target species of concern.	**BIO-12**, Water Pollution and Erosion Control Plans; **BIO-13**, LODs and ESAs; **BIO-14**, MSHCP Covered Species Avoidance
Exotic species removed during construction will be properly handled to prevent sprouting or regrowth.	12 - Exotic species that prey upon or displace target species of concern will be permanently removed from the site to the extent feasible.	**BIO-7**, Exotic Species
Training of construction personnel will be provided.	1 - Training for project personnel by a qualified biologist.	**BIO-4**, Biological Training
Ongoing monitoring and reporting will occur for the duration of the construction activity to ensure implementation of BMPs.	10 - The qualified project biologist will monitor construction activities for the duration of the project to ensure that practicable measures are being employed to avoid incidental disturbance of habitat and species of concern outside the project footprint.	**BIO-5,** Biological Monitoring
When work is conducted during the fire season (as identified by the Riverside County Fire Department) adjacent to coastal sage scrub or chaparral vegetation appropriate fire measures will be implemented.	N/A	**BIO-3**, Fire Suppression
Active construction areas will be watered to control dust	N/A	**BIO-2**, Dust Control
All equipment maintenance, staging, and fueling will occur only in designated areas in the grading limits	14 - Construction employees will strictly limit their activities, vehicles, equipment, and construction materials to the proposed project footprint and designated staging areas and routes of travel.	**BIO-6**, Construction Limits
Waste, dirt, rubble, or trash will not be disposed of in Conservation Area or habitat	N/A	**BIO-24**, Waste Management

Table 1-1. Best Management Practices (MSHCP Appendix C) Requirements and Relevant Project Minimization and Avoidance Measures

Construction Guidelines (Section 7.5.3)	Best Management Practices (MSHCP Appendix C) Requirement	Relevant Project Minimization and Avoidance Measure
N/A	6 - Project that cannot be conducted without placing equipment or personnel in sensitive habitats should be timed to avoid the breeding season of riparian identified in MSHCP Global Species Objective No. 7.	**BIO-12,** Water Pollution and Erosion Control Plans; **BIO-1**, Vegetation Clearing Restrictions
N/A	11 - The removal of native vegetation will be avoided and minimized to the maximum extent practicable. Temporary impacts will be returned to pre-existing contours and revegetated with appropriate native species.	**BIO-9**, Minimizing Disturbance
N/A	13 - To avoid attracting predators of the species of concern, the project site will be kept as clean of debris as possible. All food related trash items will be enclosed in sealed containers and regularly removed from the site(s).	**BIO-24**, Waste Management
N/A	15 - The Permittee will 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.	**BIO-11**, Access

N/A = not applicable (no similar requirement)

1.5 General Setting

The Project occurs in the Temescal Valley, which includes Temescal Wash and associated tributaries. Habitats associated with Temescal Wash include riparian, woodland, coastal sage scrub, alluvial fan sage scrub, and open water. Upland habitats adjacent to Temescal Wash and riparian areas connect to Lake Mathews/Estelle Mountain Reserve areas and the foothills north of Lake Elsinore (Estelle Mountain, Sedco Hills) to the north. Existing connections at Indian Canyon, Horsethief Canyon, and open upland areas southwest of Alberhill provide connections between the Santa Ana Mountains, Temescal Wash, and the foothills. Clay soils in the Temescal Valley provide habitat suitable for many special-status plants, as does the floodplain associated with Temescal Wash. Temescal Wash links to the Santa Ana River to the north.

Major topographic features in the area are the Santa Ana Mountains to the west, Temescal Wash, Estelle Mountain, Gavilan Hills, Corona Lake, and Lake Elsinore. Most of the LOD is relatively flat, but sloping upward in a southerly direction along I-15. The BSA extends outward from the LOD and includes some areas of hillside and more rugged terrain. Elevation within the BSA generally increases from the northern end of the Project to the southern end, and ranges from approximately 850 to 1,460 feet above mean sea level (Google Earth 2020).

Drainages within the BSA receive flows from the Santa Ana Mountains west of the BSA and the Gavilan Hills east of the BSA. Temescal Wash, which connects Lake Elsinore in the south to the Santa Ana River north of the BSA, is the main drainage within the BSA, and most of the aquatic features within the BSA are tributary to Temescal Wash. Within the BSA, Temescal Wash is an intermittent and perennial earthen drainage that supports riparian habitat throughout much of its length. Between the BSA and the Santa Ana River, Temescal Wash contains portions with earthen substrate that support areas with riparian habitat, as well as portions that have been concrete-lined/channelized. All hydrological features within the BSA have been modified to some extent to support development of I-15 and surrounding residential, agricultural, and commercial land uses (Refer to **Appendix E of the NES** for representative photographs of the BSA)

2 Reserve Assembly Analysis

The goal of reserve assembly analysis is to review the Project relative to maintaining the function and connectivity of the MSHCP Reserve Connectivity Features (Core area, Extension of Existing Core area, Linkages, and Constrained Linkages) that are the focus of the MSHCP Criteria description (MSHCP Volume I, Section 3). This analysis includes a discussion of the applicable planning species for the MSHCP Features, the subunit goals, and whether the Project impedes the overall function of the MSHCP Feature or the use of the MSHCP Feature by the planning species.

The construction and/or improvement to an MSHCP covered road does not trigger reserve assembly. However, there are requirements for covered roads to ensure that connectivity and biological functions and values of the MSHCP are maintained. The following sections provide context for the reserve for the Project.

The Project is within the following MSHCP Area Plans, Subunits, Cell Groups, and Cells.

- Elsinore Area Plan
    - Subunit 1 (Estelle Mountain/Indian Canyon)
        - Cell Group A (3448, 3449)
        - Cell Group C (3547, 3645)
        - Cell Group D (3548, 3646)
        - Cell Group E (3549, 3647)
        - Cell Group F (3648)
        - Cell Group H (3649, 3749)
        - Cell Group I (3650, 3750)
        - Cell Group J (3751, 3752, 3753, 3756)
        - Independent Cell 3748
    - Subunit 2 (Alberhill)
        - Cell Group O (3856, 3859)
        - Cell Group V (3959)
        - Cell Group W (4067, 4070)
        - Independent Cells 3853, 3855, 3964
    - Subunit 3 (Elsinore)
        - Independent Cells 4166, 4169, 4266

- Temescal Canyon Area Plan
    - Subunit 3 (Temescal Wash West)
        - Cell Group C (2400)
        - Cell Group D (2723)
        - Cell Group E (2827, 2931)
        - Cell Group F (3035)
        - Cell Group H (3245)
        - Cell Group I (3348, 3349)
    - Subunit 5 (Temescal/Santa Ana Mountains)
        - Independent Cell 3546

Table 2-1 summarizes the MSHCP Reserve Connectivity Features (Core area, Extension of Existing Core area, Linkages, and Constrained Linkages) that overlap the BSA and LOD.

Table 2-1 includes the MSHCP Reserve Connectivity Features (Core area, Extension of Existing Core area, Linkages, and Constrained Linkages) that intersect with the Project. Included within this table are the MSHCP Feature location, planning species, type of habitat for wildlife (live-in or movement), Project impacts on the MSHCP Feature, and an analysis of the Project's consistency with the MSHCP. Project impacts on the MSHCP Features include edge impacts, permanent impacts, shading impacts, and impacts on wildlife crossings. Since the Project is an MSHCP Covered Road, permanent and shading impacts on the MSHCP Features are Covered impacts. Project minimization and avoidance measures to reduce edge impacts and impacts on wildlife crossings for the Project are discussed after Table 2-1.

Table 2-1. MSHCP Reserve Connectivity Features, Location, Planning Species, Impacts, and MSHCP Consistency of the Proposed Project

MSHCP Reserve Connectivity Feature (MSHCP Features)	Area Plan(s)	MSHCP Feature Location Description	Planning Species for the MSHCP Feature	Live-in Habitat and/or Movement Habitat	Project Impacts on MSHCP Feature	Project MSHCP Consistency Analysis
Proposed Core 1 (contiguous with Existing Core C)	Mostly within Elsinore Area Plan	Core consists of two blocks of habitat, one east and one west of I-15, approximately PM 24 to PM 27. Consists of land in the Alberhill area. Overlaps with BSA and LOD; exists on both sides of I-15.	Coastal California gnatcatcher, cactus wren, tricolored blackbird, SWFL, Munz's onion, and many-stemmed dudleya	Both live-in and movement habitat	Edge effects. Minimal shading and permanent impacts of the Project occur at the Lake Street crossing associated with Proposed Core 1, depicted in NES, Appendix A, Figure 7, Sheet 7.	Proposed Core 1 is bifurcated by I-15. Management of edge conditions to maintain high quality habitat within the Core is a key consideration. Potential Project edge impacts are described below, and the Project biological measures to minimize these impacts are described. Through the implementation of the Project minimization and avoidance measures specific to edge effects, the Project is consistent with the MSHCP goals for Proposed Core 1. As the Project is a Covered Road under the MSHCP, impacts are Covered under the MSHCP.
Proposed Extension of Existing Core 2 (i.e., Lake Mathews/Estelle Mountain Extension)	Portion within Elsinore Area Plan; mainly within Temescal Area Plan	West of I-15 from approximately PM 29 to PM 30. Consists of land from Lake Mathews and El Cerrito south to almost the I-15 crossing of Temescal Wash. Overlaps with	Cooper's hawk, southern California rufous-crowned sparrow, Bell's sage sparrow, yellow warbler, white-tailed kite, SWFL, yellow-breasted chat, loggerhead shrike, downy woodpecker,	Both live-in and movement habitat	Edge effects. Existing crossings under I-15 adjacent to Proposed Extension of Existing Core 2 include Coldwater Wash (PM 32.96), Mayhew Wash (PM 31.97), Indian Wash (PM 30.09), and	The Core provides high quality, connected habitat which is surrounded by urban land uses. Management of edge conditions is a key consideration. Through the implementation of the Project minimization and avoidance measures specific to edge effects, the Project is consistent with the MSHCP goals

Table 2-1. MSHCP Reserve Connectivity Features, Location, Planning Species, Impacts, and MSHCP Consistency of the Proposed Project

MSHCP Reserve Connectivity Feature (MSHCP Features)	Area Plan(s)	MSHCP Feature Location Description	Planning Species for the MSHCP Feature	Live-in Habitat and/or Movement Habitat	Project Impacts on MSHCP Feature	Project MSHCP Consistency Analysis
		BSA and LOD but does not cross I-15.	coastal California gnatcatcher, LBV, SKR, bobcat, mountain lion, Munz's onion, long-spined spine flower, and many stemmed dudleya		Horsethief Canyon Wash (PM 29.13).	of Proposed Extension of Existing Core 2.
Proposed Linkage 1	All within Elsinore Area Plan	West of I-15 from approximately PM 29 to PM 30. Consists of foothills of the Santa Ana Mountains and adjacent undeveloped areas. Overlaps with BSA and LOD and has an under-crossing at I-15.	Cooper's hawk, Bell's sage sparrow, loggerhead shrike, mountain quail, coastal California gnatcatcher, SKR, bobcat, and mountain lion	Movement habitat	Edge effects. Existing large crossings under I-15 adjacent to Proposed Linkage 1 are Horsethief Canyon Wash (PM 29.13) and Indian Wash. Permanent impacts associated with Proposed Linkage 1 include addition of columns during bridge gap closure; remaining impacts on the crossing will be temporary. Depicted in NES, Appendix A, Figure 7, Sheet 11 (Jurisdictional Feature 29.1-1) and Sheet 12 (Indian Wash,	Key considerations include management of edge effects and habitat with refugia for dispersal of juveniles of planning species. Through the implementation of the Project minimization and avoidance measures specific to edge effects, the Project is consistent with the MSHCP goals of Proposed Linkage 1.

