APPENDIX A
Mitigation Monitoring and Reporting Program

Impacts	Mitigation Measure	Responsible / Monitoring Party	Monitoring Action or Implementation Stage
Biological Resources			
The analysis contained in Section 3.5 (Biological Resources) of the Initial Study /Mitigated Negative Declaration (IS/MND) determined that the Proposed Project was located within Criteria Cell 1616 of the Western Riverside County Multiple Species Habitat Conservation Plan (WRCMSHCP), which was designated to focus conservation on a variety of wetland habitats associated with the Prado Flood Control Basin and the Santa Ana River. The analysis also concluded that the Proposed Project is consistent with the conservation cell Criteria and MSHCP policies. Floristic surveys conducted for the Proposed Project determined that one California Native Plant Society California Rare Plant Rank (CRPR) observed in SART Phase 3A (a planned trail segment adjacent to SART 3B) may occur. This species was identified as the paniculate tarplant (*Deinandra paniculata*) found within the California sagebrush scrub community. The CRPR ranking of this species is 4.2, indicating it as a watch list species with limited distribution that is fairly threatened in California. No additional special-status plant species were observed. Special status wildlife species surveys detected the presence of least Bell's vireo (LBV) (*Vireo bellii pusillus*) and coastal California gnatcatcher (CAGN) (*Polioptila californica californica*). The LBV is a federal and state endangered species and a WRCMSHCP covered species. The CAGN is a federally-listed endangered species, state-listed species of special concern, and a WRCMSHCP covered species. The proposed Project impacts to these species, which are known to be present, would be potentially significant without mitigation. The proposed impacts to nesting birds would be potentially significant because of the removal of suitable nesting habitat, noise generated by Project activities, additional lighting for work occurring at night, or off-trail trekking. The Proposed Project would result in 3.14 acres of temporary impacts and 8.21 acres of permanent impacts to the riparian/riverine vegetation community and coastal sage scrub (CSS) community areas. Wetlands or non-wetland Waters of the U.S., Waters of the State or CDFW jurisdictional waters are not located within the Project site. The Santa Ana River floodplain, in which the proposed Project is located, has been identified as an important wildlife movement corridor/riparian linkage and is part of a large are of open space within an otherwise heavily developed region. The analysis contained in the IS/MND determined that The impacts to wildlife movement are considered less than significant and no mitigation measures are required. A review of relevant documents (e.g., municipal code, ordinances, General Plan) for the County of Riverside indicate that the proposed Project would not conflict with any local policies or ordinances protecting biological resources. The proposed Project is located within the WRMSHCP, and complies with the conditional use of providing recreational opportunities while protecting biological resources. Based upon the analysis contained within the IS/MND, with the implementation of Mitigation Measures Bio-1 through Bio-7, impacts would be less than significant.	***BIO-1 LBV, CAGN, and Nesting Birds*** • The District shall develop and implement a monitoring program for LBV and CAGN that entails surveys during the year prior to construction, and each year of construction. • The District shall develop and implement a monitoring program that entails surveys for bald eagles immediately prior to fall/winter construction near flowing water, and for golden eagles prior to initiating activities at Borrow Area #2 (all borrow areas). If eagles are foraging in the vicinity, the District will coordinate with the Contracting Officer Representative of the USACE and USFWS to develop appropriate avoidance measures. • Any vegetation with the potential to support CAGN and LBV shall be cleared by the District outside of the nesting season, defined as February 15 to September 16. • The District shall construct temporary sound walls/blankets prior to the LBV and CAGN nesting season (i.e., prior to February 15) along sensitive LBV and CAGN habitat adjacent to the temporary construction easement (TCE). The temporary sound wall shall be constructed of material typically used to lessen general noise impacts and at a height tall enough to account for construction equipment. • Portable sound walls/blankets will be placed by the District around demolition activities occurring on the spillway, regardless of nesting season to minimize potential noise impacts on resident CAGN.	Riverside County Regional Park and Open-Space District	Prior to and during construction.
	BIO-2 Night Work • Prior to any construction activities occurring at night, a lighting plan shall be developed by the District in coordination with the Project biologist or environmental monitor. The lighting plan shall serve to reduce potential impacts resulting from lighting on resident and transitory species using the wildlife corridor to the maximum extent practicable.	Riverside County Regional Park and Open-Space District	Prior to earthmoving and construction activities.

Impacts	Mitigation Measure	Responsible / Monitoring Party	Monitoring Action or Implementation Stage
	BIO-3 Wildlife Education Program • A qualified biologist shall conduct a training session for Project personnel prior to grading to ensure workers are familiar with the species, noise restrictions, and measures that shall be implemented on the Project. The training shall include a description of the species of concern and its habitats, the general provisions of the ESA and the WRCMSHCP, the need to adhere to the provisions of the Act and the WRCMSHCP, the penalties associated with violating the provisions of the Act, the general measures are being implemented to conserve the species of concern as they relate to the proposed Project, and the access routes to and from the proposed Project Area boundaries within which the proposed Project activities must be accomplished.	Riverside County Regional Park and Open-Space District	Prior to earthmoving and construction activities and during construction for any new crews or personnel.
	BIO-4 Biological Monitoring During Construction • Prior to construction activities, a District qualified biologist (or the environmental monitor) shall conduct pre-construction environmental training for construction crew members including those onboarding mid-Project. The training shall focus on required avoidance/minimization measures and conditions of regulatory agency permits and approvals (if required). The training shall also include a summary of sensitive species and habitats potentially present within and adjacent to the Project site. • The biological monitor will monitor noise regularly (twice weekly) during the nesting season (February 15–August 15). Ambient noise levels will be recorded by the District biologist prior to construction to determine ambient noise levels. During construction, noise monitoring will ensure that 1) noise does not exceed 60 A-weighted decibels (dBA) of equivalent continuous sound level (Leq) hourly where ambient noise is less than 60 dBA Leq hourly or another agreed-upon limit with the USFWS, within occupied CAGN and LBV habitat during the nesting season; or, (2) noise does not exceed 5 dBA Leq hourly above ambient conditions if said levels are above 60 dBA Leq hourly, or another agreed-upon limit with the USFWS, within occupied CAGN and LBV habitat during the nesting season. If construction noise levels within occupied adjacent habitat cannot be reduced below 60 dBA Leq hourly, or 5 dBA Leq hourly above ambient, or another agreed-upon limit with the USFWS, in adjacent occupied LBV or CAGN habitat during nesting season of any year, the USACE or project District will offset impacts at a 1:1 ratio per any period during the breeding season affected by such noise levels. This 1:1 ratio will be based on the acreage of occupied coastal sage scrub or riparian habitat outside the Project footprint subject to noise levels above agreed-upon thresholds during the nesting season, per the number of breeding seasons affected (e.g., one acre of coastal sage scrub habitat affected by noise in two breeding seasons will result in two [2] acres of restoration). The area affected will be determined by the periodic Project noise monitoring. The District will identify restoration areas for offsetting noise impacts in coordination with the USFWS and will maintain (continue weeding) those areas for a period of eight (8) years. • Prior to any ground-disturbing activities (e.g., mechanized clearing or rough grading) for all Project related construction activities, a District qualified biologist (or environmental monitor) shall conduct pre-construction surveys of the Project site for terrestrial special-status species. During these surveys, the biologist shall: a. Inspect the Project Area (and borrow area) for any sensitive wildlife species; b. In the event of the discovery of a non-listed, special-status ground-dwelling animal such as a burrowing owl or special-status reptile, attempts will be made to	Riverside County Regional Park and Open-Space District	Prior to and during construction activities.

Impacts	Mitigation Measure	Responsible / Monitoring Party	Monitoring Action or Implementation Stage
	recover and relocate the animal to adjacent suitable habitat within the Project site at least 200 feet from the limits of construction activities. Burrowing owl surveys and relocations shall follow established protocols. • The District biologist or qualified biological monitor shall continue to monitor and survey the Project Area, borrow area, and adjacent habitats throughout construction and restoration activities for the presence of special-status species, and shall confirm that conservation measures are sufficient to avoid or minimize impacts to these listed species and designated habitat, or shall recommend additional measures as warranted.		

	BIO-5 Native Vegetation Removal
	• The District's contractor will minimize grading activities and leave root systems intact, to the extent practicable.
	• The District's construction personnel shall strictly limit their activities, vehicles, equipment, and construction materials to the temporary construction footprint, including designated borrow areas, staging areas or routes of travel. The construction area(s) shall be the minimal area necessary to complete the proposed Project and will be specified in the construction plans. Highly visible barriers (such as orange construction fencing or sound walls) will be installed around all riparian and sensitive habitats adjacent to the construction footprint to designate limits of construction activities. These barriers will be maintained until the completion of all construction activities.
	• Vegetation removal and herbicide application required by the District for maintenance of the Project shall be conducted at the minimum amount necessary. Any vegetation removal necessary shall be conducted outside of the nesting season, which is defined as February 15 to September 15.
	• Best management practices (BMPs)by the District shall be implemented to reduce impacts to native habitats, including the following:
	  • All equipment maintenance, staging, and dispending of fuel, oil, coolant, or any other toxic substances shall occur in developed or designated non-sensitive upland areas. These areas shall implement BMPs to prevent runoff carrying toxic substances from entering the Santa Ana River and associated drainages. If a spill occurs outside of a designated area, the cleanup shall be immediate and documented.
	  • Fire suppression equipment including shovels, water, and extinguishers shall be available onsite during the fire season (as determined by Riverside County Fire Department) and when activities may produce sparks.
	  • To the extent feasible, the contractor shall prevent exotic weeds from establishing within the work site during construction. Construction equipment shall be cleaned of mud or other debris to the extent feasible, prior to mobilizing and before leaving the site to reduce the potential spread of invasive plants and/or seeds.
		Riverside County Regional Park and Open-Space District	During construction and upon project completion.

Impacts	Mitigation Measure	Responsible / Monitoring Party	Monitoring Action or Implementation Stage
	BIO-6 Trash Removal To avoid attracting predators of the species of concern, the proposed Project Area shall be kept as clean of debris as possible by the District. All food related trash items shall be enclosed in sealed containers and regularly removed from the site(s).	Riverside County Regional Park and Open-Space District	During construction and operation.
	BIO-7 Revegetation The District shall restore all temporary disturbance areas, not including existing roads or operations areas, within the TCE with riparian, CSS or other native habitat as appropriate to the location. All temporarily disturbed areas shall be kept free of exotic plants for a period of eight years. If the sites have not begun to recover within five years (i.e., 50 percent of the disturbed areas are not vegetated with native plants) then the site shall be replanted or re-hydroseeded as needed. Acreage of actual disturbance will be documented and compared to acreage restored; any shortfalls shall be addressed through additional restoration as needed. The District shall offset temporary losses to occupied CAGN habitat (i.e., both native and non-native) by restoring currently degraded areas to CSS outside the TCE at a 2:1 ratio if restoration occurs after impact; or at a 1:1 ratio if restoration occurs prior to impact; or any combination thereof (i.e., if some restoration can occur prior to impact). This acreage shall be managed and kept free of exotics for eight years post-construction. Permanent impacts to occupied but non-native habitat shall follow the same guidance. The District shall offset permanent impacts to CAGN-occupied native CSS habitat at a 3:1 ratio by restoring currently degraded areas outside the TCE and managing those areas for eight years post-construction. It is anticipated that 4.4 acres of impacts to CSS shall be offset with a total of 13.2 acres restored. The District is responsible for restoring habitat in all temporary disturbance areas related to the trail, not including existing roads or operations areas, within the TCE with riparian, CSS or other native habitat as appropriate to the location. All temporarily disturbed areas will be kept free of exotic plants for a period of eight years. If the sites have not begun to recover within five years (i.e., 50 percent of the disturbed areas are not vegetated with native plants) then the site shall be replanted or re-hydroseeded as needed. Acreage of actual disturbance will be documented and compared to acreage restored; any shortfalls shall be addressed through additional restoration as needed. The District shall offset trail related permanent impacts to LBV or CAGN-occupied native habitat at a 3:1 ratio by restoring currently degraded areas outside the TCE and preserving those lands in perpetuity. This revegetated area shall be maintained, monitored and kept free of exotics (less than 10% cover). It is anticipated that 8.2 acres of impacts to occupied habitat will be offset with a total of 24.6 acres restored.	Riverside County Regional Park and Open-Space District	Post construction and operation.