Table 2-1. MSHCP Reserve Connectivity Features, Location, Planning Species, Impacts, and MSHCP Consistency of the Proposed Project

MSHCP Reserve Connectivity Feature (MSHCP Features)	Area Plan(s)	MSHCP Feature Location Description	Planning Species for the MSHCP Feature	Live-in Habitat and/or Movement Habitat	Project Impacts on MSHCP Feature	Project MSHCP Consistency Analysis
					Jurisdictional Feature 30.0-1).	
Proposed Linkage 2	All within Elsinore Area Plan	West of I-15 from approximately PM 23 to PM 24. Consists of wetland habitat associated with Collier Marsh in City of Lake Elsinore. Adjacent to the BSA.	American bittern, mountain plover, SWFL, black-crowned night heron, osprey, double-crested cormorant, white-faced ibis, and LBV	Live-in habitat	Does not overlap LOD, but is adjacent to the BSA (Collier Marsh in the City of Lake Elsinore). No anticipated impacts.	Key considerations include maintenance of water quality and wetland functions and value of Collier Marsh (in the City of Lake Elsinore), as well as edge effects from adjacent development. Through the implementation of the Project minimization and avoidance measures specific to edge impacts, water quality, and wetland functions, the Project is consistent with the MSHCP goals of Proposed Linkage 2.
Proposed Constrained Linkage 3	Portions within Elsinore Area Plan; large portion within Temescal Area Plan	West of and underneath I-15, approximately at PM 30 and PM 31. Consists of undeveloped upland habitat approximately at the Indian Truck Trail exit. Overlaps with BSA and LOD (undercrossing at I-15).	Bobcat	Movement habitat	An existing crossing under I-15 in the vicinity is Indian Wash (PM 30.09). There may be an unnamed wash that passes under I-15 through Proposed Constrained Linkage 3 at the Indian Truck Trail exit. Shading and permanent impacts occur in Proposed	Key considerations described in the MSHCP include maintenance of contiguous habitat with refugia for dispersal of juveniles, potential habitat fragmentation due to development, and proposed widening of I-15 that could affect movement. The MSHCP states, "Maintenance of an adequate wildlife undercrossing at least 10-20 feet wide with fencing and vegetative cover will be important

Table 2-1. MSHCP Reserve Connectivity Features, Location, Planning Species, Impacts, and MSHCP Consistency of the Proposed Project

MSHCP Reserve Connectivity Feature (MSHCP Features)	Area Plan(s)	MSHCP Feature Location Description	Planning Species for the MSHCP Feature	Live-in Habitat and/or Movement Habitat	Project Impacts on MSHCP Feature	Project MSHCP Consistency Analysis
					Constrained Linkage 13 associated with Indian Truck Trail and Jurisdictional Feature 30.4-1 as depicted in NES, Figure 7, Sheet 12.	to accommodate movement of bobcats." (Section 3.2.3 of the MSHCP). Through the implementation of the Project minimization and avoidance measures specific to wildlife crossing (described below), the Project is consistent with the MSHCP goals of Proposed Constrained Linkage 3.
Proposed Constrained Linkage 5	All within Elsinore Area Plan	West of and underneath I-15 near PM 29. Consists of a wildlife undercrossing and adjacent upland habitat northwest of Horsethief Canyon Road. Overlaps with BSA and LOD (undercrossing at I-15).	Bobcat and mountain lion	Movement habitat	Edge impacts. An existing crossing under I-15 within the linkage is Horsethief Canyon Wash (PM 29.13). Shading and permanent impacts occur in Proposed Constrained Linkage 5, associated with Horsethief Canyon Road, as depicted in NES, Appendix A, Figure 7, Sheet 10.	Key considerations include maintenance of contiguous habitat with appropriate dispersal refugia for juveniles, management of edge effects from adjacent planned development, and maintenance of an adequate wildlife undercrossing at I-15. The MSHCP suggests that an adequate wildlife undercrossing at least 10 to 20 feet wide with fencing and vegetative cover will be important to accommodate movement of bobcat and mountain lion. Through the implementation of the Project minimization and avoidance measures specific to edge impacts, the Project is

Table 2-1. MSHCP Reserve Connectivity Features, Location, Planning Species, Impacts, and MSHCP Consistency of the Proposed Project

MSHCP Reserve Connectivity Feature (MSHCP Features)	Area Plan(s)	MSHCP Feature Location Description	Planning Species for the MSHCP Feature	Live-in Habitat and/or Movement Habitat	Project Impacts on MSHCP Feature	Project MSHCP Consistency Analysis
						consistent with the MSHCP goals of Proposed Constrained Linkage 5. Through the implementation of the Project minimization and avoidance measures specific to wildlife crossing (described below), the Project is consistent with the MSHCP goals of Proposed Constrained Linkage 5.
Proposed Constrained Linkage 6	All within Elsinore Area Plan	North and south of, and underneath I-15 from approximately PM 27 to PM 28. Consists of Temescal Wash and adjacent riparian habitat and nearby undeveloped upland habitat. Overlaps the BSA and the LOD (undercrossing at I-15).	Cooper's hawk, yellow warbler, white-tailed kite, SWFL, yellow-breasted chat, and LBV	Both live-in and movement habitat	Edge impacts. Permanent and shading impacts associated with Proposed Constrained Linkage 6 occur in Temescal Canyon Road and Temescal Wash in Temescal Valley (Jurisdictional Feature 28.1-1), as depicted in NES, Appendix A, Figure 7, Sheet 9.	Key considerations include maintenance of upland and riparian habitats along Temescal Wash and management of edge effects from adjacent future development. Through the implementation of the Project minimization and avoidance measures specific to edge impacts and impacts on upland and riparian habitat associated with Temescal Wash, the Project is consistent with the MSHCP goals of Proposed Constrained Linkage 6. As the Project is a Covered Road under the MSHCP, shading and

Table 2-1. MSHCP Reserve Connectivity Features, Location, Planning Species, Impacts, and MSHCP Consistency of the Proposed Project

MSHCP Reserve Connectivity Feature (MSHCP Features)	Area Plan(s)	MSHCP Feature Location Description	Planning Species for the MSHCP Feature	Live-in Habitat and/or Movement Habitat	Project Impacts on MSHCP Feature	Project MSHCP Consistency Analysis
						permanent impacts are Covered under the MSHCP.

The management of edge impacts is a key consideration for many of the MSHCP Features that the Project intersects (Table 2-1). The following minimization and avoidance measures will be implemented as a part of the Project to address edge impacts on biological resources. During active construction, areas will be watered regularly to control dust and minimize impacts on adjacent vegetation (**BIO-2**, Dust Control). When work is conducted during the fire season adjacent to Riversidian sage scrub, appropriate fire-fighting equipment will be available during construction to minimize the chance of human-caused wildfires (**BIO-3**, Fire Suppression). A biological monitor will train (**BIO-4**, Biological Training) all construction personnel regarding sensitive biological resources prior to initiation of grading, and will be present to monitor construction for the duration of the Project (**BIO-5**, Biological Monitoring). The biological monitor will ensure that all work is strictly limited to the project boundaries and that all environmentally sensitive areas (ESAs) are fenced and avoided (**BIO-6**, Construction and Project Limits), with disturbance minimized to the maximum extent possible (**BIO-9**, Minimizing Disturbance). Exotic plant species removed during construction will be properly handled, and development adjacent to MSHCP conservation areas will not use the plant species listed in Table 6-2 of the MSHCP Volume I **(BIO-7**, Exotic Species). The Project site will be kept as clean as possible to avoid attracting predators of special-status species (**BIO-24**, Waste Management), and no waste, dirt, rubble, or trash will be deposited in the MSHCP conservation area or on native habitat. Revegetation of temporarily disturbed areas remaining as bare ground will be hydro-seeded with a Caltrans-approved seed mix (**BIO-10**, Revegetation). All equipment will be cleaned of mud and debris that may contain invasive species or seeds prior to mobilizing to the Project and inspected before leaving the site to reduce the potential for spreading of noxious weeds (**BIO-8**, Equipment Cleaning). Plans for water pollution and erosion control will be prepared (**BIO-12**, Water Pollution and Erosion Control Plans) to ensure that the quantity and quality of runoff discharged into MSHCP conservation areas are not altered in an adverse way when compared to existing conditions. The uplands and riparian areas of Temescal Wash and other riparian or upland habitats occupied by MSHCP covered species outside of the Project's LOD will be avoided through the implementation of **BIO-14**, MSHCP Covered Species Avoidance. Night lighting will be directed away from natural lands within potential MSHCP conservation areas in order to support potential Linkage and Core functions during construction (**BIO-18**, Night Lighting Management). This measure also includes the use of shielding in Project design for lighting to ensure that ambient lighting in the MSHCP conservation area is not increased. With the implementation of these measures, the Project would reduce the impacts of edge effects and would be consistent with the goals of the MSHCP Features as described above.

Maintenance of adequate wildlife undercrossings is another key consideration for the MSHCP Features that intersect with the Project. The implementation of both **BIO-6**, Construction and Project Limits, and **BIO-13**, LODs and ESAs, will ensure that the Project LOD will be clearly defined and marked in the field. This will ensure that the Project will not encroach into wildlife crossings outside of the Project LOD. During construction, wildlife movement through the washes and under I-15 could be interrupted due to noise, lighting, human presence, removal of cover features, and general disturbance within the crossing structures and their immediate vicinity. There is potential for wildlife to avoid moving through areas adjacent to construction and/or to make less safe crossings of the highway that may increase the risk of mortality, especially during nighttime work. **BIO-20**, Wildlife Undercrossings, will ensure that the functionality of wildlife undercrossings identified as important MSHCP Features will be maintained during construction. A biological monitor will be present during all construction in or within 300 feet of

surface waters of Temescal Wash and its tributaries (**BIO-22**, Temescal Wash – Biological Monitoring) to ensure that the biological functionality of these areas is maintained.

In addition to the above measures, there will be no outside widening of the Project. All lanes will be created in the existing median. Where bridges currently exist, the additional lane would be supported by closure of the bridge gap between the two existing bridges (northbound and southbound).

Most of the areas described for conservation and associated with the Cores and Linkages occur to the east and west of the existing I-15 ROW and would have minimal direct impacts (i.e., Proposed Core 1, Proposed Extension of Existing Core 2, Proposed Linkage 1, Proposed Linkage 2). Proposed Constrained Linkage 3 at Indian Truck Trail and Temescal Wash, Proposed Constrained Linkage 5 at Horsethief Canyon Road, and Proposed Constrained Linkage 6 at Temescal Wash also cross underneath the I-15 and occur within the LOD. During construction, wildlife may be deterred from using the Constrained Linkages; however, after construction, all bridge undercrossings could function adequately for wildlife passage, with minimal permanent impacts from new bridge piers, and potential for degraded habitat under bridges due to shading effects. I-15 is expected to operate similarly after project completion as compared to existing conditions, but with increased traffic efficiency.

The MSHCP subunits that intersect with the Project are included in Table 2-2. All of the MSHCP Reserve Connectivity Features (Cores, Linkages, etc.) within the subunits are included within this table. With the exception of Proposed Constrained Linkage 4, all of the MSHCP Features associated with the subunits intersect with the Project.

Table 2-2. MSHCP Area Plan Subunits, Target Acreages, Planning Species, and Biological Issues and Considerations

Area Plan	Subunit	MSHCP Reserve Connectivity Features*	Midpoint Target Acreage, Additional Reserve Lands (acres)	Planning Species	Biological Issues and Considerations
Elsinore	1 – Estelle Mountain/ Indian Canyon	**Proposed Extension of Existing Core 2; Proposed Linkage 1, Proposed Constrained Linkage 5, Proposed Constrained Linkage 6, Proposed Core 1**	5,065	Bell's sage sparrow, coastal California gnatcatcher, Cooper's hawk, LBV, loggerhead shrike, mountain quail, SWFL, white-tailed kite, yellow-breasted chat, yellow warbler, bobcat, mountain lion, SKR, many-stemmed dudleya, and Munz's onion	Provide connection between Santa Ana Mountains, Temescal Wash, and the foothills north of Lake Elsinore (Estelle Mountain, Sedco Hills). Existing connections appear to be at Indian Canyon, Horsethief Canyon, and open upland areas southwest of Alberhill. Conserve wetlands including Temescal Wash.
Elsinore	2 - Alberhill	**Proposed Core 1, Proposed Linkage 1**	2,385	Bell's sage sparrow, cactus wren, coastal California gnatcatcher, Cooper's hawk, downy woodpecker, LBV, SWFL, tree swallow, tricolored blackbird, white-tailed kite, yellow-breasted chat, yellow warbler, Quino checkerspot butterfly, Riverside fairy shrimp, bobcat, mountain lion, SKR, Coulter's goldfields, many-stemmed dudleya, Munz's onion, San Diego ambrosia, and vernal barley	Provide NW-SE connection along the hills between Estelle Mountain and Sedco Hills, primarily for gnatcatchers, but also for other sage scrub species. Conserve wetlands including Temescal Wash and Alberhill Creek. Maintain upland habitats in Alberhill and provide connection north to Estelle Mountain, North Peak, and BLM Lands. Conserve Engelmann Oak woodlands.

Table 2-2. MSHCP Area Plan Subunits, Target Acreages, Planning Species, and Biological Issues and Considerations

Area Plan	Subunit	MSHCP Reserve Connectivity Features*	Midpoint Target Acreage, Additional Reserve Lands (acres)	Planning Species	Biological Issues and Considerations
Temescal Canyon	3 - Temescal Wash West	**Proposed Extension of Existing Core 2,** Proposed Constrained Linkage 4	3,600	Bell's sage sparrow, coastal California gnatcatcher, Cooper's hawk, downy woodpecker, LBV, loggerhead shrike, Southern California rufous-crowned sparrow, SWFL, white-tailed kite, yellow-breasted chat, yellow warbler, bobcat, mountain lion, SKR, Coulter's matilija poppy, long-spined spine flower, many-stemmed dudleya, Munz's onion, Palmer's grapplinghook, peninsular spine flower, small-flowered microseris, small-flowered morning-glory, and smooth tarplant	Conserve existing wetlands in Temescal Wash. Focus on conservation of existing riparian, woodland, coastal sage scrub, alluvial fan scrub, and open water habitats. Conserve upland habitat adjacent to Temescal Wash. Conservation should focus on blocks of existing upland habitat east of Temescal Wash connecting to the Lake Mathews/Estelle Mountain Reserve. Provide for and maintain a continuous linkage along Temescal Wash from the southern boundary of the Temescal Area Plan to the Santa Ana River. It is recognized that the connection from the northern boundary of the Criteria Area along Temescal Wash to the Santa Ana River generally consists of a concrete channel. This channel will remain in its existing condition with implementation of the MSHCP Plan.
Temescal Canyon	5 - Temescal/ Santa Ana Mountains	**Proposed Constrained Linkage 3**	60	Bell's sage sparrow, coastal California gnatcatcher, and bobcat	Provide for upland Linkage from Temescal Wash to Santa Ana Mountains.

* Bold are MSHCP Features that exist in the BSA.

Of the nine I-15 wash undercrossings, seven have entirely natural bottoms and therefore likely support most of the wildlife movement opportunities through the BSA. Two crossings are partially (Wasson Canyon Wash) or completely (Brown Canyon Wash) channelized with concrete. Two of the crossings were highlighted by the Missing Linkages in California Project as high-priority connectivity features: Bedford Canyon linkage (i.e., Bedford Wash crossing) and Gavilan Hills-Santa Ana Mountains linkage (i.e., Indian Wash crossing) (Penrod et al. 2001).

As part of the Project, the dual bridges at the nine wash crossings would be widened to close the existing gaps between them, and the closed gap would support the new lanes. Other, smaller, existing culverts and pipes along the alignment that may support animal movement under I-15 are expected to remain unchanged because all widening would occur in the existing median. No culvert or bridge extensions are proposed as part of this Project.

Localized, direct, and permanent impacts would occur where infrastructure is added within the floodplain. This would reduce the amount of available live-in habitat by a small amount within each crossing feature. Shading would occur where the gap between dual bridges would be permanently closed; no partial gaps are assumed to remain. The shading is unlikely to deter wildlife movement through the structures, considering the overall openness of the bridge undercrossings.

During construction, wildlife may be deterred from using the constrained linkages; however, the Project avoidance and minimization measures will reduce this impact. Post construction, all bridge undercrossings could function adequately for wildlife passage, with minimal permanent impacts from new bridge piers, and potential for degraded habitat under bridges due to shading effects. Overall, the Project is not expected to substantially affect wildlife movement or linkage functions and values within the BSA because major wash undercrossings will be retained, including the priority linkages at Bedford Wash and Indian Wash.

To address potential edge impacts during construction and direct impacts from additional bridge infrastructure and closure of bridge gaps on MSHCP Elsinore Area Plan Subunits 1 and 2 and Temescal Canyon Area Plan Subunits 3 and 4, the edge impact and wildlife undercrossing minimization and avoidance measures discussed above for the MSHCP Features would be required.

The Project is not expected to substantially alter the existing MSHCP Area Plan Subunit functions and wildlife connectivity values within the BSA or region. Closure of the bridge gaps in the median is not expected to be a substantial effect. Therefore, the Project is considered to be consistent with the MSHCP Area Plan Subunit's goals.

The species in Table 2-3 are from both the MSHCP Feature planning species (Table 2-1) and MSHCP Subunit planning species (Table 2-2) that intersect with the Project. The MSHCP Subunit goals for each species were included in Table 2-3 in order to evaluate the Project's consistency with the MSHCP subunit goals for the planning species.

Table 2-3. MSHCP Planning Species Potential to Occur, Area Plan Subunit Goals, and Project Consistency with Goals

Planning Species Status[a] (Federal/State/ CRPR/ MSHCP)	Potential to Occur	Elsinore Area Plan, Subunit 1 Goal	Elsinore Area Plan, Subunit 2 Goal	Temescal Canyon, Subunit 3 Goal	Temescal Canyon, Subunit 5 Goal	Project MSHCP Consistency Analysis
Avian Species						
Bell's sage sparrow- *Artemisiospiza belli belli* (-/-/-/MSHCP)	Habitat present. Coastal sagescrub, chaparral, and open scrub habitats are present in the BSA. Nest mainly in shrubs, but also in bunchgrasses and occasionally on the ground under shrubs.	Conserve habitats for gnatcatcher and other coastal sage scrub and chaparral species.	Provide NW-SE connection for gnatcatchers, but also other sage scrub species.	Conserve upland habitat adjacent to Temescal Wash.	Provide for upland linkage from Temescal Wash to Santa Ana Mountains.	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP.
Cactus wren - *Campylorhynchus brunneicapillus sandiegensis* (-/CSC/-/MSHCP)	Habitat present. Suitable habitat is present within the BSA within coastal sage scrub where *Opuntia* species are present.	N/A	Provide NW-SE connection for gnatcatchers, but also other sage scrub species.	N/A	N/A	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP.
Coastal California gnatcatcher - *Polioptila californica californica* (T/CSC/-/MSHCP)	**Present.** Species was documented within the project site. This species is considered fully covered species by the MSHCP. Suitable habitat occurs within coastal sage scrub. Critical habitat for this species occurs within the BSA, but not within the LOD.	Conserve habitats for gnatcatcher and other coastal sage scrub and chaparral species.	Provide Core Areas for gnatcatcher within suitable habitat east and west of I-15.	Conserve upland habitat adjacent to Temescal Wash.	Provide for upland linkage from Temescal Wash to Santa Ana Mountains.	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP.
Cooper's hawk - *Accipiter cooperii* (-/-/-/MSHCP)	Habitat present. Forest and woodland areas, agricultural fields, areas with trees. Nests in trees that are 25 to 50 feet high.	Conserve foraging habitat for raptors,	Conserve foraging habitat for raptors,	Conserve upland habitat adjacent to	N/A	Impact avoidance in quality habitat and management of edge effects.

Table 2-3. MSHCP Planning Species Potential to Occur, Area Plan Subunit Goals, and Project Consistency with Goals

Planning Species Status[a] (Federal/State/ CRPR/ MSHCP)	Potential to Occur	Elsinore Area Plan, Subunit 1 Goal	Elsinore Area Plan, Subunit 2 Goal	Temescal Canyon, Subunit 3 Goal	Temescal Canyon, Subunit 5 Goal	Project MSHCP Consistency Analysis
		providing sage scrub-grassland ecotone.	providing a sage scrub-grassland ecotone.	Temescal Wash.		Project is consistent with the MSHCP.
Downy woodpecker - *Dryobates pubescens* (-/-/-/MSHCP)	Habitat present. Found in open woodlands and along streams. Can be found in orchards, parks, and suburbs. Nests in dead trees or the dead part of live trees, often in deciduous trees.	N/A	Maintain upland habitats. Conserve Engelmann Oak woodlands.	Conserve upland habitat adjacent to Temescal Wash.	N/A	Avoidance of oak trees (**BIO-19**). Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP.
Least Bell's vireo - *Vireo bellii pusillus* (E/E/-/MSHCP [a])	**Present.** LBV was observed in the BSA in 2020. Thirteen Use Areas for LBV were found within Temescal Wash and its tributaries in 2020 surveys. Additional surveys to be conducted in 2021.	Conserve wetlands including Temescal Wash.	Conserve wetlands including Temescal Wash and Alberhill Creek.	Conserve habitat for LBV along Temescal Wash.	N/A	Species detected in 2020. Project consistent through compensation, avoidance, and minimization measures. See Chapter 4.
Loggerhead shrike - *Lanius ludovicianus* (-/CSC /-/MSHCP)	Habitat present. Suitable nesting and foraging habitat is present within the BSA. This species is fully covered under the MSHCP.	Conserve habitats for gnatcatcher and other coastal sage scrub and chaparral species.	N/A	Conserve upland habitat adjacent to Temescal Wash.	N/A	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP.

Table 2-3. MSHCP Planning Species Potential to Occur, Area Plan Subunit Goals, and Project Consistency with Goals

Planning Species Status[a] (Federal/State/ CRPR/ MSHCP)	Potential to Occur	Elsinore Area Plan, Subunit 1 Goal	Elsinore Area Plan, Subunit 2 Goal	Temescal Canyon, Subunit 3 Goal	Temescal Canyon, Subunit 5 Goal	Project MSHCP Consistency Analysis
Mountain quail - *Oreortyx pictus* (-/-/-/MSHCP)	No habitat present. The BSA is at lower elevations where mountain quail would not be expected. While this species does enter lower elevations in summer to use chaparral and mixed woodland areas, it would not be expected in valleys.	Maintain connection to mountain to provide movement opportunities for mountain quail.	N/A	N/A	N/A	No habitat present. Project consistent.
Southern California rufous-crowned sparrow - *Aimophila ruficeps canescens* (-/-/-/MSHCP)	Habitat present. Coastal sage scrub, chaparral, open woodlands, and grassland areas on hillsides. Nests on the ground or in a small depression, often well concealed under grass, leaves, or rocks.	N/A	N/A	Conserve upland habitat adjacent to Temescal Wash.	N/A	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP.
Southwestern willow flycatcher - *Empidonax traillii extimus* (E/E/-/MSHCP [a])	Habitat present. The riparian habitat within the BSA provides sufficient structure within portions of Temescal Wash west of the I-15. The riparian corridor provides low to moderate suitable foraging and nesting habitat for flycatchers at the BSA.	Conserve wetlands including Temescal Wash.	Conserve wetlands including Temescal Wash and Alberhill Creek.	Conserve habitat for SWFL along Temescal Wash.	N/A	Not detected in 2020. If confirmed absent in 2021, project is consistent.
Tree swallow - *Tachycineta bicolor* (-/-/-/MSHCP)	Habitat present. Found in fields, marshes, shorelines, and wooded swamps, near bodies of water. Old trees are needed for nesting, within existing cavities.	N/A	Maintain upland habitats. Conserve Engelmann Oak woodlands.	N/A	N/A	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP.
Tricolored blackbird - *Agelaius tricolor* (-/T/CSC/-/MSHCP)	Habitat present. Suitable habitat is present in the BSA within freshwater marsh and agricultural field habitats.	N/A	Maintain upland habitats.	N/A	N/A	Impact avoidance in quality habitat and management of

Table 2-3. MSHCP Planning Species Potential to Occur, Area Plan Subunit Goals, and Project Consistency with Goals

Planning Species Status[a] (Federal/State/ CRPR/ MSHCP)	Potential to Occur	Elsinore Area Plan, Subunit 1 Goal	Elsinore Area Plan, Subunit 2 Goal	Temescal Canyon, Subunit 3 Goal	Temescal Canyon, Subunit 5 Goal	Project MSHCP Consistency Analysis
						edge effects. Project is consistent with the MSHCP. See Chapter 4 for additional measures for riparian birds.
White-tailed kite - *Elanus leucurus* (-/CFP/-/MSHCP)	Habitat present. This species would potentially nest and forage within the BSA in lowland areas, nesting in trees and large shrubs.	Conserve foraging habitat for raptors, providing sage scrub-grassland ecotone.	Conserve foraging habitat for raptors, providing a sage scrub-grassland ecotone.	Conserve upland habitat adjacent to Temescal Wash.	N/A	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP.
Yellow-breasted chat - *Icteria virens* (-/CSC/-/MSHCP)	**Present.** This species was documented within the project site and BSA within riparian habitat.	Conserve habitats for gnatcatcher and other coastal sage scrub and chaparral species.	Provide NW-SE connection for gnatcatchers, but also other sage scrub species.	Conserve upland habitat adjacent to Temescal Wash.	N/A	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP. See Chapter 4 for additional measures for riparian birds.
Yellow warbler - *Setophaga petechia* (-/CSC/-/MSHCP)	**Present.** Species was documented within the project site and BSA within riparian habitat.	Conserve wetlands including Temescal Wash.	Conserve wetlands including Temescal Wash and Alberhill Creek.	Conserve upland habitat adjacent to Temescal Wash.	N/A	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP. See Chapter 4 for additional measures for riparian birds.