Impacts	Mitigation Measure	Responsible / Monitoring Party	Monitoring Action or Implementation Stage
Cultural Resources			
The analysis contained in Section 3.6 (Cultural Resources) indicated that one historic-period cultural resource intersects with the project site. P-33-004730 (Prado Dam) was determined eligible for listing in the National Register of Historic Places (NRHP) in 1991. However, it was subsequently determined ineligible (see Section 3.6 [Cultural Resources]. The Project site was also investigated for archaeological resources, although none were identified. Although the potential for identifying archaeological historical resources during project ground disturbance is low, the presence of such resources cannot be entirely discounted. As such, Mitigation Measure CUL-1 was identified and would reduce impacts to less than significant.	***CUL-1 Cultural Materials Discovered during Construction*** Should an archaeological deposit be encountered during Project subsurface construction activities, all ground-disturbing activities within 25 feet shall be redirected and a Riverside County Regional Park and Open-Space District environmental specialist and USACE Cultural Resources Specialist shall be contacted to evaluate the situation and provide recommendations for the treatment of impacts to the resource. If the deposit is found to be significant (i.e., eligible for listing in the CRHR), the Riverside County Regional Park and Open-Space District shall be responsible for funding and implementing appropriate mitigation measures. Mitigation measures may include recordation of the archaeological deposit, data recovery and analysis, and public outreach regarding the scientific and cultural importance of the discovery. Upon completion of the selected mitigations, a report documenting methods, findings, and recommendations shall be prepared and submitted to the Riverside County Regional Park and Open-Space District and USACE for review, and the final Report shall be submitted to the EIC at the University of California, Riverside. Precontact cultural resources may include, but are not limited to, chert or obsidian flakes, projectile points, mortars, pestles, and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic cultural resources include stone or adobe foundations or walls; structures and remains with square nails; and refuse deposits or bottle dumps, often located in old wells or privies.	Riverside County Regional Park and Open-Space District	During construction.
Geology & Soils			
Section 3.8 (Geology and Soils) indicated that there are three geological unit contained in the Project area. One has a low to high paleontological potential, increasing with depth, while the other two have high potential. Because the proposed Project will require some soil disturbance, impacts to potential paleontological resources is considered potentially significant. However, with the implementation of Mitigation Measures GEO-1, GEO-2, GEO-3, and GEO-4 these impacts would be reduced to less than significant levels.	***Geo-1 Paleontological Monitoring & Mitigation Plan*** The qualified paleontologist shall develop and oversee the implementation of a Paleontological Monitoring and Mitigation Plan tailored to the Project plans that provides for paleontological monitoring of earthwork and ground-disturbing activities into undisturbed geologic units with high paleontological potential, whether at the surface or in the subsurface, to be conducted by a paleontological monitor meeting industry standards (Murphey et al. 2019).	Riverside County Regional Park and Open-Space District	Paleontological monitoring is required during construction, grading, and soil removal.
	Geo-2 Workers' Environmental Awareness Program The qualified paleontologist shall develop a Worker's Environmental Awareness Program training that communicates requirements and procedures for the inadvertent discovery of paleontological resources during construction, to be delivered by the paleontological monitor to the construction crew prior to the onset of ground disturbance.	Riverside County Regional Park and Open-Space District	Prior to construction and grading and soil removal.
	Geo-3 Inadvertent Discoveries In the event that paleontological resources are encountered during construction activities, all work must stop in the immediate vicinity of the finds while the paleontological monitor documents the find. The designated qualified paleontologist shall assess the find. Should the qualified paleontologist assess the find as significant, the find shall be collected and curated in an accredited repository along with all necessary associated data and curation fees.	Riverside County Regional Park and Open-Space District	During construction.

Impacts	Mitigation Measure	Responsible / Monitoring Party	Monitoring Action or Implementation Stage
	Geo-4 Stand-Alone Paleontological Resources Awareness Training A qualified paleontologist shall develop a stand-alone paleontological resources awareness training for the District. This training shall include information on the types of paleontological resources that may be encountered in the area, an overview of the area's geologic and paleontological history, and instructions on steps to follow should park personnel or members of the public using the SART Report the discovery of a paleontological resource. The District shall ensure this training is delivered to personnel responsible for operations and maintenance activities on the SART.	Riverside County Regional Park and Open-Space District	Prior to construction and grading and soil removal.
Recreation			
Section 3.17 (Recreation), the proposed Project was determined to result in adverse physical impacts on the environment but would be mitigated to less than significant levels with the mitigation measures associated with Sections 3.5 (Biological Resources, 3.6 (Cultural Resources), and 3.8 (Geology and Soils). Therefore, impacts related to recreation would be less than significant with the implementation of these mitigation measures.	Not Applicable. Mitigation measures noted above would address all impacts associated with Recreation.	Not Applicable	Not Applicable

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APPENDIX B
Air Quality and Greenhouse Gas Emissions Study

SART V2 Summary Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SART V2
Construction Start Date	1/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.60
Precipitation (days)	19.2
Location	33.893735917041894, -117.6096517975088
County	Riverside-South Coast
City	Corona
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5463
EDFZ	11
Electric Utility	City of Corona Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.20

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Road Construction	0.66	Mile	12.5	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.26	4.43	41.5	41.7	0.06	1.93	19.0	20.9	1.77	9.39	11.2	—	6,514	6,514	0.27	0.06	0.99	6,539
Mit.	5.26	4.43	41.5	41.7	0.06	1.93	7.54	9.46	1.77	3.70	5.47	—	6,514	6,514	0.27	0.06	0.99	6,539
% Reduced	—	—	—	—	—	—	60%	55%	—	61%	51%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.25	4.42	41.5	41.4	0.06	1.93	19.0	20.9	1.77	9.39	11.2	—	6,494	6,494	0.27	0.06	0.03	6,518
Mit.	5.25	4.42	41.5	41.4	0.06	1.93	7.54	9.46	1.77	3.70	5.47	—	6,494	6,494	0.27	0.06	0.03	6,518
% Reduced	—	—	—	—	—	—	60%	55%	—	61%	51%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	2.01	1.69	15.7	16.0	0.02	0.73	6.78	7.51	0.67	3.35	4.02	—	2,497	2,497	0.10	0.02	0.19	2,507
Mit.	2.01	1.69	15.7	16.0	0.02	0.73	2.70	3.43	0.67	1.32	1.99	—	2,497	2,497	0.10	0.02	0.19	2,507
% Reduced	—	—	—	—	—	—	60%	54%	—	61%	50%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.37	0.31	2.86	2.91	< 0.005	0.13	1.24	1.37	0.12	0.61	0.73	—	413	413	0.02	< 0.005	0.03	415
Mit.	0.37	0.31	2.86	2.91	< 0.005	0.13	0.49	0.63	0.12	0.24	0.36	—	413	413	0.02	< 0.005	0.03	415
% Reduced	—	—	—	—	—	—	60%	54%	—	61%	50%	—	—	—	—	—	—	—

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	86.0
Healthy Places Index Score for Project Location (b)	9.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

SART V2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SART V2
Construction Start Date	1/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.60
Precipitation (days)	19.2
Location	33.893735917041894, -117.6096517975088
County	Riverside-South Coast
City	Corona
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5463
EDFZ	11
Electric Utility	City of Corona Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.20

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Road Construction	0.66	Mile	12.5	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.26	4.43	41.5	41.7	0.06	1.93	19.0	20.9	1.77	9.39	11.2	—	6,514	6,514	0.27	0.06	0.99	6,539
Mit.	5.26	4.43	41.5	41.7	0.06	1.93	7.54	9.46	1.77	3.70	5.47	—	6,514	6,514	0.27	0.06	0.99	6,539
% Reduced	—	—	—	—	—	—	60%	55%	—	61%	51%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.25	4.42	41.5	41.4	0.06	1.93	19.0	20.9	1.77	9.39	11.2	—	6,494	6,494	0.27	0.06	0.03	6,518
Mit.	5.25	4.42	41.5	41.4	0.06	1.93	7.54	9.46	1.77	3.70	5.47	—	6,494	6,494	0.27	0.06	0.03	6,518
% Reduced	—	—	—	—	—	—	60%	55%	—	61%	51%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	2.01	1.69	15.7	16.0	0.02	0.73	6.78	7.51	0.67	3.35	4.02	—	2,497	2,497	0.10	0.02	0.19	2,507
Mit.	2.01	1.69	15.7	16.0	0.02	0.73	2.70	3.43	0.67	1.32	1.99	—	2,497	2,497	0.10	0.02	0.19	2,507
% Reduced	—	—	—	—	—	—	60%	54%	—	61%	50%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.37	0.31	2.86	2.91	< 0.005	0.13	1.24	1.37	0.12	0.61	0.73	—	413	413	0.02	< 0.005	0.03	415
Mit.	0.37	0.31	2.86	2.91	< 0.005	0.13	0.49	0.63	0.12	0.24	0.36	—	413	413	0.02	< 0.005	0.03	415
% Reduced	—	—	—	—	—	—	60%	54%	—	61%	50%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	5.26	4.43	41.5	41.7	0.06	1.93	19.0	20.9	1.77	9.39	11.2	—	6,514	6,514	0.27	0.06	0.99	6,539
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	5.25	4.42	41.5	41.4	0.06	1.93	19.0	20.9	1.77	9.39	11.2	—	6,494	6,494	0.27	0.06	0.03	6,518
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.01	1.69	15.7	16.0	0.02	0.73	6.78	7.51	0.67	3.35	4.02	—	2,497	2,497	0.10	0.02	0.19	2,507
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.37	0.31	2.86	2.91	< 0.005	0.13	1.24	1.37	0.12	0.61	0.73	—	413	413	0.02	< 0.005	0.03	415

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	5.26	4.43	41.5	41.7	0.06	1.93	7.54	9.46	1.77	3.70	5.47	—	6,514	6,514	0.27	0.06	0.99	6,539
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	5.25	4.42	41.5	41.4	0.06	1.93	7.54	9.46	1.77	3.70	5.47	—	6,494	6,494	0.27	0.06	0.03	6,518
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.01	1.69	15.7	16.0	0.02	0.73	2.70	3.43	0.67	1.32	1.99	—	2,497	2,497	0.10	0.02	0.19	2,507
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.37	0.31	2.86	2.91	< 0.005	0.13	0.49	0.63	0.12	0.24	0.36	—	413	413	0.02	< 0.005	0.03	415