Table 2-3. MSHCP Planning Species Potential to Occur, Area Plan Subunit Goals, and Project Consistency with Goals

Planning Species Status[a] (Federal/State/ CRPR/ MSHCP)	Potential to Occur	Elsinore Area Plan, Subunit 1 Goal	Elsinore Area Plan, Subunit 2 Goal	Temescal Canyon, Subunit 3 Goal	Temescal Canyon, Subunit 5 Goal	Project MSHCP Consistency Analysis
Invertebrates						
Quino checkerspot butterfly - *Euphydryas editha quino* (E/-/-/MSHCP)	Habitat present. *Plantago erecta* is present in the BSA, but the majority of the BSA is flat, with few hilltops or ridgelines and no rocky outcrops. Therefore, there is low potential for Quino checkerspot butterfly to occur within the BSA.	N/A	Maintain opportunities for Core and Linkage habitat for Quino checkerspot butterfly.	N/A	N/A	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP.
Riverside fairy shrimp - *Streptocephalus woottoni* (E/-/-/MSHCP [a])	Habitat present. Wet and dry season focused surveys conducted in seasonal depressions in 2020.	N/A	Maintain Core area for Riverside fairy shrimp.	N/A	N/A	Not detected in 2020. If confirmed absent in 2021, project is consistent.
Mammals						
Bobcat - *Lynx rufus* (-/-/-/MSHCP)	Habitat present. Found associated with rocky and brushy areas near springs and other perennial water sources, primarily in the foothills in chaparral habitats.	Maintain Core area	Maintain Core and Linkage habitat for bobcat	Maintain Core and Linkage habitat	Maintain Linkage area	Consistent with MSHCP through implementation of wildlife movement and crossing measures.
Mountain lion (Southern California/Central Coast ESU) - *Puma concolor* (-/SC/-/MSHCP)	Habitat present. Mountain lions are known to occur in the Santa Ana Mountains and surrounding foothills, and have also been observed in "lowland" areas such as Lake Mathews-Estelle Mountain. Thus, there is potential for mountain lion to occur within the BSA, particularly along washes.	Maintain Core and Linkage habitat east of I-15.	Maintain Core and Linkage habitat east of I-15.	Maintain Linkage area.	N/A	Consistent with MSHCP through implementation of wildlife movement and crossing measures.

Table 2-3. MSHCP Planning Species Potential to Occur, Area Plan Subunit Goals, and Project Consistency with Goals

Planning Species Status[a] (Federal/State/ CRPR/ MSHCP)	Potential to Occur	Elsinore Area Plan, Subunit 1 Goal	Elsinore Area Plan, Subunit 2 Goal	Temescal Canyon, Subunit 3 Goal	Temescal Canyon, Subunit 5 Goal	Project MSHCP Consistency Analysis
Stephens' kangaroo rat - *Dipodomys stephensi* (E/T/-/MSHCP)	Habitat present. SKR habitat is present within open grasslands and sparse shrublands.	Maintain Core and Linkage habitat east of I-15.	Maintain Core and Linkage habitat east of I-15.	Maintain Linkage area along Temescal Wash.	N/A	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP.
Plants						
Coulter's goldfields - *Lasthenia glabrata* ssp. *coulteri* (-/-/1B.1/ MSHCP [d])	Habitat present. This species is a Criteria Area species (Area 1) for the Project. Suitable habitat is present within the rare plant study area.	N/A	Conserve alkali soils supporting this species	N/A	N/A	Not detected in 2020. If confirmed absent in 2021, project is consistent.
Coulter's matilija poppy - *Romneya coulteri* (-/-/4.2/ MSHCP [e])	Habitat present. Suitable habitat occurs within coastal scrub and disturbed habitats.	N/A	N/A	Conserve floodplain areas supporting this sensitive plant species.	N/A	Species considered adequately conserved under the MSHCP, full coverage.
Long-spined spineflower - *Chorizanthe polygonoides* var. *longispina* (-/-/1B.2/MSHCP)	**Present.** This species was observed within the rare plant study area, north of I-15, approximately 35 feet north of the LOD, in California Sagebrush – Black Sage, between Nichols Road and Lake Street.	N/A	N/A	Conserve clay soils supporting this sensitive plant species.	N/A	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP.
Many-stemmed dudleya - *Dudleya multicaulis* (-/-/1B.2/ MSHCP [b])	Habitat present. This species is a Narrow Endemic Plant Species Survey Area 1 for the Project. Suitable coastal scrub habitat is present with clay soils.	Conserve clay soils supporting this sensitive plant species.	Conserve clay soils supporting this sensitive plant species.	Conserve clay soils supporting this sensitive plant species.	N/A	Not detected in 2020. If confirmed absent in 2021, project is consistent.

Table 2-3. MSHCP Planning Species Potential to Occur, Area Plan Subunit Goals, and Project Consistency with Goals

Planning Species Status[a] (Federal/State/ CRPR/ MSHCP)	Potential to Occur	Elsinore Area Plan, Subunit 1 Goal	Elsinore Area Plan, Subunit 2 Goal	Temescal Canyon, Subunit 3 Goal	Temescal Canyon, Subunit 5 Goal	Project MSHCP Consistency Analysis
Munz's onion - *Allium munzii* (E/T/1B.1/ MSHCP [b])	Habitat present. The project occurs in the Narrow Endemic Plant Species Survey Area 1. Suitable habitat is present in the BSA within coastal sage scrub with clay soils.	Conserve clay soils supporting this sensitive plant species.	Conserve clay soils supporting this sensitive plant species.	Conserve clay soils supporting this sensitive plant species.	N/A	Not detected in 2020. If confirmed absent in 2021, project is consistent.
Palmer's grapplinghook - *Harpagonella palmeri* (-/-/4.2/MSHCP)	Habitat present. Suitable habitat—including chaparral, and coastal scrub habitat with clay soils—is present in the rare plant study area.	N/A	N/A	Conserve clay soils supporting this sensitive plant species.	N/A	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP.
Peninsular spineflower - *Chorizanthe leptotheca* (-/-/4.2/MSHCP [e])	Habitat present. Suitable alluvial and coastal scrub habitat is present in the rare plant study area.	N/A	N/A	Conserve floodplain areas supporting this sensitive plant species.	N/A	Species considered adequately conserved under the MSHCP, full coverage.
San Diego ambrosia - *Ambrosia pumila* (E/-/1B.1/ MSHCP [b])	Habitat present. The project occurs within the Narrow Endemic Plant Species Survey Area 1 and 7 for this species. Suitable habitat is present in the BSA within habitats associated with floodplain terraces.	N/A	Conserve alkali soils supporting this species.	N/A	N/A	Not detected in 2020. If confirmed absent in 2021, project is consistent.
Small-flowered microseris - *Microseris douglasii ssp. platycarpha* (-/-/4.2/ MSHCP [e])	Habitat present. Suitable habitat is present in the rare plant study area within coastal scrub and grasslands. A focused rare plant survey was performed in 2020, and the species was not detected within the rare plant study area.	N/A	N/A	Conserve clay soils supporting this sensitive plant species.	N/A	Species considered adequately conserved under the MSHCP, full coverage.

Table 2-3. MSHCP Planning Species Potential to Occur, Area Plan Subunit Goals, and Project Consistency with Goals

Planning Species Status[a] (Federal/State/ CRPR/ MSHCP)	Potential to Occur	Elsinore Area Plan, Subunit 1 Goal	Elsinore Area Plan, Subunit 2 Goal	Temescal Canyon, Subunit 3 Goal	Temescal Canyon, Subunit 5 Goal	Project MSHCP Consistency Analysis
Small-flowered morning glory - *Convolvulus simulens* (-/-/4.2/MSHCP)	Habitat present. Suitable coastal scrub habitat with clay soil is present in the rare plant study area.	N/A	N/A	Conserve clay soils supporting this sensitive plant species	N/A	Impact avoidance in quality habitat and management of edge effects. Project is consistent with the MSHCP.
Smooth tarplant - *Centromadia pungens* ssp. *laevis* (-/-/1B.1/ MSHCP [d])	Habitat present. Smooth tarplant is a Criteria Area species (Area 1) for the Project. Marginally suitable habitat is present in the rare plant study area, but generally lacks the combination of suitable mesic habitat and fine or alkaline soils.	N/A	N/A	Conserve floodplain areas supporting this sensitive plant species	N/A	Not detected in 2020. If confirmed absent in 2021, project consistent.
Vernal barley - *Hordeum intercedens* (-/-/3.2/MSHCP)	No habitat present. No vernal pools are present within the rare plant study area.	N/A	Conserve alkali soils supporting this species.	N/A	N/A	No habitat present. Project is consistent.

[a] Status Codes

Federal
E = Federally listed; endangered
T = Federally listed; threatened

State
T = State listed; endangered
E = State listed; threatened
SC = State Candidate for Listing
CSC = California Species of Special Concern
CRPR = California Rare Plant Rank
1B – plants rare or endangered in California or elsewhere
4 – plants of limited distribution
.1 – plants seriously endangered in California
.2 – plants common elsewhere, fairly endangered in California
.3 – plants not very threatened in California
CFP = California Fully Protected Species

MSHCP
MSHCP = No additional action necessary
MSHCP(a) = Surveys may be required as part of wetlands mapping
MSHCP(b) = Surveys may be required within the narrow endemic plant survey area
MSHCP(c) = Surveys may be required within locations shown on survey maps
MSHCP(d) = Surveys may be required within Criteria Area
MSHCP(e) = Conservation requirements identified in species-specific conservation objectives need to be met before classified as a covered Species

A total of 32 MSHCP planning species are included in Table 2-1. Two of these species—mountain quail (*Oreortyx pictus*) and vernal barley (*Hordeum intercedens*)—were determined to have no habitat present in the BSA. The Project is therefore consistent with the MSHCP subunit goals for these two species.

Of the remaining 30 species, 11 are not fully covered under the MSHCP. Three of these species—LBV, SWFL, and Riverside fairy shrimp (*Streptocephalus woottoni*)—are associated with riparian/riverine and vernal pool habitats. Neither SWFL nor Riverside fairy shrimp were detected during 2020 and 2021. Therefore, the Project is consistent with the MSHCP goals and objectives for these species. LBV was detected within the LOD and the BSA during focused surveys. Compensation for direct impacts on LBV use areas and adjacent potential habitat would be necessary to ensure no net loss of occupied LBV habitat would be required, as would avoidance and minimization measures. The Project's consistency for these three species, including the compensation and avoidance and minimization measures required for LBV, is discussed further in Chapter 4, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (Section 6.1.2).

Two of the 11 species not fully covered under the MSHCP are Criteria Area Species—smooth tarplant (*Centromadia pungens* ssp. *laevis*) and Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*). Three of these species are Narrow Endemic Plant Species—San Diego ambrosia (*Ambrosia pumila*), Munz's onion (*Allium munzii*), and many-stemmed dudleya (*Dudleya multicaulis*). Focused rare plant surveys for these species were conducted in 2020 and 2021, and none of these species were detected. There are no additional requirements for these rare plant species and the Project is consistent with the MSHCP goals and objectives for these species.

Three species are included in MSHCP Table 9-3, Requirements to be Met for the 28 Species Prior to Including Those Species on the List of Covered Species Adequately Conserved, and are now considered Species Adequately Conserved under the MSHCP. Therefore, these species are afforded full take coverage. These species are Coulter's matilija poppy (*Romneya coulteri*), found within coastal scrub and disturbed areas; peninsular spineflower (*Chorizanthe leptotheca*), found within alluvial and coastal scrub; and small-flowered microseris (*Microseris douglasii ssp. platycarpha*), found in coastal scrub and grasslands. The Project is considered consistent with the goals and objectives of these species since these species are now considered adequately conserved under the MSHCP.

The remaining 19 species are considered fully covered under the MSHCP. However, as the Project exists within Criteria Areas and within areas potentially described for conservation, an evaluation of the Project's consistency with the MSHCP for these 19 species has been completed.

Five of the 19 species are avian species found in sage scrub habitat—Bell's sage sparrow (*Artemisiospiza belli belli*), cactus wren (*Campylorhynchus brunneicapillus sandiegensis;* SSC), coastal California gnatcatcher (*Polioptila californica californica*; FT, SSC), loggerhead shrike (*Lanius ludovicianus*; SSC), and southern California rufous crowned sparrow (*Aimophila ruficeps canescens*). While there will be a loss of sage scrub habitat in the LOD, most of the Project will occur within the existing I-15 median, which currently provides poor quality habitat for avian wildlife. The sage scrub habitat in the LOD is currently disturbed by routine Caltrans maintenance, thus provides low value to these species as well. The management of edge effects through the implementation of avoidance and minimization measures would

reduce any additional impacts that could occur to avian species found in sage scrub habitat adjacent to the LOD, and the Project would be consistent with the MSHCP for these species.

Seven of the 19 planning species that are considered adequately conserved under the MSHCP consist of two raptor species—Cooper's hawk (*Accipiter cooperii*) and white-tailed kite (*Elanus leucurus;* California fully protected)—and five avian species found in riparian/wooded areas—tree swallow (*Tachycineta bicolor*), tricolored blackbird (*Agelaius tricolor*; ST, SSC), yellow breasted chat (*Icteria virens*; SSC), yellow warbler (*Setophaga petechia*; SSC), and downy woodpecker (*Dryobates pubescens*). The avian species found in riparian areas will benefit from the compensation for the loss of riparian habitat occupied by LBV and avoidance and minimization measures required for LBV, as discussed further in Chapter 4, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (Section 6.1.2). The avoidance of oak trees will meet the subunit goals for downy woodpecker. The loss of quality habitat for avian species found in wooded areas (including raptors) outside of riparian areas is expected to be minimal, as the majority of the Project will occur in the existing I-15 median, which provides poor quality habitat for avian wildlife. The management of edge effects through the implementation of avoidance and minimization measures would reduce any additional impacts that could occur on avian species found in riparian and wooded habitat (including raptors), and the Project would be consistent with the MSHCP for these species.