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.13	4.31	41.4	40.2	0.06	1.93	—	1.93	1.77	—	1.77	—	6,264	6,264	0.25	0.05	—	6,285
Dust From Material Movement	—	—	—	—	—	—	18.7	18.7	—	9.34	9.34	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.13	4.31	41.4	40.2	0.06	1.93	—	1.93	1.77	—	1.77	—	6,264	6,264	0.25	0.05	—	6,285
Dust From Material Movement	—	—	—	—	—	—	18.7	18.7	—	9.34	9.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.83	1.54	14.7	14.3	0.02	0.69	—	0.69	0.63	—	0.63	—	2,231	2,231	0.09	0.02	—	2,239
Dust From Material Movement	—	—	—	—	—	—	6.68	6.68	—	3.33	3.33	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.69	2.62	< 0.005	0.13	—	0.13	0.12	—	0.12	—	369	369	0.01	< 0.005	—	371
Dust From Material Movement	—	—	—	—	—	—	1.22	1.22	—	0.61	0.61	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.09	1.51	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	250	250	0.01	0.01	0.99	254
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.17	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	230	230	0.01	0.01	0.03	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.44	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	82.8	82.8	< 0.005	< 0.005	0.15	84.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.7	13.7	< 0.005	< 0.005	0.03	13.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Linear, Grubbing & Land Clearing (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	5.13	4.31	41.4	40.2	0.06	1.93	—	1.93	1.77	—	1.77	—	6,264	6,264	0.25	0.05	—	6,285
Dust From Material Movement	—	—	—	—	—	—	7.31	7.31	—	3.64	3.64	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.13	4.31	41.4	40.2	0.06	1.93	—	1.93	1.77	—	1.77	—	6,264	6,264	0.25	0.05	—	6,285
Dust From Material Movement	—	—	—	—	—	—	7.31	7.31	—	3.64	3.64	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.83	1.54	14.7	14.3	0.02	0.69	—	0.69	0.63	—	0.63	—	2,231	2,231	0.09	0.02	—	2,239
Dust From Material Movement	—	—	—	—	—	—	2.60	2.60	—	1.30	1.30	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.69	2.62	< 0.005	0.13	—	0.13	0.12	—	0.12	—	369	369	0.01	< 0.005	—	371
Dust From Material Movement	—	—	—	—	—	—	0.48	0.48	—	0.24	0.24	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.09	1.51	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	250	250	0.01	0.01	0.99	254
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.17	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	230	230	0.01	0.01	0.03	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.44	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	82.8	82.8	< 0.005	< 0.005	0.15	84.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.7	13.7	< 0.005	< 0.005	0.03	13.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Linear, Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.13	7.55	0.01	0.31	—	0.31	0.28	—	0.28	—	1,122	1,122	0.05	0.01	—	1,126
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.89	1.10	< 0.005	0.04	—	0.04	0.04	—	0.04	—	163	163	0.01	< 0.005	—	163
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.0	27.0	< 0.005	< 0.005	—	27.1
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.90	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	150	150	0.01	0.01	0.59	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.3	20.3	< 0.005	< 0.005	0.04	20.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.36	3.36	< 0.005	< 0.005	0.01	3.41
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Linear, Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.13	7.55	0.01	0.31	—	0.31	0.28	—	0.28	—	1,122	1,122	0.05	0.01	—	1,126
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.89	1.10	< 0.005	0.04	—	0.04	0.04	—	0.04	—	163	163	0.01	< 0.005	—	163
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.0	27.0	< 0.005	< 0.005	—	27.1

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.90	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	150	150	0.01	0.01	0.59	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.3	20.3	< 0.005	< 0.005	0.04	20.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.36	3.36	< 0.005	< 0.005	0.01	3.41
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	1/1/2024	5/30/2024	6.00	130	—
Linear, Paving	Linear, Paving	6/2/2024	8/2/2024	6.00	53.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Rubber Tired Loaders	Diesel	Average	2.00	11.0	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	2.00	11.0	36.0	0.38

Linear, Grubbing & Land Clearing	Graders	Electric	Average	1.00	11.0	6.00	0.82
Linear, Grubbing & Land Clearing	Tractors/Loaders/Backhoes	Diesel	Average	1.00	11.0	84.0	0.37
Linear, Grubbing & Land Clearing	Rubber Tired Dozers	Diesel	Average	2.00	11.0	367	0.40
Linear, Grubbing & Land Clearing	Skid Steer Loaders	Diesel	Average	1.00	11.0	71.0	0.37
Linear, Grubbing & Land Clearing	Tractors/Loaders/Backhoes	Diesel	Average	1.00	11.0	84.0	0.37
Linear, Paving	Pavers	Diesel	Average	1.00	11.0	81.0	0.42
Linear, Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Linear, Paving	Rollers	Diesel	Average	2.00	11.0	36.0	0.38
Linear, Paving	Plate Compactors	Electric	Average	2.00	11.0	6.00	0.82

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Rubber Tired Loaders	Diesel	Average	2.00	11.0	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	2.00	11.0	36.0	0.38
Linear, Grubbing & Land Clearing	Graders	Electric	Average	1.00	11.0	6.00	0.82
Linear, Grubbing & Land Clearing	Tractors/Loaders/Backhoes	Diesel	Average	1.00	11.0	84.0	0.37
Linear, Grubbing & Land Clearing	Rubber Tired Dozers	Diesel	Average	2.00	11.0	367	0.40
Linear, Grubbing & Land Clearing	Skid Steer Loaders	Diesel	Average	1.00	11.0	71.0	0.37
Linear, Grubbing & Land Clearing	Tractors/Loaders/Backhoes	Diesel	Average	1.00	11.0	84.0	0.37
Linear, Paving	Pavers	Diesel	Average	1.00	11.0	81.0	0.42

Linear, Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Linear, Paving	Rollers	Diesel	Average	2.00	11.0	36.0	0.38
Linear, Paving	Plate Compactors	Electric	Average	2.00	11.0	6.00	0.82

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	25.0	12.8	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	8.33	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	15.0	12.8	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	8.33	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	25.0	12.8	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	8.33	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—

Linear, Paving	Worker	15.0	12.8	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	8.33	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	—	—	12.5	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Construction	12.5	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	121	453	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	16.3	annual days of extreme heat
Extreme Precipitation	3.50	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	17.3	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	75.4
AQ-PM	91.6
AQ-DPM	93.5
Drinking Water	73.7
Lead Risk Housing	94.9
Pesticides	0.00
Toxic Releases	66.5
Traffic	98.2
Effect Indicators	—
CleanUp Sites	78.6
Groundwater	16.8
Haz Waste Facilities/Generators	89.2
Impaired Water Bodies	12.5
Solid Waste	0.00
Sensitive Population	—
Asthma	28.8
Cardio-vascular	70.7
Low Birth Weights	61.9
Socioeconomic Factor Indicators	—
Education	63.9
Housing	73.0

Linguistic	55.6
Poverty	82.7
Unemployment	69.1

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	5.286795842
Employed	33.54292314
Median HI	19.40202746
Education	—
Bachelor's or higher	27.07558065
High school enrollment	100
Preschool enrollment	6.493006544
Transportation	—
Auto Access	64.27563198
Active commuting	21.48081612
Social	—
2-parent households	38.65007058
Voting	3.734120364
Neighborhood	—
Alcohol availability	14.70550494
Park access	51.52059541
Retail density	54.11266521
Supermarket access	36.86641858
Tree canopy	15.10329783

Housing	—
Homeownership	29.61632234
Housing habitability	32.13139997
Low-inc homeowner severe housing cost burden	53.83036058
Low-inc renter severe housing cost burden	30.14243552
Uncrowded housing	17.64403952
Health Outcomes	—
Insured adults	4.452713974
Arthritis	54.3
Asthma ER Admissions	81.7
High Blood Pressure	36.7
Cancer (excluding skin)	85.3
Asthma	25.7
Coronary Heart Disease	37.1
Chronic Obstructive Pulmonary Disease	37.6
Diagnosed Diabetes	21.5
Life Expectancy at Birth	2.6
Cognitively Disabled	38.1
Physically Disabled	74.5
Heart Attack ER Admissions	44.3
Mental Health Not Good	17.1
Chronic Kidney Disease	14.8
Obesity	7.3
Pedestrian Injuries	75.8
Physical Health Not Good	16.1
Stroke	34.3
Health Risk Behaviors	—

Binge Drinking	60.3
Current Smoker	20.8
No Leisure Time for Physical Activity	11.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	3.0
Elderly	53.8
English Speaking	24.8
Foreign-born	81.9
Outdoor Workers	33.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	47.1
Traffic Density	94.1
Traffic Access	53.7
Other Indices	—
Hardship	81.3
Other Decision Support	—
2016 Voting	15.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	86.0
Healthy Places Index Score for Project Location (b)	9.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	changed to match project description
Construction: Off-Road Equipment	changed to match project description

SART V2 Summary Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SART V2
Construction Start Date	1/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.60
Precipitation (days)	19.2
Location	33.893735917041894, -117.6096517975088
County	Riverside-South Coast
City	Corona
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5463
EDFZ	11
Electric Utility	City of Corona Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.20

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Road Construction	0.66	Mile	12.5	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.26	4.43	41.5	41.7	0.06	1.93	19.0	20.9	1.77	9.39	11.2	—	6,514	6,514	0.27	0.06	0.99	6,540
Mit.	5.26	4.43	41.5	41.7	0.06	1.93	7.54	9.46	1.77	3.70	5.47	—	6,514	6,514	0.27	0.06	0.99	6,540
% Reduced	—	—	—	—	—	—	60%	55%	—	61%	51%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.25	4.42	41.5	41.4	0.06	1.93	19.0	20.9	1.77	9.39	11.2	—	6,494	6,494	0.27	0.06	0.03	6,518
Mit.	5.25	4.42	41.5	41.4	0.06	1.93	7.54	9.46	1.77	3.70	5.47	—	6,494	6,494	0.27	0.06	0.03	6,518
% Reduced	—	—	—	—	—	—	60%	55%	—	61%	51%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	1.48	1.25	11.4	11.8	0.02	0.54	4.75	5.29	0.49	2.35	2.84	—	1,844	1,844	0.08	0.02	0.15	1,852
Mit.	1.48	1.25	11.4	11.8	0.02	0.54	1.90	2.44	0.49	0.93	1.42	—	1,844	1,844	0.08	0.02	0.15	1,852
% Reduced	—	—	—	—	—	—	60%	54%	—	61%	50%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.27	0.23	2.09	2.16	< 0.005	0.10	0.87	0.97	0.09	0.43	0.52	—	305	305	0.01	< 0.005	0.03	307
Mit.	0.27	0.23	2.09	2.16	< 0.005	0.10	0.35	0.44	0.09	0.17	0.26	—	305	305	0.01	< 0.005	0.03	307
% Reduced	—	—	—	—	—	—	60%	54%	—	61%	50%	—	—	—	—	—	—	—

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	86.0
Healthy Places Index Score for Project Location (b)	9.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

SART V2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SART V2
Construction Start Date	1/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.60
Precipitation (days)	19.2
Location	33.893735917041894, -117.6096517975088
County	Riverside-South Coast
City	Corona
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5463
EDFZ	11
Electric Utility	City of Corona Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.20

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Road Construction	0.66	Mile	12.5	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.26	4.43	41.5	41.7	0.06	1.93	19.0	20.9	1.77	9.39	11.2	—	6,514	6,514	0.27	0.06	0.99	6,540
Mit.	5.26	4.43	41.5	41.7	0.06	1.93	7.54	9.46	1.77	3.70	5.47	—	6,514	6,514	0.27	0.06	0.99	6,540
% Reduced	—	—	—	—	—	—	60%	55%	—	61%	51%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.25	4.42	41.5	41.4	0.06	1.93	19.0	20.9	1.77	9.39	11.2	—	6,494	6,494	0.27	0.06	0.03	6,518
Mit.	5.25	4.42	41.5	41.4	0.06	1.93	7.54	9.46	1.77	3.70	5.47	—	6,494	6,494	0.27	0.06	0.03	6,518
% Reduced	—	—	—	—	—	—	60%	55%	—	61%	51%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	1.48	1.25	11.4	11.8	0.02	0.54	4.75	5.29	0.49	2.35	2.84	—	1,844	1,844	0.08	0.02	0.15	1,852
Mit.	1.48	1.25	11.4	11.8	0.02	0.54	1.90	2.44	0.49	0.93	1.42	—	1,844	1,844	0.08	0.02	0.15	1,852
% Reduced	—	—	—	—	—	—	60%	54%	—	61%	50%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.27	0.23	2.09	2.16	< 0.005	0.10	0.87	0.97	0.09	0.43	0.52	—	305	305	0.01	< 0.005	0.03	307
Mit.	0.27	0.23	2.09	2.16	< 0.005	0.10	0.35	0.44	0.09	0.17	0.26	—	305	305	0.01	< 0.005	0.03	307
% Reduced	—	—	—	—	—	—	60%	54%	—	61%	50%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	5.26	4.43	41.5	41.7	0.06	1.93	19.0	20.9	1.77	9.39	11.2	—	6,514	6,514	0.27	0.06	0.99	6,540
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	5.25	4.42	41.5	41.4	0.06	1.93	19.0	20.9	1.77	9.39	11.2	—	6,494	6,494	0.27	0.06	0.03	6,518
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.48	1.25	11.4	11.8	0.02	0.54	4.75	5.29	0.49	2.35	2.84	—	1,844	1,844	0.08	0.02	0.15	1,852
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.27	0.23	2.09	2.16	< 0.005	0.10	0.87	0.97	0.09	0.43	0.52	—	305	305	0.01	< 0.005	0.03	307

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	5.26	4.43	41.5	41.7	0.06	1.93	7.54	9.46	1.77	3.70	5.47	—	6,514	6,514	0.27	0.06	0.99	6,540
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	5.25	4.42	41.5	41.4	0.06	1.93	7.54	9.46	1.77	3.70	5.47	—	6,494	6,494	0.27	0.06	0.03	6,518
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.48	1.25	11.4	11.8	0.02	0.54	1.90	2.44	0.49	0.93	1.42	—	1,844	1,844	0.08	0.02	0.15	1,852
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.27	0.23	2.09	2.16	< 0.005	0.10	0.35	0.44	0.09	0.17	0.26	—	305	305	0.01	< 0.005	0.03	307

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.13	4.31	41.4	40.2	0.06	1.93	—	1.93	1.77	—	1.77	—	6,264	6,264	0.25	0.05	—	6,285
Dust From Material Movement	—	—	—	—	—	—	18.7	18.7	—	9.34	9.34	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.13	4.31	41.4	40.2	0.06	1.93	—	1.93	1.77	—	1.77	—	6,264	6,264	0.25	0.05	—	6,285
Dust From Material Movement	—	—	—	—	—	—	18.7	18.7	—	9.34	9.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	10.3	10.0	0.01	0.48	—	0.48	0.44	—	0.44	—	1,562	1,562	0.06	0.01	—	1,567
Dust From Material Movement	—	—	—	—	—	—	4.67	4.67	—	2.33	2.33	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.20	1.88	1.83	< 0.005	0.09	—	0.09	0.08	—	0.08	—	259	259	0.01	< 0.005	—	259
Dust From Material Movement	—	—	—	—	—	—	0.85	0.85	—	0.42	0.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.09	1.51	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	250	250	0.01	0.01	0.99	254
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.17	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	230	230	0.01	0.01	0.03	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.31	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.0	58.0	< 0.005	< 0.005	0.11	58.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.60	9.60	< 0.005	< 0.005	0.02	9.75
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Linear, Grubbing & Land Clearing (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	5.13	4.31	41.4	40.2	0.06	1.93	—	1.93	1.77	—	1.77	—	6,264	6,264	0.25	0.05	—	6,285
Dust From Material Movement	—	—	—	—	—	—	7.31	7.31	—	3.64	3.64	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.13	4.31	41.4	40.2	0.06	1.93	—	1.93	1.77	—	1.77	—	6,264	6,264	0.25	0.05	—	6,285
Dust From Material Movement	—	—	—	—	—	—	7.31	7.31	—	3.64	3.64	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	10.3	10.0	0.01	0.48	—	0.48	0.44	—	0.44	—	1,562	1,562	0.06	0.01	—	1,567
Dust From Material Movement	—	—	—	—	—	—	1.82	1.82	—	0.91	0.91	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.20	1.88	1.83	< 0.005	0.09	—	0.09	0.08	—	0.08	—	259	259	0.01	< 0.005	—	259
Dust From Material Movement	—	—	—	—	—	—	0.33	0.33	—	0.17	0.17	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.09	1.51	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	250	250	0.01	0.01	0.99	254
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.17	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	230	230	0.01	0.01	0.03	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.31	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.0	58.0	< 0.005	< 0.005	0.11	58.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.60	9.60	< 0.005	< 0.005	0.02	9.75
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Linear, Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.13	7.55	0.01	0.31	—	0.31	0.28	—	0.28	—	1,122	1,122	0.05	0.01	—	1,126
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.09	1.35	< 0.005	0.05	—	0.05	0.05	—	0.05	—	200	200	0.01	< 0.005	—	200
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.20	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.1	33.1	< 0.005	< 0.005	—	33.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.90	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	150	150	0.01	0.01	0.59	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	0.05	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.11	4.11	< 0.005	< 0.005	0.01	4.18
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Linear, Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.13	7.55	0.01	0.31	—	0.31	0.28	—	0.28	—	1,122	1,122	0.05	0.01	—	1,126
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.09	1.35	< 0.005	0.05	—	0.05	0.05	—	0.05	—	200	200	0.01	< 0.005	—	200
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.20	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.1	33.1	< 0.005	< 0.005	—	33.2

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.90	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	150	150	0.01	0.01	0.59	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	0.05	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.11	4.11	< 0.005	< 0.005	0.01	4.18
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	1/1/2024	4/15/2024	6.00	91.0	—
Linear, Paving	Linear, Paving	4/16/2024	6/30/2024	6.00	65.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Rubber Tired Loaders	Diesel	Average	2.00	11.0	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	2.00	11.0	36.0	0.38

Linear, Grubbing & Land Clearing	Graders	Electric	Average	1.00	11.0	6.00	0.82
Linear, Grubbing & Land Clearing	Tractors/Loaders/Backhoes	Diesel	Average	1.00	11.0	84.0	0.37
Linear, Grubbing & Land Clearing	Rubber Tired Dozers	Diesel	Average	2.00	11.0	367	0.40
Linear, Grubbing & Land Clearing	Skid Steer Loaders	Diesel	Average	1.00	11.0	71.0	0.37
Linear, Grubbing & Land Clearing	Tractors/Loaders/Backhoes	Diesel	Average	1.00	11.0	84.0	0.37
Linear, Paving	Pavers	Diesel	Average	1.00	11.0	81.0	0.42
Linear, Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Linear, Paving	Rollers	Diesel	Average	2.00	11.0	36.0	0.38
Linear, Paving	Plate Compactors	Electric	Average	2.00	11.0	6.00	0.82

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Rubber Tired Loaders	Diesel	Average	2.00	11.0	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	2.00	11.0	36.0	0.38
Linear, Grubbing & Land Clearing	Graders	Electric	Average	1.00	11.0	6.00	0.82
Linear, Grubbing & Land Clearing	Tractors/Loaders/Backhoes	Diesel	Average	1.00	11.0	84.0	0.37
Linear, Grubbing & Land Clearing	Rubber Tired Dozers	Diesel	Average	2.00	11.0	367	0.40
Linear, Grubbing & Land Clearing	Skid Steer Loaders	Diesel	Average	1.00	11.0	71.0	0.37
Linear, Grubbing & Land Clearing	Tractors/Loaders/Backhoes	Diesel	Average	1.00	11.0	84.0	0.37
Linear, Paving	Pavers	Diesel	Average	1.00	11.0	81.0	0.42

Linear, Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Linear, Paving	Rollers	Diesel	Average	2.00	11.0	36.0	0.38
Linear, Paving	Plate Compactors	Electric	Average	2.00	11.0	6.00	0.82

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	25.0	12.8	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	8.33	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	15.0	12.8	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	8.33	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	25.0	12.8	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	8.33	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—

Linear, Paving	Worker	15.0	12.8	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	8.33	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	—	—	12.5	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Construction	12.5	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	121	453	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	16.3	annual days of extreme heat
Extreme Precipitation	3.50	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	17.3	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	75.4
AQ-PM	91.6
AQ-DPM	93.5
Drinking Water	73.7
Lead Risk Housing	94.9
Pesticides	0.00
Toxic Releases	66.5
Traffic	98.2
Effect Indicators	—
CleanUp Sites	78.6
Groundwater	16.8
Haz Waste Facilities/Generators	89.2
Impaired Water Bodies	12.5
Solid Waste	0.00
Sensitive Population	—
Asthma	28.8
Cardio-vascular	70.7
Low Birth Weights	61.9
Socioeconomic Factor Indicators	—
Education	63.9
Housing	73.0

Linguistic	55.6
Poverty	82.7
Unemployment	69.1

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	5.286795842
Employed	33.54292314
Median HI	19.40202746
Education	—
Bachelor's or higher	27.07558065
High school enrollment	100
Preschool enrollment	6.493006544
Transportation	—
Auto Access	64.27563198
Active commuting	21.48081612
Social	—
2-parent households	38.65007058
Voting	3.734120364
Neighborhood	—
Alcohol availability	14.70550494
Park access	51.52059541
Retail density	54.11266521
Supermarket access	36.86641858
Tree canopy	15.10329783

Housing	—
Homeownership	29.61632234
Housing habitability	32.13139997
Low-inc homeowner severe housing cost burden	53.83036058
Low-inc renter severe housing cost burden	30.14243552
Uncrowded housing	17.64403952
Health Outcomes	—
Insured adults	4.452713974
Arthritis	54.3
Asthma ER Admissions	81.7
High Blood Pressure	36.7
Cancer (excluding skin)	85.3
Asthma	25.7
Coronary Heart Disease	37.1
Chronic Obstructive Pulmonary Disease	37.6
Diagnosed Diabetes	21.5
Life Expectancy at Birth	2.6
Cognitively Disabled	38.1
Physically Disabled	74.5
Heart Attack ER Admissions	44.3
Mental Health Not Good	17.1
Chronic Kidney Disease	14.8
Obesity	7.3
Pedestrian Injuries	75.8
Physical Health Not Good	16.1
Stroke	34.3
Health Risk Behaviors	—

Binge Drinking	60.3
Current Smoker	20.8
No Leisure Time for Physical Activity	11.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	3.0
Elderly	53.8
English Speaking	24.8
Foreign-born	81.9
Outdoor Workers	33.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	47.1
Traffic Density	94.1
Traffic Access	53.7
Other Indices	—
Hardship	81.3
Other Decision Support	—
2016 Voting	15.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	86.0
Healthy Places Index Score for Project Location (b)	9.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	changed to match project description
Construction: Off-Road Equipment	changed to match project description

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APPENDIX C
Biological Resources Technical Report

Biological Resources Technical Report

Santa Ana River Trail Phases 2, 2A, and 3A

July 4, 2022

Prepared for:

Riverside County Regional Park & Open-Space District
4600 Crestmore Road
Jurupa Valley, California 92509

Prepared by:

Stantec Consulting Services Inc.
735 East Carnegie Drive Suite 280
San Bernardino CA 92408-3588

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Prepared by Hannah Hart
(signature)
Hannah Hart, Project Biologist

Reviewed by Melissa Tu
(signature)
Melissa Tu, Senior Biologist

Reviewed by Geoff Hoetker
(signature)
Geoff Hoetker, Senior Biologist

Prepared and Approved by
(signature)
Jared Varonin, Principal Biologist/Ecosystems Practice Leader

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Abbreviations

ADA	Americans with Disabilities Act
BGEPA	Bald and Golden Eagle Protection Act
BRTR	Biological Resources Technical Report
BSA	Biological Study Area
Caltrans	California Department of Transportation
CCH	Consortium of California Herbaria
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	Riverside County
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DCH	Designated Critical Habitat
FESA	Federal Endangered Species Act
FGC	Fish and Game Code
FR	Federal Register
General Plan	Riverside County General Plan
GPS	Global Positioning System
iPaC	Information for Planning and Consultation
LSAA	Lake or Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MCVII	Manual of California Vegetation, 2nd Edition
MSHCP	Multi Species Habitat Conservation Plan
NEPA	National Environmental Policy Act
NCCP	Natural Community Conservation Plan
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act
OHWM	ordinary high-water mark
Project	Santa Ana River Trail
RHA	River and Harbors Act
RWQCB	Regional Water Quality Control Board
SR-	State Route
SSC	Species of Special Concern
Stantec	Stantec Consulting Services Inc.
SWRCB	State Water Resources Control Board
U.S.	United States

USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey
WOTUS	Waters of the United States
WRC	Western Riverside County
WRCMSHCP	Western Riverside County Multi-Species Habitat Conservation Plan

1.0 INTRODUCTION

This Biological Resources Technical Report (BRTR) is intended to document the biological resources that are associated with the proposed Santa Ana River Trail Phases 2, 2A, and 3A Project (Project) located in unincorporated Riverside County, California (refer to Appendix A Figures 1 and 2). The surveys conducted and discussions presented within this BRTR are intended to support planning and regulatory agency permitting and associated documentation.