Two species of the 19 species considered adequately conserved under the MSHCP—Quino checkerspot butterfly (*Euphydryas editha quino*; FE) and Stephens' kangaroo rat (*Dipodomys stephensi*; FE, FT)—are found in Riversidian sage scrub and grassland areas. Stephens' kangaroo rat is also covered by the Stephens' Kangaroo Rat Habitat Conservation Plan. While there will be a loss of sage scrub habitat and grassland in the LOD, the majority of the Project will occur within the existing I-15 median, which will provide poor quality habitat for these two species. The management of edge effects on sage scrub and grassland habitats at the edges of the BSA through the implementation of avoidance and minimization measures would reduce any additional impacts that could occur on Quino checkerspot butterfly and Stephens' kangaroo rat. Through the implementation of these measures, the Project would be consistent with the MSHCP for these species.

Two large mammal species—bobcat (*Lynx rufus*) and mountain lion (*Puma concolor*)—are Planning Species considered adequately conserved under the MSHCP. The subunit planning goals for these two species include the maintenance of core and linkage habitat. For the Project to be consistent with the MSHCP for these species, the functions and values of the cores and linkages within the Project area must be maintained. Through the implementation of **BIO-6**, Construction and Project Limits; **BIO-13**, LODs and ESAs; and **BIO-20**, Wildlife Undercrossings, the Project will not encroach into wildlife crossings and wildlife movement will not be interrupted due to noise, lighting, human presence, removal of cover features, and general disturbance within the crossing structures and their immediate vicinity. In addition, a biological monitor will be present during all construction in or within 300 feet of surface waters of Temescal Wash and its tributaries (**BIO-22**, Temescal Wash – Biological Monitoring) to ensure that the biological functionality of these areas is maintained. Through the implementation of these measures, the Project is consistent with the Subunit goals for bobcat and mountain lion.

Three rare plant species—long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*; 1B.2), Palmer's grapplinghook (*Harpagonella palmeri*; 4.2), and small-flowered morning glory (*Convolvulus*

simulans; 4.2)—are Planning Species considered adequately conserved under the MSHCP that need to be considered here. All are within Temescal Canyon Subunit 3, with the goal of conserving clay soils supporting sensitive plant species. Long-spined spineflower was observed in the BSA, but outside of the LOD. Suitable habitat for Palmer's grapplinghook and small-flowered morning glory was present in the LOD and BSA. Clay soils are present in the LOD (NES, Appendix A, Figures 6 and 9). With the exception of some species adapted to disturbance, such as tarplants, rare plants are not often present in areas with high levels of disturbance. The majority of the Project will occur within the existing I-15 median, which will provide poor quality habitat for rare plants due to the high level of disturbance within the median, including routine maintenance and other disturbances from vehicles. The management of edge effects through the implementation of avoidance and minimization measures would reduce any impacts that could occur on rare plants found in clay soils. The Project would be consistent with the MSHCP for these species.

The Project is currently consistent with the Area Plan Subunit Goals for all of the Planning Species within the MSHCP Features.

2.1 Public Quasi-Public Lands

Public/Quasi-Public (PQP) Lands within the BSA include conserved lands that occur within the BSA and include MSHCP conserved lands that are owned, managed, monitored, or maintained by the Regional Conservation Authority (RCA). PQP Lands are mapped in Figure 7 in Chapter 8. In addition, there are public lands owned by Elsinore Valley Municipal Valley Water District (Lee Lake) and Riverside County Flood Control and Water Conservation District. The intent of conserved lands is to secure open space and ecological diversity by conserving species and their associated habitats through land acquisition. Such lands occur within the BSA just north of the city of Lake Elsinore, along the western and eastern sides of I-15. Smaller parcels of conserved lands intersect the BSA west of I-15 at the Temescal Wash crossing and between Corona Lake and I-15. Conservation easements under the MSHCP occur at the BSA near the Shops at Sycamore Creek complex, west of I-15. There are no conserved lands within the I-15 median where widening is proposed to occur.

3 Vegetation Mapping

Twenty-five vegetation communities and three land use types were identified in the BSA (Table 3-1). Eleven of the vegetation communities are classified as sensitive natural communities by CDFW (**NES, Appendix B**) (CDFW 2020). Each community is listed in Table 3-1, along with its acreage in the BSA and impact acreage. (See **NES, Figure 7, Appendix A** for an illustration of the vegetation community locations in the BSA and **NES, Appendix E** for representative photos of vegetation communities.)

Table 3-1. Vegetation Communities and Land Cover Acreages within the BSA and Impact Acreages within the LOD

Vegetation Communities (Manual of California Vegetation Classification)	Vegetation Communities (Holland Classification)	Biological Study Area (500-foot Buffer) (acres)	Impacts (acres)		
			Permanent	Shading	Temporary
Vegetation Communities					
Needle Grass–Melic Grass Grasslands[1]	Valley Needlegrass[1]	1.62	--	--	0.31
Clustered Tarweed Fields[1]	Wildflower Fields[1]	3.79	0.09	--	2.29
Wild Oats and Annual Brome Grasslands[2]	Non-Native Grasslands or Valley and Foothill Grassland[2]	253.66	9.04	0.22	76.69
Upland Mustard and Star Thistle Fields[2]	Non-Native Grasslands[2]	103.28	1.17	--	18.04
Wild Tarragon Patches	Central Coast Riparian Scrub	1.18	--	--	0.14
Brittle Bush Scrub	Riversidian Sage Scrub	383.97	3.05	0.07	87.13
Bush Penstemon Scrub[1]	Coastal Sage-Chaparral Scrub[1]	19.89	--	--	0.96
California Buckwheat Scrub	Riversidian Sage Scrub	49.18	0.08	--	11.46
California Sagebrush–Black Sage Scrub	Riversidian Sage Scrub	193.97	0.09	--	27.42
Deer Weed Scrub	Coastal Sage – Chaparral Scrub	38.44	0.05	--	7.52
Holly Leaf Cherry—Toyon—Greenbark Chaparral[1]	Southern North Slope Chaparral[1]	15.20	--	--	0.53
Quailbush Scrub	Desert Saltbush Scrub	0.23	--	--	0.01
Scrub Oak Chaparral	Scrub Oak Chaparral	0.90	--	--	0.03
Eucalyptus–Tree of Heaven–Black Locust Groves[2]	Eucalyptus Woodland[2]	48.67	0.01	--	3.81
Nonnative Woodland[2]	Non-native Woodland[2]	1.92	--	--	0.24
Arrow Weed Thickets[1]	Arrow Weed Scrub[1]	2.07	--	--	--

Table 3-1. Vegetation Communities and Land Cover Acreages within the BSA and Impact Acreages within the LOD

Vegetation Communities (Manual of California Vegetation Classification)	Vegetation Communities (Holland Classification)	Biological Study Area (500-foot Buffer) (acres)	Impacts (acres)		
			Permanent	Shading	Temporary
Coast Live Oak Woodland and Forest	Southern Coast Live Oak Riparian Forest or Coast Live Oak Woodland	26.77	--	0.04	0.03
Fremont Cottonwood Forest and Woodland[1]	Southern Cottonwood-Willow Riparian Forest[1]	35.26	--	--	0.32
Goodding's Willow–Red Willow Riparian Woodland[1]	Southern Willow Scrub[1]	48.45	--	--	1.21
Hardstem and California Bulrush Marshes[1]	Coastal and Freshwater Marsh[1]	7.19	--	--	--
Mulefat Thickets	Mulefat Scrub	13.87	--	--	0.33
Salt Grass Flats[1]	Alkali Meadow[1]	0.08	--	--	--
Tamarisk Thickets[2]	Tamarisk Scrub[2]	9.51	0	0.15	1.04
Scale Broom Scrub[1]	Riversidian Alluvial Fan Sage Scrub[1]	31.09	--	0.18	0.27
California Sycamore Woodland[1]	Southern Sycamore-Alder Riparian Woodland[1]	2.32	--	--	0.06
Other Land Cover Types					
Agriculture	N/A	2.39	--	--	--
Developed	N/A	1,295.05	87.83	2.39	299.84
Disturbed	N/A	334.22	81.94	2.17	56.98
Total		**2,926.23**	**183.35**	**5.22**	**596.66**

[1] Sensitive natural community

[2] Nonnative vegetation community

N/A = not applicable

4 Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (Section 6.1.2)

4.1 Riparian/Riverine

4.1.1 Methods

Riparian/riverine areas are defined in the MSHCP as 1) lands that contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, that are close to or depend on soil moisture from a nearby fresh water source, or 2) areas with fresh water flow during all or a portion of the year. Aquatic resources were identified and mapped within the BSA during the jurisdictional delineation (**NES, Appendix I**). CDFW lakes, streambeds, and associated riparian vegetation were mapped pursuant to Section 1600 et seq. of the California Fish and Game Code. The delineation followed the most current and applicable procedures and guidance available at the time of delineation, including the Navigable Waters Protection Rule and State Wetland Definitions and Procedures.

All riparian-riverine resources in the BSA are equivalent to state jurisdictional streambeds. However, there are state streambeds that are man-made features that are constructed in upland areas, which generally do not qualify as MSHCP riparian-riverine. However, these features do need to be evaluated for downstream resources, especially if located upstream of, and could potentially result in impacts on the functions and values of, a downstream conservation area, to make this determination.

4.1.2 Existing Conditions and Results

Within the BSA for jurisdictional resources (50-foot buffer), there are an estimated 26.37 acres of MSHCP riparian-riverine resources (**NES, Appendix A, Figure 8**). Within the BSA for jurisdictional resources, there are 3.51 acres of riparian habitats and 11.68 acres of ephemeral riverine drainages (refer to **NES, Appendix I**). A large portion of the riparian-riverine resources in the BSA occur within Temescal Wash and its tributaries. The quality of habitat within Temescal Wash ranges from moderate to high value.

4.1.3 Impacts

Project impacts may occur during construction and operations. Construction of the Project would directly and permanently remove approximately 0.36 acre of MSHCP riparian-riverine resources. These permanent effects would result from installation of bridge piers, permanent BMPs, and other permanent structures and grade changes (**NES, Appendix A, Figure 8**). Temporary direct effects on up to 5.44 acres of MSHCP riparian-riverine resources are associated with the work area needed to construct the bridge decks, abutments, and piers, including temporary access routes to and from bridge areas and other work areas. Shading effects would also occur in riparian habitat found within the median gap within Temescal Wash, as this space between the existing northbound and southbound I-15 bridges would be closed as part of the Project (**NES, Appendix A, Figure 8,** Sheet 8). Although this habitat is mapped as disturbed (refer to **NES, Appendix A Figure 7,** Sheet 9), any hydrophytic vegetation within the median gap would

permanently degrade the habitat function and value for wildlife and plant species, affect potential movement for wildlife due to decreased vegetation cover, and/or affect water quality and fluvial transport within streams due to longer periods of shading. However, the shading would result in a small amount of indirect permanent habitat loss for riparian-obligate species because permanent shading would reduce the ability for growth of riparian vegetation due to adequate sunshine. Some vegetation removal that would occur during construction activities at wash bridges would have impacts on riparian-obligate species, such as LBV, if present, but the habitat loss impact would be temporary until revegetation is complete. Table 4-1 summarizes the potential direct impacts on MSHCP riparian-riverine resources from the Project.

Table 4-1. Potential Direct Impacts of the Project on MSHCP Riparian-Riverine Resources

MSHCP Riparian/ Riverine Resources	Impact (acres)			
	Permanent	Temporary	Shading	Total
Riparian	0.00	1.80	0.46	2.26
Riverine	0.36	3.64	0.88	4.88
Total Impacts	**0.36**	**5.44**	**1.34**	**7.14**

The potential exists for short-term, temporary indirect effects from construction activities, including dust, increases in fire risks, introduction of invasive plant species, erosion and sedimentation, introduction of hazardous materials, and introduction of trash on riparian-riverine resources adjacent to the LOD.

Operation of the Project may have potential indirect effects on MSHCP riparian-riverine resources and sensitive natural riparian communities, including fire risks, litter, introduction of invasive species, habitat fragmentation, erosion and sedimentation, and introduction of hazardous materials due to ROW maintenance. The potential indirect operation effects may reduce the functions and values of the existing riparian-riverine resources adjacent to the LOD.