Surveys were conducted in 2021 by Stantec Consulting Services Inc. (Stantec) and Leatherman BioConsulting (Leatherman Bio) biologists within accessible portions of the proposed Project site in addition to a surrounding 300-foot buffer zone. This approximately 362-acre area is defined as the Biological Study Area (BSA) (refer to Appendix A Figure 3). The BRTR describes the existing environmental conditions that occur within the BSA and surrounding areas and evaluates the potential for biological resources to occur based on those conditions with an emphasis on special-status plant and wildlife species, wildlife corridors, and special-status/sensitive natural communities.

1.1 PROJECT LOCATION

The proposed Project is located within the Prado Dam Flood Control Basin area of the Santa Ana River in unincorporated Riverside County, California, within the United States (U.S.) Geological Survey (USGS) Riverside West 7.5-minute topographic quadrangle. The Prado Dam Flood Control Basin area is located within Riverside County, approximately 26 miles east of the Pacific Ocean and 35 miles southeast of downtown Los Angeles. The proposed Project site is located within the northwestern portion of Riverside County (County) at the juncture of the administrative boundaries of Riverside, San Bernardino, and Orange counties and south and southeast of the City of Corona's jurisdictional boundaries (Appendix A Figure 1 Regional Location).

The east and west improvement limits of the proposed Project extend from approximately Rincon Street to the east to Auto Center Drive to the west and are shown in Appendix A Figure 2, Site Plan. As shown in Figure 2, the proposed Project intersects with the following roadways, including Rincon Street, Butterfield Drive, and Auto Center Drive. The proposed Project limits are the Prado Dam Flood Control Basin area to the north, State Route (SR-) 91 to the south, West Rincon Street to the east, and State Route (SR)-71 to the west. Access to the proposed Project site is via regional freeways (SR-91 and SR-71) and local roads (West Rincon Street, Butterfield Drive, Auto Center Drive, and Corydon Street).

The proposed Project occurs within an approximately 46-acre area. In general, the proposed Project site is characterized as open space. Land uses to the north are comprised of natural lands, open space, and residential, while uses to the south include residential, light industrial, and the freeway (SR-91). To the east, land uses include light industrial and natural lands, while to the west, uses include natural lands and SR-91. The Santa Ana River Trail is also located within the Temescal Canyon Area Plan, Santa Ana River Policy Area, Western Riverside County (WRC) Multi-Species Habitat Conservation Plan (MSHCP) Areas, and Public/Quasi Public Lands.

1.2 PROJECT DESCRIPTION

The proposed Project consists of trail construction that would complete a portion of the larger 110-mile regional Santa Ana River Trail system. Specifically, the proposed Project includes a 2.79-mile dual-track Class I multi-use path/natural surface trail that would be constructed within the Prado Dam Flood Control Basin. The Project includes the construction of three new trail segments, Phase 2 will be 0.65-mile long, Phase 2A will be 1.37-mile long, and Phase 3A will be 0.77-mile long. The three trail segments are shown in Appendix A Figures 2-1 to 2-4.

Once constructed, the trail would be Americans with Disabilities Act (ADA) compliant and follow the California Department of Transportation (Caltrans) Highway Design Manual guidance for bicycle paths.

The following construction is proposed:

- Class I bicycle path with adjacent pedestrian and equestrian path separated by a split rail fence with a general design, as follows:
    - Eight-to-ten-foot-wide bicycle path travel way with two-foot shoulders
    - Ten-foot wide decomposed granite trail (pedestrian and equestrian path)
    - Five percent max longitudinal slope
    - Two percent max crossfall path and shoulder slopes
    - Minimum 2 to 1 foot slope ratio for cut / fill slopes
- Signage and striping along the trail
- Implementation of drainage improvements
- Application of native hydroseed mix along slope areas of the new trail phases

At constrained locations such as bridge crossings, the Class I multi-use path and natural surface trail would merge into a combined paved trail and be shared by all users. The combined paved trail would accommodate bicyclists, equestrians, hikers, and pedestrians and would be approximately 11 feet wide on the bridges and at the Temescal Wash crossing would be 20 feet wide. A combined paved trail will also be required for a portion of the trail along West Rincon Street and Corydon Street within Phase 2 due to right-of-way constraints and existing Southern California Edison overhead powerlines.

1.2.1 Drainage Crossings

To protect the trail as it crosses drainages, riprap would be installed along the alignment (Appendix A Figure 2). Table 1: Preliminary Riprap Quantities shows the estimated square feet of riprap in each trail phase.

Table 1. Preliminary Riprap Quantities

Phase	Riprap Location	Riprap Quantity (square feet)
3A	1	28,134
	2	1,418
2A (west)	3	5,577
2A (east)	4	805
	5	801
	6	803
	7	842
2	8	21,378
	Total	**59,758**

Source: Stantec 2022

In Phase 2, a box culvert extending across Temescal Wash is proposed. Clear-span bridges ranging in length from approximately 100-feet to 180-feet would be used to cross two un-named drainages located in Phase 2A.

1.2.2 Trail Access

Trail access to each of the Phases would be achieved as follows:

- Phase 2: Stagecoach Road/Corydon Street (Stagecoach Park area) and West Rincon Street/Smith Avenue (Corona Airport area)
- Phase 2A: Auto Center Drive (western portion of trail) and Butterfield Drive (eastern portion of trail)
- Phase 3A: Auto Center Drive/Railroad Street (United States Army Corps of Engineers [USACE] office)

2.0 METHODS

This biological resources assessment of the BSA included but was not limited to a literature review, reconnaissance-level surveys, a habitat assessment, vegetation mapping, rare plant surveys, focused surveys for burrowing owl (*Athene cunicularia*); and protocol surveys for southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*) (vireo), and western yellow-billed cuckoo (*Coccyzus americanus*). Prior to the survey, a preliminary literature review of readily available resources was performed. The surveys were conducted on foot throughout the BSA.

2.1 LITERATURE REVIEW

A focused literature search of the BSA was conducted prior to the field survey. The BSA is located within the USGS Corona North, California, 7.5-minute topographic quadrangle. A search of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) was conducted for the BSA and a surrounding ten-mile buffer area to determine special-status plants, wildlife, and vegetation communities that have been documented within this area (CDFW 2021a). The database included portions of the following quadrangles surrounding the BSA:

- Guasti
- Fontana
- Black Star Canyon
- Ontario
- Prado Dam
- Lake Mathews
- Corona South
- Riverside West

Additional data regarding the potential occurrence of special-status species and policies relating to these special-status natural resources were gathered from the following sources:

- State and Federally Listed Endangered and Threatened Animals of California (CDFW 2021b)
- Special Animals List (CDFW 2021c)
- State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW 2021d)
- California's Wildlife – Life History and Range (CDFW 2021e)
- California Sensitive Natural Communities (CDFW 2021f)
- United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (iPaC) (USFWS 2021)
- Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society [CNPS] 2021)
- Consortium of California Herbaria (CCH) (CCH 2021)
- WRCMSHCP (2015)

2.2 BIOLOGICAL SURVEYS AND HABITAT ASSESSMENT

The methods for the general and focused wildlife surveys, rare plant surveys, and vegetation mapping are described in the following sections.

2.2.1 Site Reconnaissance and Wildlife Surveys

Stantec initially conducted a habitat assessment and reconnaissance-level survey to document the environmental conditions present within the BSA, this assessment did not include focused, protocol-level surveys for rare plants or wildlife or other special-status resources. The primary goal of the initial survey was to identify and assess habitat that may be capable of supporting special-status plant or wildlife species and determine the potential need for additional focused surveys for special-status resources. Biologists recorded all incidental plant and wildlife observations.

The survey was conducted during a season and time of day when resident and migratory birds would be expected to be present and exhibiting normal activity, small mammals would be active and detectable visually or by sign, and above-ground amphibian and reptile movement would generally be detectable. However, it should be noted that some wildlife species and individuals may have been difficult to detect due to their elusive nature, cryptic morphology, or nocturnal behavior. The survey was conducted during daylight hours when temperatures were such that reptiles and other wildlife would be active (i.e., between 65-95 degrees Fahrenheit). The site reconnaissance survey was conducted on May 6, 2021. Additional focused surveys were conducted and described in the following sections.

The BSA was investigated on foot (where accessible) by experienced field biologists walking throughout publicly accessible areas at an average pace of approximately 1.5 kilometers per hour while visually scanning for wildlife and their sign and listening to wildlife songs and calls. Biologists paused as necessary to listen for wildlife or to identify, record, or enumerate any observed species. Species present were identified and recorded through direct visual observation, sound, or their sign (e.g., scat, tracks, etc.). Species identifications conform to the most up-to-date online databases and technical literature.

In addition to the general reconnaissance wildlife survey, protocol bird surveys and rare plant surveys were conducted and are described in the following sections.

2.2.1.1 Burrowing Owl Surveys

A habitat assessment and focused burrowing owl surveys were conducted by Stantec Senior Biologist Melissa Tu and Principal Biologist Jared Varonin following the WRCMSHCP Burrowing Owl Survey Instructions (RCA 2006). On May 6, 2021, biologists from Stantec conducted the burrowing owl habitat assessment and the first focused burrow survey. The other three burrow surveys were conducted on June 30, August 12, and September 3, 2021.

Qualified biologists walked through suitable habitat within the Survey Area to identify burrows or other potential signs of burrowing owl, per the WRCMSCHP Burrowing Owl Survey Instructions. During the burrowing owl habitat assessment, the entire Survey Area was surveyed on foot. Unsuitable habitat was documented and was not surveyed during the focused burrow surveys.

For the focused burrowing owl surveys, only suitable burrowing owl habitat including open grassland and other open habitat was surveyed. Suitable habitat included large California ground squirrels (*Otospermophilus beecheyi*) burrows .

2.2.1.2 Riparian Bird Surveys

Protocol surveys were conducted for southwestern willow flycatcher (flycatcher), least Bell's vireo (vireo), and western yellow-billed cuckoo by Brian Leatherman (USFWS permit No. TE827493-9) of Leatherman Bio. Survey methods followed the guidelines endorsed by the USFWS for each species as described below. In general, surveys were conducted in riparian habitat by walking slowly and methodically within and along the margins of all suitable riparian habitat for each species. The focus of the surveys was on the detection and identification of the target species. Nest surveys were not conducted.

The presence/absence surveys for the vireo followed the 2001 survey guidelines developed by the USFWS, which requires that eight surveys be conducted 10 days apart between April 10 and July 31 (USFWS 2001).

The surveys for the flycatcher followed the 2010 protocol. Five surveys at least five days apart were conducted between May 15 and July 17 from dawn to 1030 under suitable weather conditions (Sogge et al 2010). Recorded vocalizations were played as described in the survey protocol in an attempt to elicit a response from individuals potentially present. The recording was played for roughly 15 seconds, stopped for one or two minutes to listen for a response, and then played again. The surveys for the cuckoo followed the protocol developed by Halterman et al. (2015). The protocol requires that four surveys be conducted within three certain periods between June 15 and August 15. Halterman et al. (2015) recommend that surveys be conducted from 12 to 15 days apart between dawn and 1100 under suitable weather conditions. Recorded vocalizations were played as described in the survey protocol in an attempt to elicit a response from individuals potentially present. The prescribed 6-minute broadcast with five vocalizations spaced one minute apart was played every 100 meters (328 feet).

2.2.2 Floristic Surveys

Floristic surveys for rare plant species were performed according to the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018) and *California Native Plant Society Botanical Survey Guidelines* (CNPS 2001). Two surveys were conducted on May 6 and June 30, 2021, by Stantec biologists. Jared Varonin, Melissa Tu, and Ashleigh Townsend conducted the survey on May 6, and Jared Varonin conducted the survey on June 30. The surveys were conducted during the documented blooming periods of most of the vascular rare plant known to occur within 10 miles of BSA. The species that bloom later in the year are shrubs that can be identified any time of year.

2.2.3 Vegetation Mapping

Vegetation descriptions and nomenclature are based on the second edition of *A Manual of California Vegetation* (MCVII) (Sawyer et al. 2009), where applicable, and have been defined to the alliance level. Vegetation maps were prepared by recording tentative vegetation type boundaries over recent aerial photograph base maps using the ESRI Collector for ArcGIS app on an Apple iPad coupled with a Bad Elf GNSS Surveyor sub-meter external global positioning system (GPS) unit. Mapping was further refined in the office using ESRI ArcGIS (version 10.7) with aerial photograph base maps with an accuracy of one foot. Most boundaries shown on the maps are accurate within approximately three feet; however, boundaries between some vegetation types are less precise due to difficulties in interpreting aerial imagery and accessing stands of vegetation.

To support the vegetation mapping presented in this BRTR, Stantec conducted a reconnaissance-level field survey. Stantec used this data in conjunction with vegetation mapping data collected/provided by the MSHCP from 2012 (WRCMSHCP 2015) to produce a vegetation community and land cover map for the BSA (refer to Appendix A Figure 3).

Vegetation communities can overlap in many characteristics and over time may shift from one community type to another. All vegetation maps and descriptions are subject to variability for the following reasons:

- In some cases, vegetation boundaries result from distinct events, such as wildfire or flooding, but vegetation types usually tend to intergrade on the landscape, without precise boundaries between them. Even distinct boundaries caused by fire or flood can be disguised after years of post-disturbance succession. Mapped boundaries represent best professional judgment, but usually should not be interpreted as literal delineations between sharply defined vegetation types.
- Natural vegetation tends to exist in generally recognizable types, but also may vary over time and geographic region. Written descriptions cannot reflect all local or regional variation. Many (perhaps most) stands of natural vegetation do not strictly fit into any named type. Therefore, a mapped unit is given the best name available in the classification system being used, but this name does not imply that the vegetation unambiguously matches written descriptions.
- Vegetation tends to be patchy. Small patches of one named type are often included within larger stands mapped as units of another type.

3.0 REGULATORY ENVIRONMENT

3.1 FEDERAL REGULATIONS

3.1.1 Federal Endangered Species Act

Federal Endangered Species Act (FESA) provisions protect federally listed threatened and endangered species and their habitats from unlawful "take" and ensure that federal actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of Designated Critical Habitat (DCH). Under FESA, take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The USFWS regulations define harm to mean "an act which actually kills or injures wildlife." Such an act "may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 Code of Federal Regulations [CFR] Section 17.3).

DCH is defined in FESA Section 3(5)(A) as "(i) the specific areas within the geographical area occupied by the species on which are found those physical or biological features: (I) essential to the conservation of the species; (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species upon a determination by the Secretary of Commerce or the Secretary of the Interior that such areas are essential for the conservation of the species." The effects analyses for DCH must consider the role of the critical habitat in both the continued survival and the eventual recovery (i.e., the conservation) of the species in question, consistent with the recent Ninth Circuit judicial opinion, Gifford Pinchot Task Force v. USFWS.

Activities that may result in "take" of individuals are regulated by USFWS. USFWS produced an updated list of candidate species December 6, 2007 (72 Federal Register [FR] 69034). Candidate species are not afforded any legal protection under FESA; however, candidate species typically receive special attention from federal and state agencies during the environmental review process.

3.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code [USC] 703-711) makes it unlawful to possess, buy, sell, purchase, barter or take any migratory bird listed in Title 50 of CFR Part 10. "Take" is defined as possession or destruction of migratory birds, their nests, and eggs. Disturbances that cause nest abandonment or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the MBTA. The MBTA prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. The MBTA encompasses whole birds, parts of birds, bird nests, and eggs.

3.1.3 Bald and Golden Eagle Protection Act of 1940 (16 USC 668)

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 USC 668, enacted by 54 Stat. 250) protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this Act. Take of bald and golden eagles is defined as follows: "disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior'' (72 FR 31132; 50 CFR 22.3).

USFWS is the primary federal authority charged with the management of golden eagles in the U.S. A permit for take of golden eagles, including take from disturbance such as loss of foraging habitat, may be required for this Project. USFWS guidance on the applicability of current BGEPA statutes and mitigation is currently under review. On November 10, 2009, the USFWS implemented new rules (74 FR 46835) governing the take of golden and bald eagles. The new rules were released under the existing BGEPA, which has been the primary regulatory protection for unlisted eagle populations since 1940.

All activities that may disturb or incidentally take an eagle or its nest as a result of an otherwise legal activity must be permitted by the USFWS under this act. The definition of disturb (72 FR 31132) includes interfering with normal breeding, feeding, or sheltering behavior to the degree that it causes or is likely to cause decreased productivity or nest abandonment. If a permit is required, due to the current uncertainty on the status of golden eagle populations in the western U.S., it is expected that permits would only be issued for safety emergencies or if conservation measures implemented in accordance with a permit would result in a reduction of ongoing take or a net take of zero.

3.1.4 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act, as amended in 1964, requires that all federal agencies consult with National Marine Fisheries Service (NMFS), USFWS, and state wildlife agencies (i.e., CDFW) when proposed actions might result in modification of a natural stream or body of water. Federal agencies must consider effects that these projects would have on fish and wildlife development and provide for improvement of these resources. The Fish and Wildlife Coordination Act allows NMFS, USFWS, and CDFW to provide comments to USACE during review of projects under Section 404 of the Clean Water Act (concerning the discharge of dredged materials into navigable waters of the U.S. [WOTUS]) and Section 10 of the Rivers and Harbors Act (RHA) regarding obstructions in navigable waterways. NMFS comments provided under the Fish and Wildlife Coordination Act are intended to reduce environmental impacts to migratory, estuarine, and marine fisheries and their habitats. Since the proposed Project involves impacts to WOTUS, the USACE will be the lead federal agency and will initiate consultation with the USFWS and CDFW per the requirements of this act.

3.1.5 Federally Regulated Habitats

Areas that meet the regulatory definition of "WOTUS" are subject to the jurisdiction of the USACE under provisions of Section 404 of the Clean Water Act (CWA) (1972) and Section 10 of the River and Harbors Act (RHA) (1899). WOTUS may include all waters used or potentially used for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (e.g., intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as WOTUS, tributaries of waters otherwise defined as WOTUS, territorial seas, and wetlands (i.e., "Special Aquatic Sites") adjacent to WOTUS (33 CFR Part 328, Section 328.3). The proposed Project area is within the South Pacific Division of the USACE and is under the jurisdiction of the Los Angeles District.

Construction activities within WOTUS are regulated by USACE. The placement of fill into such waters must comply with permit requirements of USACE. No USACE permit would be effective in the absence of State Water Quality Certification pursuant to Section 401 of the CWA. As a part of the permit process, the USACE works directly with the USFWS to assess potential project impacts on biological resources. The jurisdictional extent of USACE regulation changed with the 2001 Solid Waste Agency of Northern Cook County ruling. The U.S. Supreme Court held that the USACE could not apply Section 404 of the CWA to extend their jurisdiction over an isolated quarry pit. The Court ruled that the CWA does not extend Federal regulatory jurisdiction over non-navigable, isolated, intra-state waters. However, the Court made it clear that non-navigable wetlands adjacent to navigable waters are still subject to USACE jurisdiction.

The U.S. Environmental Protection Agency and USACE announced on October 21, 2021, that they will cease implementation of the Navigable Water Protection Rule and are instead interpreting WOTUS consistent with pre-2015 regulatory regime (i.e., the 2015 Clean Water Rule). This proposed rule was published on December 7, 2021 (86 FR 232).

3.1.6 National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969 requires all federal agencies to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA into other planning requirements and prepare appropriate NEPA documents to facilitate better environmental decision-making. NEPA requires Federal agencies to review and comment on Federal agency environmental plans and documents when the agency has jurisdiction by law or special expertise with respect to any environmental impacts involved (42 USC 4321- 4327; 40 CFR 1500-1508). These guidelines establish an overall federal process for the environmental evaluation of projects.

3.1.7 Rivers and Harbors Act of 1899

3.1.7.1 Section 14

Section 14 of the RHA (1899 and codified in 33 USC 408) is required if a project would modify, alter, and/or occupy an existing USACE-constructed public works project (e.g., a levee). For the USACE Lead District to approve any proposed alterations requests, the alterations must meet USACE standards, and must not be injurious to the public interest or affect the USACE project's ability to meet its authorized purpose.

3.1.7.2 Section 10

Section 10 of the RHA (33 USC Section 403) requires authorization from the USACE for work or structures in or affecting navigable WOTUS.

The term "navigable WOTUS" generally includes those waters that are subject to the ebb and flow of the tide or are presently used, have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events that impede or destroy navigable capacity (33 CFR Section 329.4).

The term "structure" includes, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other obstacle or obstruction (33 CFR Section 322.2).

The term "work" includes, without limitation, any dredging or disposal of dredged material, excavation, filling, or other modification of a navigable WOTUS (33 CFR Section 322.2).

The geographic and jurisdictional limits of the USACE's Section 10 jurisdiction in rivers and lakes:

> *(a) Jurisdiction over entire bed. Federal regulatory jurisdiction, and powers of improvement for navigation, extend laterally to the entire water surface and bed of a navigable waterbody, which includes all the land and waters below the ordinary high-water mark (OHWM). Jurisdiction thus extends to the edge (as determined above) of all such waterbodies, even though portions of the waterbody may be extremely shallow, or obstructed by shoals, vegetation or other barriers. Marshlands and similar areas are thus considered navigable in law, but only so far as the area is subject to inundation by the ordinary high waters.*
>
> *(1) The OHWM of non-tidal rivers is the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas.*

(2) Ownership of a river or lakebed or of the lands between high and low water marks will vary according to state law; however, private ownership of the underlying lands has no bearing on the existence or extent of the dominant Federal jurisdiction over a navigable waterbody.

(b) Upper limit of navigability. The character of a river will, at some point along its length, change from navigable to non-navigable. Very often that point will be at a major fall or rapids, or other place where there is a marked decrease in the navigable capacity of the river. The upper limit will therefore often be the same point traditionally recognized as the head of navigation, but may, under some of the tests described above, be at some point yet farther upstream.

The geographic and jurisdictional limits of Corps jurisdiction in oceanic and tidal WOTUS:

(a) Ocean and coastal waters. The navigable WOTUS over which Corps regulatory jurisdiction extends include all ocean and coastal waters within a zone three geographic (nautical) miles seaward from the baseline (The Territorial Seas). Wider zones are recognized for special regulatory powers exercised over the outer continental shelf. 33 C.F.R. § 322.3(b).

(1) Baseline defined. Generally, where the shore directly contacts the open sea, the line on the shore reached by the ordinary low tides comprises the baseline from which the distance of three geographic miles is measured. The baseline has significance for both domestic and international law and is subject to precise definitions. Special problems arise when offshore rocks, islands, or other bodies exist, and the baseline may have to be drawn seaward of such bodies.