4.1.4 Minimization, Avoidance, and/or Mitigation Measures

A full list of minimization and avoidance measures required under the MSHCP for the Project is provided in the **NES, Appendix L**. Those that are intended to avoid and/or minimize potential direct and indirect impacts on riparian vegetation and sensitive natural riparian communities and associated native flora and fauna in the BSA are:

- **BIO-1,** Vegetation Clearing Restrictions
- **BIO-2,** Dust Control
- **BIO-3,** Fire Suppression
- **BIO-4,** Biological Training
- **BIO-5,** Biological Monitoring
- **BIO-6,** Construction and Project Limits
- **BIO-7**, Exotic Species

- **BIO-8**, Equipment Cleaning
- **BIO-9**, Minimizing Disturbance
- **BIO-10**, Revegetation
- **BIO-11**, Access
- **BIO-12**, Water Pollution and Erosion Control Plans
- **BIO-13**, LODs and ESAs
- **BIO-14**, MSHCP Covered Species Avoidance
- **BIO-18**, Night Lighting Management
- **BIO-20**, Wildlife Undercrossings
- **BIO-21**, Temescal Wash – Nesting Season Noise Requirements
- **BIO-22**, Temescal Wash – Biological Monitoring
- **BIO-24**, Waste Management
- **BIO-26**, Bat Management Plan
- **BIO-28**, Nesting Bird Management Plan

The proposed impacts on MSHCP riparian-riverine resources by the Project would require compensatory mitigation. Under the MSHCP, compensation for these losses would be addressed through preparation of a Determination of Biologically Equivalent or Superior Preservation (DBESP) **BIO-15, DBESP**. A compensation ratio of no less than 3:1 for permanent riparian impacts (including shading effects) and 1:1 for temporary riparian impacts, along with no less than 1:1 for permanent and temporary impacts on ephemeral drainages, would provide equivalent preservation. All temporary losses would be replaced at their current locations, when feasible (**BIO-16, Riparian-Riverine Compensation**). Measure **BIO-17, Compensatory Mitigation,** ensures no net loss of riparian-riverine resources. It would also be necessary to ensure restored riparian habitat in temporarily affected areas along the Temescal Wash so this habitat can continue to support wildlife movement and LBV (**BIO-23, LBV Habitat Compensation**).

4.2 Vernal Pools

4.2.1 Methods

Vernal pools are defined in the MSHCP as seasonal wetlands that occur in depression areas that have wetland indictors of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season, but normally lack wetland indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season. A habitat assessment including the mapping of seasonal depressions was conducted within the BSA in 2020 (**NES Appendix A, Figure 5**). Ponded areas were determined using the following criteria: water marks, leaf staining, cracked soils, saline crusts, and saturated soils. Areas showing these indicators were mapped. The vernal pool study was performed in conjunction with the fairy shrimp and special-status plant surveys.

4.2.2 Existing Conditions and Results

None of the seasonal depressions are considered vernal pools given their lack of vernal pool–associated vegetation (refer to the **NES, Appendix M, Figure 3**, for the location of the surveyed seasonal depressions found in the BSA). .

4.2.3 Impacts

No impacts on vernal pools are anticipated as none of the seasonal depressions identified were determined to be vernal pools due to the lack of vernal pool–associated vegetation.

4.2.4 Avoidance, Minimization and/or Mitigation Measures

No avoidance minimization, and/or mitigation measures for vernal pools are anticipated as none were observed.

4.3 Fairy Shrimp

4.3.1 Methods

The habitat assessment for fairy shrimp consisted of the same methodology as that for vernal pools. Survey methodology followed the USFWS *Survey Guidelines for the Listed Large Branchiopods* (Guidelines; USFWS 2017). Wet season surveys were initiated on December 31, 2019, and continued through July 18, 2020 (**NES, Appendix G, Table G-4**). The project LOD was extended after these surveys were completed and dry season surveys were conducted throughout the new LOD in 2020. An additional wet season surveys within the extended LOD areas was conducted during the 2020/2021 wet season.

4.3.2 Existing Conditions and Results

Approximately 95 seasonal depressions meeting the USFWS inundation requirements were found in the BSA (LOD and up to a 100-foot buffer) and required surveys for fairy shrimp. None of the seasonal depressions are considered vernal pools given their lack of vernal pool–associated vegetation (refer to **NES, Appendix M, Figure 3**, for the location of the surveyed seasonal depressions found in the BSA).

The 2019-2020 and 2020-2021 wet-season survey results, and 2020 dry season survey results are provided in **NES, Appendix M**. No sensitive fairy shrimp were found during these studies and these species can be considered absent.

4.3.3 Impacts

During surveys in 2020 and 2021, no listed fairy shrimp are present, therefore no impacts are expected.

4.3.4 Avoidance, Minimization and/or Mitigation Measures

Because no listed fairy shrimp are present, no avoidance, minimization, and/or mitigation measures are required under the MSHCP.

4.4 Riparian Birds

4.4.1 Methods

A habitat assessment for LBV, SWFL, and western yellow-billed cuckoo was performed in June 2019, with field verifications performed from January 2019 to February 2021. Suitable habitat was mapped for LBV and SWFL within the LOD and the BSA. No suitable habitat was found for the western yellow-billed cuckoo. Vegetation of sufficient density—with a riparian area of a sufficient width and with the required vegetation structure and composition for this species—was not present (USFWS 2015).

As a result of the habitat assessment, focused surveys for LBV and SWFL were conducted within the BSA. The BSA includes approximately 5.5 miles of Temescal Wash within the 300-foot survey area (**NES, Appendix A, Figure 5**).

For LBV focused survey work, the USFWS protocol was followed (USFWS 2001). Eight surveys were performed during the breeding season. LBV surveys, which require thorough coverage of potential habitat, occurred no less than 10 days apart between April 15 and July 31. Site visits occurred during the morning hours until 11 a.m., the time when LBV are most active. No tape recordings of vocalizations were used. Surveys were not conducted during inclement weather such as extreme hot or cold temperatures, fog, high winds, or rain (**NES, Appendix G, Table G-5**).

Five protocol SWFL surveys were conducted in the BSA following the USFWS survey methodology between May 15 and July 17, 2020 (Sogge et al. 2010, USFWS 2000). One survey occurred within the first survey period (May 15–31), two within the second survey period (June 1–24), and two within the third survey period (June 25–July 17). Additional focused surveys following the same methodology were conducted in 2021. Refer to **NES, Appendix G, Table G-5** for survey dates, conditions, and personnel.

4.4.2 Existing Conditions and Results

There are 99.50 acres of potentially suitable habitat for LBV within the BSA, and this habitat is mapped in **NES, Appendix A, Figure 8**. Focused LBV surveys were conducted within suitable riparian habitat in the BSA in 2020. During surveys in 2020, 11 LBV Use Areas were observed in the BSA. Only one of these Use Areas (Use Area #10, **NES, Appendix A, Figure 8**, Sheet 7) occurs within the LOD. The majority of the Use Areas are associated with Temescal Wash. Additional surveys are scheduled to be conducted in 2021.

There are 70.86 acres of potentially suitable habitat for SWFL within the BSA. This habitat is mapped in the **NES, Appendix A, Figure 8**. The focused survey reports for 2020 and 2021 SWFL focused studies are included in the **NES, Appendix H**. During surveys in 2020/2021, SWFL were not detected in the BSA.

4.4.3 Impacts

The survey work indicates that one LBV Use Area (Use Area 10, **NES, Appendix A, Figure 8,** Sheet 7) would be directly affected by the Project. This Use Area is located on the east side of Lake Street. An estimated 3.09 acres of occupied LBV habitat will be directly affected, consisting of 2.90 acres that will be temporarily removed, and 0.15 acre that will be removed via shading (Table 4-2).

Table 4-2. Potential Impacts of the Project on Riparian Birds

Wildlife Species	Impact (acres)			
	Permanent	Temporary	Shading	Total
Least Bell's vireo	0.00	2.90	0.15	3.09
Southwestern willow flycatcher	Not present			

In addition to direct removal of habitat, the Project would cause temporary indirect effects on LBV adjacent to the LOD from noise and dust generated during construction. Indirect impacts from noise associated with construction are expected to be potentially substantial if construction occurs during the breeding season and active nests are identified. Indirect effects from shading are expected to be minimal.

Operation of the widened bridges would have the potential for indirect impacts on LBV, such as depredation due to traffic noise and degradation of habitat from increased surface flow runoff. Both of these impacts are expected to be no greater than the impacts under existing conditions with potential surface flow runoff improving from permanent BMP installation.

Based on 2020/2021 survey results, no impacts on SWFL would occur from the Project because the species is absent.

4.4.4 Avoidance, Minimization and/or Mitigation Measures

A full list of avoidance and minimization and avoidance measures for the Project required under the MSHCP is provided in the **NES, Appendix L**. Measure **BIO-1,** Vegetation Clearing Restrictions, ensures that potentially occupied LBV habitat would not be removed during the species' core breeding season. Measures **BIO-2,** Dust Control; **BIO-3**, Fire Suppression; **BIO-4**, Biological Training; **BIO-5**, Biological Monitoring; **BIO-6**, Construction and Project Limits; **BIO-7**, Exotic Species; **BIO-8**, Equipment Cleaning; **BIO-9**, Minimizing Disturbance; **BIO-10**, Revegetation; **BIO-11**, Access; **BIO-12**, Water Pollution and Erosion Control Plans; **BIO-13**, LODs and ESAs; **BIO-14**, MSHCP Covered Species Avoidance; and **BIO-18**, Night Lighting Management, provide protection to LBV occurring adjacent to the disturbance footprint during construction. Measure **BIO-20**, Wildlife Undercrossings, maintains functional movement through Temescal Wash. Measure **BIO-21**, Temescal Wash – Nesting Season Noise Requirements, would ensure that potential indirect impacts on nesting LBV would be avoided and minimized. Measure **BIO-24**, Waste Management, avoids attracting predators to or near the project site during construction, thereby minimizing project-related predation of LBV. Measure **BIO-28**, Nesting Bird Management Plan, prevents disturbance of active nests. Measure **BIO-29**, MSHCP Species Conservation, ensures that the long-term conservation of riparian/riverine areas and vernal pools will be incorporated into the Project design when feasible. It also ensures that species protected under Section 6.3.2 of the MSHCP located as a result of survey efforts would be conserved in accordance with the procedures in that section.

Compensation for direct impacts on LBV use areas and adjacent potential habitat would be necessary to ensure no net loss of occupied LBV habitat (i.e., equivalent or superior preservation). The ratio of compensation for impacts depends on whether the impact would be permanent or temporary. Permanent impact compensation would occur at no less than a 2:1 ratio, whereas temporary impacts would be

compensated at no less than a 1:1 ratio (refer to measure **BIO-23 LBV Habitat Compensation** in Appendix L for details). A DBESP (Appendix L, measure **BIO-15, DBESP**) would be prepared to detail compensatory requirements for LBV. The DBESP would ensure that the Project would be consistent with the MSHCP.

SWFL is not present in the BSA and no impacts on SWFL would occur; therefore, minimization and avoidance measures are not applicable. No compensatory mitigation for SWFL would be required.

5 Protection of Narrow Endemic Plant Species (Section 6.1.3)

5.1 Narrow Endemic Plant Species

5.1.1 Methods

The Project is within the survey area for the following Narrow Endemic Plant Species: Munz's onion, San Diego ambrosia, slender-horned spineflower, many-stemmed dudleya, spreading navarretia, California orcutt grass, San Miguel savory, Hammitt's clay-cress, Wright's trichocoronis, Brand's phacelia, and San Miguel savory (**Figure 5**).

Focused surveys for special-status plants (including Criteria Area Plant Species) were conducted between April and June 2020. Focused survey methods were derived from the standardized guidelines issued by USFWS (USFWS 2000), CDFW (CDFG 2000, CDFW 2018), and the California Native Plant Society (CNPS) (CNPS 2001). Surveys were completed by walking meandering belt transects throughout suitable habitat where legally accessible. Refer to **NES, Appendix G, Table G-2** for survey dates and personnel.

The rare plant focused surveys were conducted during the appropriate blooming season for each special-status plant species potentially occurring within the BSA that require flowers for identification. Rare plant focused surveys were conducted for those species having suitable habitat present within the LOD plus a 100-foot buffer (BSA) (**NES, Appendix A, Figure 5**).

5.1.2 Existing Conditions and Results

Suitable habitat was determined to be present in the BSA for Munz's onion, San Diego ambrosia, slender-horned spineflower, many-stemmed dudleya, and Brand's phacelia. No suitable habitat was present for spreading navarretia, California orcutt grass, San Miguel savory, Hammitt's clay-cress, Wright's trichocoronis, and San Miguel savory in the BSA. See **NES, Appendix B** for the full results of the habitat assessment for these species. Spreading navarretia, California orcutt grass, and Wright's trichocoronis are vernal pool species, and vernal pools are not present. Suitable soils were not present for San Miguel savory, and the BSA is outside the elevation/geographic range for Hammitt's clay-cress.

No Narrow Endemic Plant Species were observed during focused rare plant surveys in 2020 and 2021. Potential habitat and the rare plant survey results are mapped in **NES, Appendix A, Figure 9**.