(2) Shoreward limit of jurisdiction. Corps regulatory jurisdiction in coastal areas extends to the line on the shore reached by the plane of the mean (average) high water. Where precise determination of the actual location of the line becomes necessary, it must be established by survey with reference to the available tidal datum, preferably averaged over a period of 18.6 years. Less precise methods, such as observation of the "apparent shoreline" which is determined by reference to physical markings, lines of vegetation, or changes in type of vegetation, may be used only where an estimate is needed of the line reached by the mean high water.

(b) Bays and estuaries. Corps regulatory jurisdiction extends to the entire surface and bed of all waterbodies subject to tidal action. Jurisdiction thus extends to the edge (as determined by paragraph (a)(2) above) of all such waterbodies, even though portions of the waterbody may be extremely shallow, or obstructed by shoals, vegetation, or other barriers. Marshlands and similar areas are thus considered "navigable in law," but only so far as the area is subject to inundation by the mean high waters. The relevant test is therefore the presence of the mean high tidal waters, and not the general test described above, which generally applies to inland rivers and lakes.

Structures or work outside the limits defined above for navigable WOTUS require a Department of the Army permit pursuant to Section 10 of the RHA if the structure or work affects the course, location, or condition of the water body in such a manner as to impact on its navigable capacity (33 CFR Section 322.3).Section 14 of the RHA of 1899 (33 USC Section 408), commonly referred to as “Section 408,” authorizes the USACE to grant permission to alter, occupy, or use a USACE civil works project if the Secretary of Commerce determines that the activity would not be injurious to the public interest and would not impair the usefulness of the project.

3.2 STATE REGULATIONS

3.2.1 California Environmental Quality Act

The California Environmental Quality Act (CEQA) establishes state policy to prevent significant and avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. CEQA applies to actions directly undertaken, financed, or permitted by state lead agencies. Regulations for implementation are found in the CEQA Guidelines published by the California Natural Resources Agency. These guidelines establish an overall state of California process for the environmental evaluation of projects.

3.2.2 California Endangered Species Act

Provisions of the California Endangered Species Act protect state-listed threatened and endangered species. The CDFW regulates activities that may result in take of individuals (i.e., take is defined as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”). Habitat degradation or modification is not expressly included in the definition of take under the California Fish and Game Code (FGC). Additionally, the FGC contains lists of vertebrate species designated as “fully protected” (FGC Sections 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], and 5515 [fish]). Such species may not be taken or possessed.

In addition to federal and State-listed species, the CDFW also has produced a list of Species of Special Concern (SSC) to serve as a “watch list.” Species on this list are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. SSC may receive special attention during environmental review, but they do not have statutory protection.

Birds of prey are protected in California under the FGC. FGC Section 3503.5 states that it is “unlawful to ‘take’, possess, or destroy any birds of prey (in the order Falconiformes or Strigiformes) or to ‘take’, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto.” Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered take by the CDFW. Under Sections 3503 and 3503.5 of the FGC, activities that would result in the taking, possessing, or destroying of any birds-of-prey, taking or possessing of any migratory nongame bird as designated in the MBTA, or

the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or non-game birds protected by the MBTA, or the taking of any non-game bird pursuant to FGC Section 3800 are prohibited.

3.2.3 Section 1602 of the California Fish and Game Code

Section 1602 of the FGC requires any person, state or local governmental agency, or public utility which proposes a project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake, or use materials from a streambed, or result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake, to first notify the CDFW of the proposed project. Notification is generally required for any project that would take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. Based on the notification materials submitted, the CDFW would determine whether the proposed project may impact fish or wildlife resources.

If the CDFW determines that a proposed project may substantially adversely affect existing fish or wildlife resources, a Lake or Streambed Alteration Agreement (LSAA) would be required. A completed CEQA document must be submitted to CDFW before an LSAA would be issued. The Project area falls within the South Coast Region of the CDFW.

3.2.4 Porter-Cologne Water Quality Control Act

California Regional Water Quality Control Boards (RWQCBs) regulate the “discharge of waste” to “waters of the State”. All projects proposing to discharge waste that could affect waters of the State must file a Waste Discharge Report with the appropriate RWQCB. The board responds to the report by issuing Waste Discharge Requirements or by waiving them for that project discharge. Both terms “discharge of waste” and waters of the State are broadly defined such that discharges of waste include fill, any material resulting from human activity, or any other “discharge.” Isolated wetlands within California, which are no longer considered waters of the State, as defined by Section 404 of the CWA, are addressed under the Porter Cologne Water Quality Control Act. The proposed Project area is under the jurisdiction of the Region 8 – Santa Ana RWQCB.

3.2.5 State-Regulated Habitats

The State Water Resources Control Board (SWRCB) is the state agency (together with the RWQCBs) charged with implementing water quality certification in California.

The CDFW extends the definition of stream to include “intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams (USGS-defined), and watercourses with subsurface flows. Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered

streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife" (CDFW 1994).

Activities that result in the diversion or obstruction of the natural flow of a stream; that substantially change its bed, channel, or bank; or that use any materials (including vegetation) from the streambed may require that the project applicant enter into an LSAA with the CDFW.

3.2.6 Native Plant Protection Act

Under FGC Sections 1900 to 1913, the Native Plant Protection Act (NPPA) requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of NPPA prohibit the taking of listed plants from the wild and require notification of the 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. a Project applicant is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of the NPPA and sections of CEQA that apply to rare or endangered plants.

3.3 LOCAL REGULATIONS

3.3.1 Riverside County General Plan – Multipurpose Open Space Element

The Multipurpose Open Space Element of the Riverside County General Plan (General Plan) contains policies and programs that are designed to protect and conserve environmental resources in the County while encouraging economic development and growth and setting the direction for the framework of its transportation system. Resources covered under the Multipurpose Open Space Element consist of the protection and preservation of natural resources including following key resources: water, biological, forest, vegetation, agriculture and soils, open space- parks and recreation and regional aesthetics, cultural and paleontological, and renewable and non-renewable resources.

The Multipurpose Open Space Element discusses the enactment of policies to protect natural resources within the County for future generations as detailed in the following sections.

3.3.1.1 Water Resources

The General Plan establishes policies that prioritize water conservation by addressing the County's water supply issue through balancing consideration of water supply requirements between urban, agricultural, and environmental needs, promotion of the use of recycled water for landscape irrigation, minimization of pollutant discharge, retention of stormwater for groundwater percolation, development of a repository for the collection of county water resource information, discouragement of development within watercourses, and the provision of active leadership in the regional coordination of water resource management and sustainability efforts. The policies propose efforts to limit the modification of floodways and watercourses, and to preserve and enhance riparian, upland, and wetland habitats.

3.3.1.2 Multi Species Habitat Conservation Plans (MSHCP)

To address the issues of wildlife health and sustainability, the County has directed the development of two Multi-Species Habitat Conservation Plans (MSHCPs), the WRCMSHCP and the Coachella Valley Association of Governments' MSHCP. These MSHCPs are stakeholder driven, comprehensive, and multi-jurisdictional, and focus on the conservation of both species and associated habitats, in order to address biological and ecological diversity conservation needs and provide mitigation for the impacts of development in Riverside County. They seek to preserve natural resources that are sensitive, rare, threatened, endangered, and irreplaceable. They allow the County and other local jurisdictions the ability to manage local land use decisions and maintain economic development flexibility, while providing a coordinated reserve system and implementation program that will facilitate the preservation of biological diversity as well as maintain the region's quality of life. The General Plan aims to enforce the provisions of applicable MSHCPs and implement related County policies when conducting review of possible legislative actions such as general plan amendments, zoning ordinance amendments, etc. The WRCMSHCP is discussed in further detail below.

3.3.1.3 Vegetation

The General Plan prioritizes the management of native vegetation in order to maintain the ecological diversity of the County and prevent drastic changes in wildlife habitats, microclimates, water absorption and purification, soil erosion, fires, and aesthetic quality. It aims to do this through the update and expansion of vegetation mapping, and the preservation of oak tree resources, native trees, natural vegetation, and established tree stands for ecosystem, aesthetic, and water conservation purposes. The conservation of important traditional Native American plant gathering resource areas, and the encouragement of research and education of pollution on human health and natural vegetation are also key elements to this directive.

3.3.1.4 Open Space, Parks, and Recreation

Open space preservation can serve many purposes, including the preservation and enhancement of environmental resources for both ecological and recreational purposes, as well as the proper management of environmental hazards. The County includes Joshua Tree National Park and major state parks such as Anza-Borrego, the Salton Sea State Recreation Area, and Chino Hills State Park. The open space policies set to protect and preserve open space areas from urbanization, develop a comprehensive system consisting of passive open space areas, and maintain or develop parks and recreation areas that have recreational, ecological, and scenic value. A key element is also to identify and conserve the skylines, scenic corridors, and outstanding scenic vistas within the County to protect their aesthetic value and the quality of life of County residents.

3.3.2 Western Riverside County MSHCP/Natural Community Conservation Plan

The WRCMSHCP is a comprehensive, multi-jurisdictional plan that involves the assembly and management of a Conservation Area intended to preserve biological diversity, as well as maintain the

quality of life within WRC by conserving over 100 listed and unlisted plant and wildlife species and their associated habitats, and coordinating, streamlining, and planning Development. The WRCMSHCP establishes a framework for complying with State and federal endangered species regulations in addition to accommodating future growth within the Cities and unincorporated portions of WRC including both unincorporated and incorporated areas. The WRCMSCHP was approved in 2003 and the permits issued on June 22, 2004, by the USFWS and California Department of Fish and Game (CDFG) (since renamed California Department of Fish and Wildlife). The WRCMSHCP Planning Area encompasses approximately 1.26 million acres in WRC and the Plan calls for the conservation and management of approximately 500,000 acres within the Plan Area.

The goals and objectives relative to natural resources that apply to the proposed Project are as follows:

A. The WRCMSHCP Conservation Area contains approximately 500,000 acres comprised of the following:

    1. Conservation of existing publicly owned lands,
    2. Voluntary acquisition of privately held lands by the Cities, the County, or other Permittees,
    3. Voluntary acquisition of privately held lands by state and/or federal agencies, and
    4. Contributions from public and private development.

B. The overarching goal of the WRCMSHCP is to allow for maintenance of biological diversity and ecosystem processes while allowing future economic growth:

    1. In the Plan Area, conserve Covered Species and their habitats.
    2. Improve the future economic development in the County by providing an efficient, streamlined regulatory process through which development can proceed in an efficient way. The MSHCP and the General Plan provide the County with a clearly articulated blueprint describing where future development should and should not occur.
    3. Provide for permanent open space, community edges, and recreational opportunities, which contribute to maintaining the community character of WRC.

The Natural Community Conservation Plan (NCCP) General Process Guidelines and NCCP Act, incorporates general principles of conservation biology that are captured in the Conservation Area design tenets described therein. These Conservation Area design tenets, which are summarized below, provided a framework for the conservation planning process:

- Conserve focus species and their habitats throughout the Plan Area
- Conserve large habitat blocks
- Conserve habitat diversity
- Keep conservation areas contiguous and connected
- Protect conservation areas from encroachment and invasion by non-native species

The WRCMSHCP is prepared pursuant to the provisions of the FESA, as well as a NCCP under the California NCCP Act of 1991. The WRCMSHCP allows participating jurisdictions (Riverside County and

each of the 14 Cities in the western portion of the County) to "take" (permit the loss of) the plant and animal species identified in the WRCMSHCP through the agencies' local land use planning and development review processes.

The WRCMSHCP created a conservation system to protect and manage 153,000 acres of habitat (Additional Conservation Area Lands) for Covered Species, consisting of 97,000 acres conserved as the local mitigation component and 6,000 acres conserved as mitigation for State Permittee projects (Caltrans and State Parks).