5.1.3 Impacts

During 2020 and 2021 rare plant focused surveys, none of the Narrow Endemic Plant Species Survey Area 1 and 7 species were observed. Therefore, no impacts would occur.

5.1.4 Avoidance, Minimization and/or Mitigation Measures

Based on current results, there are no Narrow Endemic Plant Species within the BSA. To ensure there are no indirect effects on Narrow Endemic Plant Species that may be present in the project vicinity, measures **BIO-1**, Vegetation Clearing Restrictions; **BIO-2**, Dust Control; **BIO-3**, Fire Suppression; **BIO-4**,

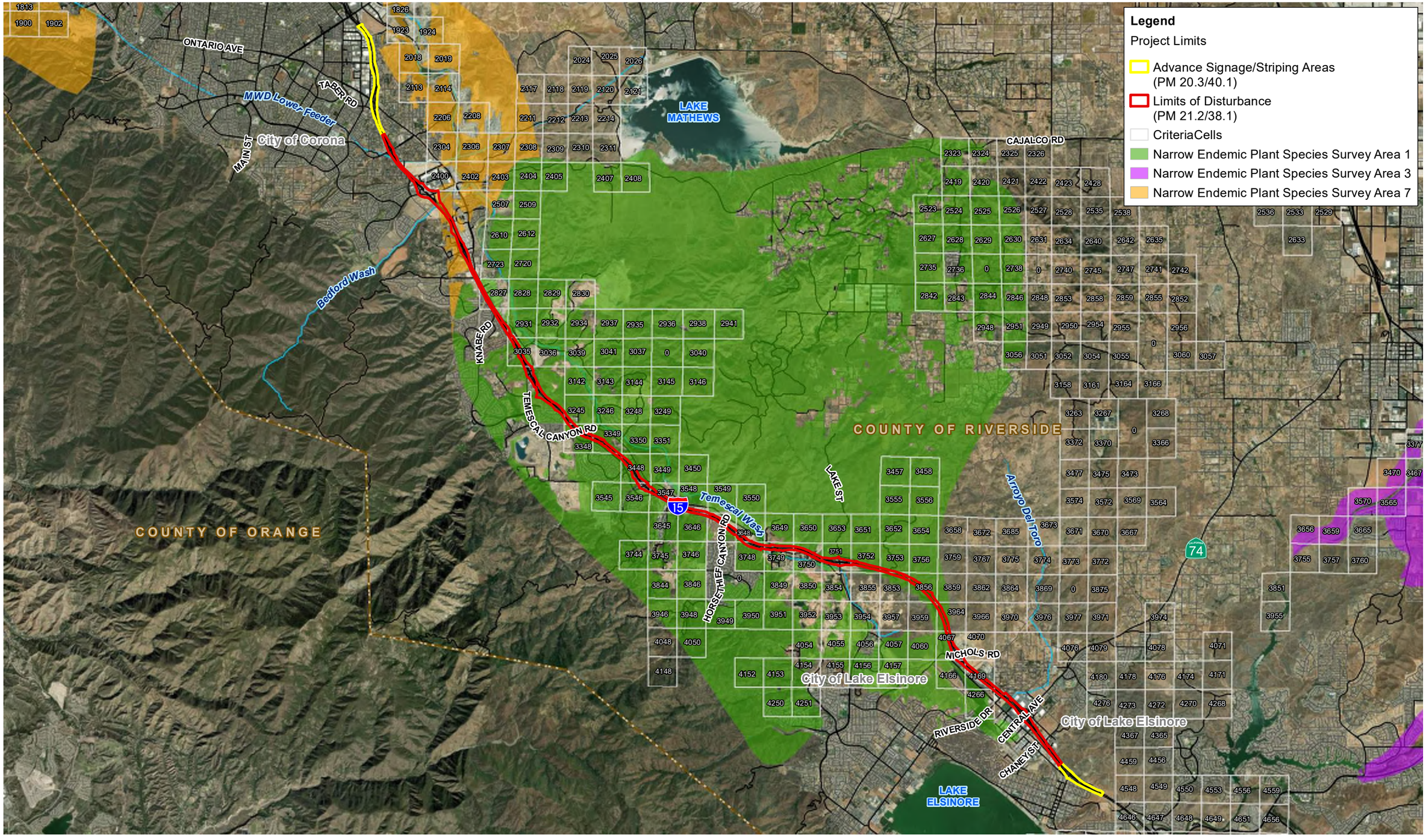

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Figure 5
MSHCP Survey Areas - Narrow Endemic Plants Survey Area
Interstate 15 Express Lanes Project Southern Extension

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Biological Training; **BIO-5**, Biological Monitoring; **BIO-6**, Construction and Project Limits; **BIO-7,** Exotic Species; **BIO-8**, Equipment Cleaning; **BIO-9**, Minimizing Disturbance; **BIO-10**, Revegetation; **BIO-11**, Access; and **BIO-12**, Water Pollution and Erosion Control Plans, would be implemented to reduce the level of indirect effects, which would ensure consistency with the MSHCP. No compensatory mitigation is necessary for Narrow Endemic Plant Species as these species were not observed during focused studies.

6 Additional Survey Needs and Procedures (Section 6.3.2)

6.1 Criteria Area Plant Species

6.1.1 Methods

Survey methods for Criteria Area Plant Species are the same as for Narrow Endemic Plant Species. The Project is in the Criteria Area Plant Species survey area for the following species: thread-leaved brodiaea, Davidson's saltscale, Parish's saltscale, round-leaved filaree, smooth tarplant, Coulter's goldfields, and little mousetail.

6.1.2 Existing Conditions and Results

Suitable habitat was determined to be present in the BSA for thread-leaved brodiaea, Davidson's saltscale, round-leaved filaree, smooth tarplant, and Coulter's goldfields. No suitable habitat was found to be present for Parish's saltscale and little mousetail. See **NES, Appendix B** for the full results of the habitat assessment for these species. No suitable habitat for Parish's saltscale (i.e., chenopod scrub, alkaline vernal pools, or playas) are present in the BSA, and no suitable alkaline soils or vernal pools are present for little mousetail.

No Criteria Area Plant Species were observed during focused rare plant surveys in 2020 and 2021. Potential habitat and the rare plant survey results are mapped in **NES, Figure 9** in **Appendix A**.

6.1.3 Impacts

During 2020 and 2021 rare plant focused surveys, none of the Criteria Area Plant Species were observed. Therefore, no impacts would occur.

6.1.4 Avoidance, Minimization and/or Mitigation Measures

Avoidance and minimization for Criteria Area Plant Species would be as previously described for Narrow Endemic Plant Species. No compensatory mitigation is necessary for Criteria Area Plants Species as these species were not observed during surveys in 2020 and 2021.

6.2 Amphibians

No amphibian species that are included in the Additional Survey Needs and Procedures (Section 6.3.2 of the MSHCP) survey area occur within the BSA.

6.3 Burrowing Owl

6.3.1 Methods

An evaluation was performed to determine whether potentially suitable habitat for burrowing owl was present. Habitat was assessed within the LOD plus a 500-foot buffer (BSA) (**NES, Appendix A, Figure 5**). Pedestrian habitat assessments were completed within a 300-foot buffer, with visual surveys continued through the entirety of the 500-foot buffer (BSA) using binoculars (**Figure 6**).

Focused surveys for burrowing owl were performed in areas determined to provide potentially suitable habitat within the MSHCP Burrowing Owl Survey Area. Burrowing owl surveys followed a two-step approach (RCA 2006):

- Step 1: Map and search for potential burrowing owl burrows and burrowing owl sign within the MSHCP Burrowing Owl Survey Area portions of the BSA
- Step 2: Perform a four-visit focused survey in suitable habitat within the MSHCP Burrowing Owl Survey Area portions of the BSA up to 300 feet with visual surveys out to an additional 200 feet

The protocol surveys were conducted during weather that was conducive to observing owls outside burrows and detecting sign. Biologists walked transects to ensure 100 percent visual coverage. All burrowing owl protocol surveys were conducted between 1 hour before sunrise and 2 hours after sunrise, or between 2 hours before sunset and 1 hour after sunset to comply with the MSHCP burrowing owl survey requirements (RCA 2006). Surveys were conducted from February through July of 2020 and June to August 2021. Refer to the **NES, Appendix G, Table G-7** for survey dates, conditions, and personnel.

6.3.2 Existing Conditions and Results

Under the MSHCP, a burrowing owl focused survey is required in the MSHCP burrowing owl survey area (**Figure 6**) when suitable habitat is present. In the BSA, approximately 1,410.04 acres of potentially suitable habitat occur within the MSHCP burrowing owl survey area. Habitat quality for burrowing owl within the BSA varies based on the level of human disturbance, with some low-quality areas and some high-quality areas. In the BSA, potential habitat for burrowing owl occurs within and outside of MSHCP criteria cells. Both potential foraging and nesting habitat exist in the BSA.

The focused survey for burrowing owl was performed from February to July 2020 and June to August 2021 (**NES, Appendix G, Table G-6**) where access was available. The locations within the BSA for burrowing owl (i.e., those areas that include potentially suitable burrow features and burrowing owl sign) are illustrated in **NES, Appendix A, Figure 10**. No burrowing owl sign or individuals were detected in the BSA during the 2020/2021 focused survey work.

6.3.3 Impacts

Based on the 2020/2021 focused survey results, the Project is not expected to affect burrowing owl during construction or operation of the facility because burrowing owl is absent from the BSA.

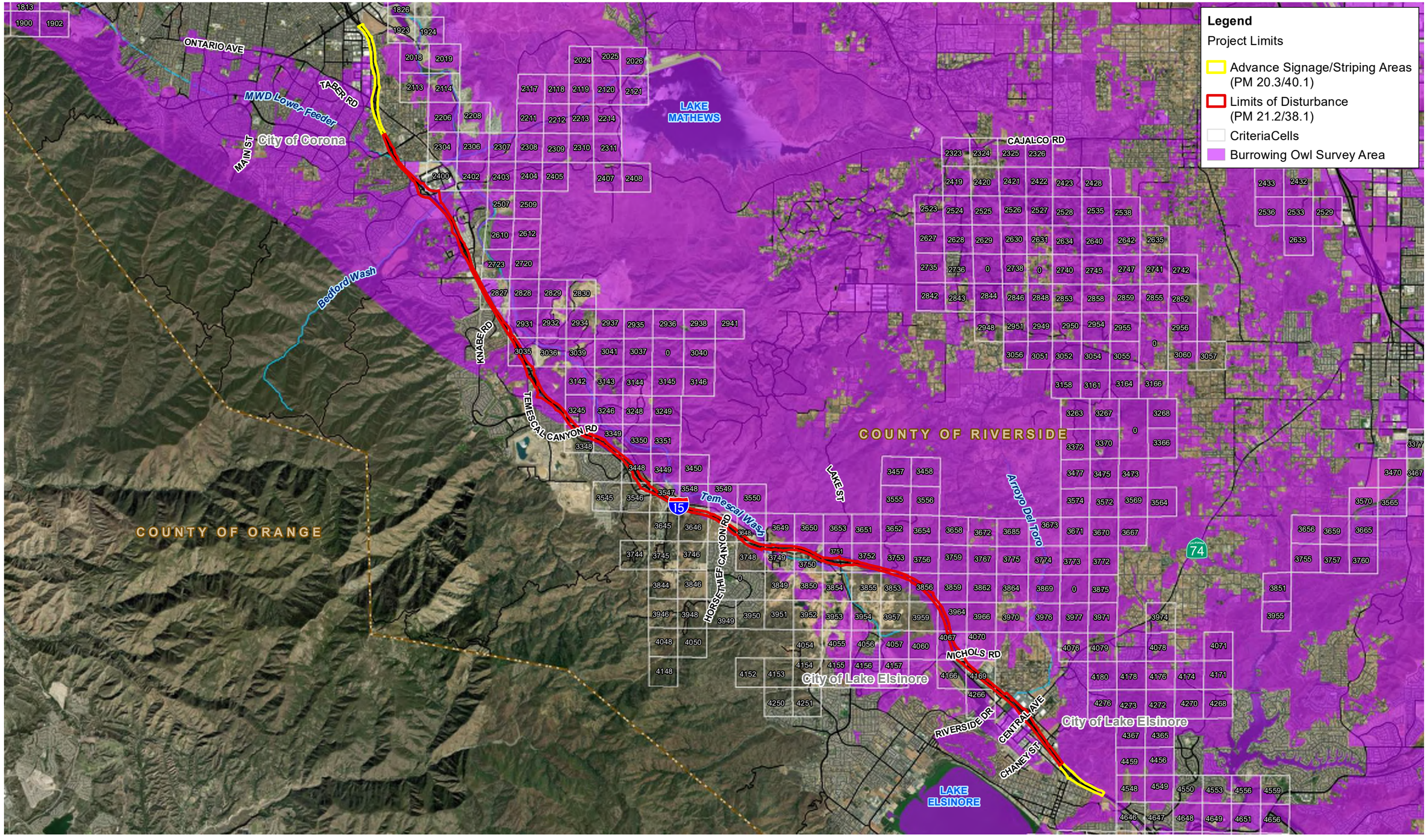

Figure 6
MSHCP Survey Areas - Burrowing Owl Survey Area
Interstate 15 Express Lanes Project Southern Extension

Because burrowing owl is a highly mobile species, it can occur at any time of year and could breed in the BSA in the future. In the event that burrowing owl moves into the BSA prior to construction, avoidance and minimization measures would be required to ensure impacts on the species are avoided.

6.3.4 Avoidance, Minimization and/or Mitigation Measures

Based on 2020/2021 survey results, burrowing owls are currently absent from the BSA. Since these species are highly there is a potential for the species to be present within suitable habitat in the future. A full list of avoidance and minimization and avoidance measures for the Project required under the MSHCP is provided in the **NES, Appendix L**. Measures **BIO-1**, Vegetation Clearance Restrictions, **BIO-2,** Dust Control; **BIO-3**, Fire Suppression; **BIO-4**, Biological Training; **BIO-5**, Biological Monitoring; **BIO-6**, Construction and Project Limits; **BIO-7**, Exotic Species; **BIO-8,** Equipment Cleaning**; BIO-9**, Minimizing Disturbance; **BIO-10**, Revegetation; **BIO-18**, Night Lighting Management and **BIO-24**, Waste Management, provide protection to species adjacent to the conservation area. Measure **BIO-24**, Waste Management, avoids attracting predators to or near the project site during construction, thereby minimizing project-related predation of burrowing owls. **BIO-25**, Burrowing Owl Management Plan, to avoid impacts on BUOW (if detected during preconstruction surveys).

6.4 Mammals

No mammal species that are included in the Additional Survey Needs and Procedures (Section 6.3.2 of the MSHCP) survey area occur within the BSA.

7 Species Not Adequately Conserved

Of the 146 Covered Species in the MSHCP, 118 species are considered to be adequately conserved. The remaining 28 species will be considered adequately conserved when certain conservation requirements are met, as identified in the species-specific conservation objective included in the Plan for those species. For 16 of those 28 species, particular species-specific conservation objectives, which are identified in Table 9-3 of the MSHCP, Requirements to Be Met for the 28 Species Prior to Including Those Species on the List of Covered Species Adequately Conserved, of the MSHCP, must be satisfied for those species to be considered Covered Species Adequately Conserved. For the remaining 12 species, a Memorandum of Understanding with the U.S. Forest Service is required for those species to be considered Covered Species Adequately Conserved.

The 16 species not adequately conserved for which species-specific conservation objectives are required include grasshopper sparrow (*Ammodramus savannarum),* Lincoln's sparrow (breeding) *(Melospiza lincolnii),* San Bernardino flying squirrel *(Glaucomys sabrinus californicus),* beautiful hulsea (*Hulsea vestita* ssp. *callicarpha),* California muhly *(Muhlenbergia californica),* chickweed oxytheca (*Oxytheca caryophylloides),* cliff cinquefoil (*Potentilla rimicola),* Coulter's matilija poppy, fish's milkwort (*Polygala cornuta* var. *fishiae),* graceful tarplant (*Holocarpha virgata* ssp. *elongata),* Mojave tarplant (*Deinandra mohavensis),* Parry's spineflower (*Chorizanthe parryi* var. *parryi),* peninsular spineflower, Plummer's mariposa lily (*Calochortus plummerae),* rainbow manzanita (*Arctostaphylos rainbowensis),* and small-flowered microseris.

A review of special-status plant and animal species that were determined to have some potential to occur was conducted, and the results of this review are provided in the **NES, Appendix B, Table B-1**, Listed, Proposed, Special-Status Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area (Potential to Occur Table). Of the 16 species not adequately conserved listed above, six were not included in the Potential to Occur Table as the Project is not within the species range; these species will not be discussed further. Lincoln's sparrow was not included in the Potential to Occur Table as it is no longer considered a special-status species; however, it is included in the discussion below. Of the remaining ten species, eight are now Covered Species Considered Adequately Conserved: Coulter's matilija poppy, fish's milkwort, graceful tarplant, Parry's spine flower, peninsular spine flower, Plummer's mariposa lily, rainbow manzanita, and small-flowered microseris (RCA 2020).

Grasshopper sparrow and Lincoln's sparrow are not yet considered to be covered species adequately conserved. However, the LOD do not contain habitat to support the conservation objectives of grasshopper sparrow and Lincoln's sparrow.

8 Guidelines Pertaining to the Urban/Wildlife Interface (Section 6.1.4)

The Project is adjacent to PQP lands and areas described for Conservation under the MSHCP (**Figure 7)** and is therefore subject to Section 6.1.4 of the MSHCP. The Urban/Wildlife Interface Guidelines and relevant Project minimization and avoidance measures are included in Table 8-1. The Project is consistent with these MSHCP requirements as described in Table 8-1.

Table 8-1. Urban/Wildlands Interface Guidelines and Relevant Project Minimization and Avoidance Measures

Urban/ Wildlands Interface Guidelines	**Relevant Project Minimization and Avoidance Measure**
Drainage - Minimization and avoidance measures required by the Project to ensure the quantity and quality of runoff discharged to the MSHCP Conservation Area are not altered in an adverse way compared to existing conditions and as through the National Pollutant Discharge Elimination System (NPDES)	**BIO-12**, Water Pollution and Erosion Control Plans, and compliance with the NPDES requirements
Toxics - Land uses proposed in proximity to the MSHCP Conservation Area that use chemicals or generate bioproducts such as manure that are potentially toxic or may adversely affect wildlife species, habitat or water quality will incorporate measures to ensure that application of such chemicals does not result in discharge to the MSHCP Conservation Area. Measures such as those employed to address drainage issues will be implemented.	**BIO-12**, Water Pollution and Erosion Control Plans, compliance with the NPDES requirements, BMPs are included in the project design that would also capture toxins and help drainage of the road
Lighting - Night lighting will be directed away from the MSHCP Conservation Area to protect species within the MSHCP Conservation Area from direct night lighting. Shielding will be incorporated in project designs to ensure ambient lighting in the MSHCP Conservation Areas	**BIO-18**, Night Lighting Management. For this Project, there are no proposed modifications to existing signals or proposed new signals.
Noise - Proposed noise generating land uses affecting the MSHCP Conservation Area will incorporate setbacks, berms or walls to minimize the effects of noise on MSHCP Conservation Area resources pursuant to applicable rules, regulations and guidelines related to land use noise standards. For planning purposes, wildlife within the MSHCP Conservation Area should not be subject to noise that would exceed residential noise standards.	The median is a part of the Project design and already exits and will function as a noise barrier. The Project is an existing interstate and noise levels are not expected to change appreciably.
Invasives - When approving landscape plans for development that is proposed adjacent to the MSHCP Conservation Area, permittees will consider the invasive, non-native plant species listed in Table 6-2 and will require revisions to landscape plans to avoid the use of invasive species for the portions of development that are adjacent to the MSHCP Conservation Area.	Landscape plans and restoration activities for the Project will prohibit the species listed in Table 6-2 of the MSHCP. The Caltrans approved seed mix will be used for restoration.

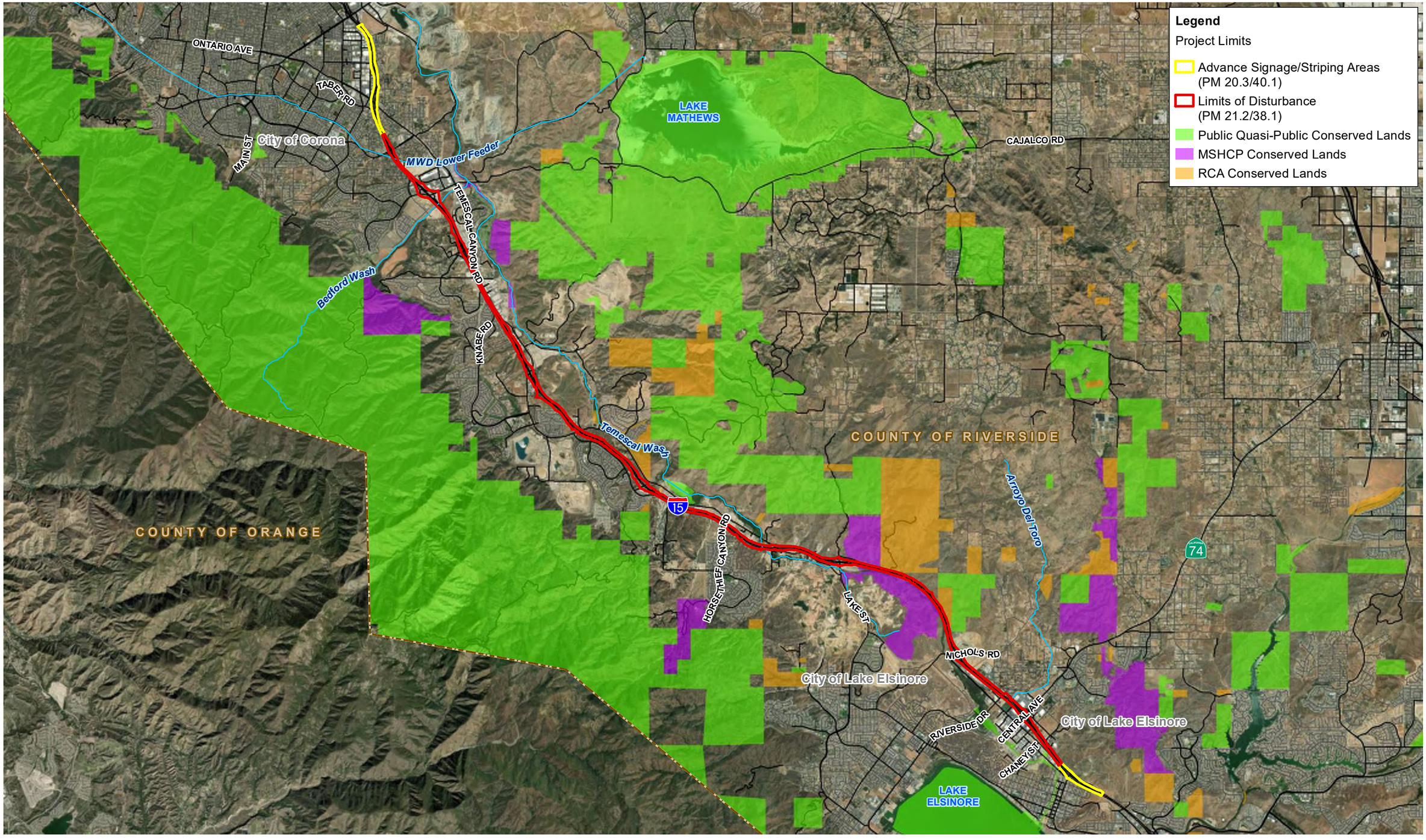

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Figure 7
Public, Quasi-Public Conserved Lands and MSHCP Conserved Lands
Interstate 15 Express Lanes Project Southern Extension

Table 8-1. Urban/Wildlands Interface Guidelines and Relevant Project Minimization and Avoidance Measures

Urban/ Wildlands Interface Guidelines	Relevant Project Minimization and Avoidance Measure
Barriers - Proposed land uses adjacent to the MSHCP Conservation Area will incorporate barriers, where appropriate in individual project designs to minimize unauthorized public access, domestic animal predation, illegal trespass or dumping in the MSHCP Conservation Area.	Fencing currently exists to prevent illegal trespass into the ROW and therefore from the ROW into the MSHCP Conservation Areas. No additional fencing would be required.
Grading/Land Development - Manufactured slopes associated with proposed site development will not extend into the MSHCP Conservation Area.	Manufactured slopes, weed abatement, and/or fuel modification zones associated with the Project will not extend into the MSHCP Conservation Area

9 MSHCP Consistency Analysis Conclusion

This MSHCP consistency analysis evaluated the I-15 ELPSE Project, a MSHCP Covered Road, for the Project's consistency with the goals and objectives of the MSHCP reserve system and implementation structure. Based on the evaluation conducted within the above analysis, the Project is consistent with the following sections of the MSHCP:

- Best Management Practices (Volume 1, Appendix C)
- Construction Guidelines (Section 7.5.3)
- Reserve Assembly
    - MSHCP Reserve Connectivity Features (Cores, Extension of Existing Cores, Linkages, and Constrained Linkages)
    - Subunit Goals
    - Planning Species
    - Public Quasi-Public Lands
- Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (Section 6.1.2)
- Protection of Narrow Endemic Plant Species (Section 6.1.3)
- Additional Survey Needs and Procedures (Section 6.3.2)
- Species Not Adequately Conserved (Table 9-3)
- Guidelines Pertaining to the Urban/Wildlands Interface (Section 6.1.4)

As the Project is consistent with all of the required sections, the Project is therefore consistent with the MSHCP goals and objectives.

10 References

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