The WRCMSHCP conservation areas consist of the following: continued conservation of lands already within public ownership; public acquisition of private lands from willing sellers; private actions to conserve habitat within proposed development projects; implementation of off-site mitigation for the impacts or proposed development projects; and public actions to conserve habitats or otherwise mitigate the direct habitat impacts of public work projects.

The WRCMSHCP allows the issuance of Take Authorizations t. Issuance of Take Authorization to the local jurisdictions allows WRCMSHCP participants to implement land use decisions consistent with the MSHCP without project-by-project review and permitting by the Wildlife Agencies. This local, streamlined approach to planning for endangered and sensitive species results in greater economic development certainty and provides for and maintains biological diversity by creating an interconnected WRCMSHCP Conservation Area. In addition to the preservation of species and associated habitats, the WRCMSHCP Conservation Area provides open space and recreational opportunities that enhance the quality of life in WRC.

3.3.3 California Native Plant Society Rare Plant Program

The mission of the CNPS Rare Plant Program is to develop current, accurate information on the distribution, ecology, and conservation status of California's rare and endangered plants and to use this information to promote science-based plant conservation in California. Once a species has been identified as being of potential conservation concern, it is put through an extensive review process. Once a species has gone through the review process, information on all aspects of the species (e.g., listing status, habitat, distribution, threats, etc.) is entered into the online CNPS Rare Plant Inventory and given a California Rare Plant Rank (CRPR). The Rare Plant Program currently recognizes more than 1,600 plant taxa (species, subspecies, and varieties) as rare or endangered in California (CNPS 2021).

Vascular plants listed as rare or endangered by the CNPS, but which might not have a designated status under state endangered species legislation, are defined by the following CRPRs:

- CRPR 1A: Plants considered by the CNPS to be extinct in California
- CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
- CRPR 2: Plants rare, threatened, or endangered in California, but more numerous elsewhere
- CRPR 3: Plants about which we need more information – a review list

- CRPR 4: Plants of limited distribution – a watch list

In addition to the CRPR designations above, the CNPS adds a Threat Rank as an extension added onto the CRPR and designates the level of endangerment by a 0.1 to 0.3 ranking, with 0.1 being the most endangered and 0.3 being the least endangered and are described as follows:

- 0.1: Seriously threatened in California (high degree/immediacy of threat)
- 0.2: Fairly threatened in California (moderate degree/immediacy of threat)
- 0.3: Not very threatened in California (low degree or immediacy of threats or no current threats known)

4.0 EXISTING CONDITIONS

4.1 SETTING

The BSA is located adjacent to the Santa Ana River, the Prado Basin, and the Corona Municipal Airport within the Jurupa Valley area of Riverside County. Elevations within the BSA range from approximately 500 to 600 feet above mean sea level from west to east. Photographs of the BSA are included in Appendix B Photographic Log.

4.2 VEGETATION COMMUNITIES AND LANDS COVER TYPES

As defined in MCVII (Sawyer et al. 2009), a vegetation alliance is “a category of vegetation classification which describes repeating patterns of plants across a landscape. Each alliance is defined by plant species composition and reflects the effects of local climate, soil, water, disturbance, and other environmental factors.” Generally, Stantec’s mapping and description of plant communities follows the classification system described in MCVII. The MCVII is generally limited to communities that are native to or naturalized within California; however, generally disturbed habitat occurs within the BSA that is not defined in MCVII. Therefore, land cover types assigned to these types of habitats are descriptive in nature and are not specifically referenced in the MCVII. A list of vegetation communities and acreages in the BSA are included in Table 2. The proposed Project area temporary and permanent impact acreages are included in Appendix C. The botanical nomenclature within this report follows the Jepson Herbarium online database, eFlora (Jepson Flora Project 2022). Plant species documented during the reconnaissance survey are provided in Section 4.2.3.

Table 2 Vegetation Communities and Land Cover Types in the BSA

Vegetation Communities and Land Cover Types	BSA[1] *(Acres)*
Vegetation Communities	
Arroyo willow thickets	30.36
California buckwheat scrub	12.47
California sagebrush scrub	37.73
Cheeseweed flats	0.48
Common and giant reed marshes	0.88
Coyote brush scrub	2.43
Elderberry stands	0.68
Eucalyptus groves	5.44
Menzie's goldenbush scrub	1.28
Mulefat thickets	31.85
Perennial pepperweed patches	0.63
Poison hemlock or fennel patches	0.10
Shining willow groves	8.76
Smartweed-cocklebur patches	0.02
Tamarisk thickets	0.21
Upland mustards or star-thistle fields	8.62
Western ragweed meadow	2.24
Wild oats and annual bromes grassland	56.08
Subtotal	*200.26*
Land Cover Types	
Disturbed/Developed	141.44
Non-vegetated channel	0.27
Open water	2.24
Partially vegetated channel	2.13
Restoration	10.54
Ruderal	5.58
Subtotal	*162.20*
Total[1]	**362.46**

Note: [1] = the BSA total acreage does not add up due to rounding.

4.2.1 Vegetation Communities

4.2.1.1 Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance)

This vegetation classification generally consists of arroyo willow (*Salix lasiolepis*) as the dominant in the tall shrub or low tree canopy with bigleaf maple (*Acer macrophyllum*), coyote brush (*Baccharis pilularis*), mulefat (*Baccharis salicifolia*), common buttonbush (*Cephalanthus occidentalis*), American dogwood

(*Cornus sericea*), California wax myrtle (*Morella californica*), California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), black cottonwood (*Populus trichocarpa*), other willows (*Salix* sp.), and black elderberry (*Sambucus nigra*) as co-dominants. Emergent trees may be present at a low cover. The plants are usually less than 10 meters in height, canopy is open to continuous, and the herbaceous layer is variable.

Within the BSA, this vegetation community is dominated by arroyo willow with smaller amounts of mulefat shrubs and scattered black willows. Most of the arroyo willow thickets occur in the BSA surrounding Phase 2. Approximately 30 acres of this community occurs in the BSA.

4.2.1.2 California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)

This vegetation classification generally consists of California buckwheat (*Eriogonum fasciculatum*) as a dominant in the shrub canopy in cismontane stands with California sagebrush (*Artemisia californica*), coyote brush, sticky monkeyflower (*Diplacus aurantiacus*), bush sunflower (*Encelia californica*), brittlebush (*Encelia farinosa*), Menzies' goldenbush (*Isocoma menziesii*), common deerweed (*Acmispon glaber*), chaparral mallow (*Malacothamnus fasciculatus*), white sage (*Salvia apiana*), or black sage (*Salvia mellifera*) as co-dominant species. Emergent trees may be present at low cover. Shrubs are usually less than two meters in height, canopy is continuous or intermittent, and the herbaceous layer is variable and may be grassy.

Within the BSA, this vegetation is dominated by California buckwheat with smaller amounts of California sagebrush, deerweed, and California brittlebush. California buckwheat scrub occurs in small patches in the BSA surrounding Phases 2A and 3A. Approximately 12.5 acres of this community occur in the BSA.

4.2.1.3 Coastal Sagebrush Scrub (*Artemisia californica* Shrubland Alliance)

This vegetation classification generally consists of California sagebrush as the dominant in the shrub canopy with chamise (*Adenostoma fasciculatum*), coyote brush, bladderpod (*Cleome isomeris*), sticky monkeyflower, bush sunflower, brittlebush, desert tea (*Ephedra californica*), interior goldenbush (*Ericameria linearifolia*), coastal buckwheat (*Eriogonum cinereum*), California buckwheat, yellow yarrow (*Eriophyllum confertiflorum*), chaparral yucca (*Hesperoyucca whipplei*), Menzie's goldenbush, heart leaved keckella (*Keckiella cordifolia*), southern honeysuckle (*Lonicera subspicata*), deerweed, laurel sumac (*Malosma laurina*), chaparral prickly pear (*Opuntia littoralis*), evergreen buckthorn (*Rhamnus ilicifolia*), lemonade berry (*Rhus integrifolia*), sugar bush (*Rhus ovata*), white sage, black sage, and poison oak (*Toxicodendron diversilobum*). Emergent trees or tall shrubs may be present at low cover, including southern California black walnut (*Juglans californica*), coast live oak (*Quercus agrifolia*), or black elderberry. Shrubs are less than two meters in height or in two tiers with a second less than five meters tall. The canopy is intermittent to continuous, and the herbaceous layer is variable.

Within the BSA, this vegetation is dominated by California sagebrush with smaller amounts of California buckwheat and coyote brush. California sagebrush scrub occurs in large patches in the BSA in Phases 2A, 3, and 3A. Approximately 38 acres of this community occur in the BSA.

4.2.1.4 Cheeseweed Flats (*Malva parviflora*)

This non MCVII vegetation classification generally consists of a monoculture of cheeseweed (*Malva parviflora*).

Within the BSA, this vegetation is dominated by monoculture of dense cheeseweed with other non-native annual species such as short-pod mustard (*Hirschfeldia incana)* occasionally observed. Cheeseweed flats occur in one patch in the BSA southeast of Phase 2A and the area appears to have been previously disturbed and may have been used as an access road in the past. Approximately 0.5 acre of this community occurs in the BSA.

4.2.1.5 Common and Giant Reed Marshes (*Phragmites australis Arundo donax* Herbaceous Semi-Natural Alliance)

This vegetation classification is dominated by common reed (*Phragmites australis*) or giant reed (*Arundo donax*).

Within the BSA, this vegetation is dominated by giant reed. One reed marsh occurs in the BSA north of Phase 2A in an area surrounded by native riparian vegetation. Approximately an acre of this community occurs in the BSA.

4.2.1.6 Coyote Brush Scrub (*Baccharis* pilularis Shrubland Alliance)

This vegetation classification generally consists of coyote brush, California coffeeberry (*Frangula californica*) and/or coast silk tassel (*Garrya elliptica*) is dominant to co-dominant in the shrub canopy with coastal sagebrush, sticky monkeyflower, California buckwheat, deerweed, California blackberry (*Rubus ursinus*), white sage*,* purple sage (*Salvia leucophylla*) and poison oak. Emergent trees may be present at low cover.

Within the BSA, this vegetation is dominated by coyote brush with smaller amounts of deerweed, bush sunflower, mulefat, and Menzie's goldenbush. Coyote brush scrub occurs in small patches in the Phase 2A BSA and in the BSA west of Phase 3A. Approximately two acres of this community occur in the BSA.

4.2.1.7 Elderberry Stands (*Sambucus nigra)*

This non MCVII vegetation classification generally consists of elderberry tress with occasional shrubs and an understory of native and non-native grasses and annual herb

Within the BSA, this vegetation is dominated by elderberry trees. One elderberry stand occurs in the BSA west of Phase 3A. Approximately 0.7 acre of this community occurs in the BSA.

4.2.1.8 Eucalyptus Groves (*Eucalyptus* spp. Woodland Semi-Natural Alliance)

This non MCVII vegetation classification generally consists of eucalyptus species/gum trees (*Eucalyptus* sp.) as the dominant in the tree canopy. The trees are less than 60 meters in height, canopy is open to continuous, shrub layer is generally sparse, and the herbaceous layer is sparse to intermittent.

Within the BSA, this vegetation is dominated by large eucalyptus trees with bare ground along low drainage areas. Eucalyptus groves occur in the BSA in Phases 2A and 3A. Approximately five acres of this community occur in the BSA.

4.2.1.9 Menzie's Goldenbush Scrub (*Isocoma menziesii* Shrubland Alliance)

This vegetation classification generally consists of Menzie's goldenbush as dominant or co-dominant in the shrub canopy with coastal sagebrush, coyote brush, broom baccharis (*Baccharis sarothroides*), giant coreopsis (*Coreopsis gigantea*), matchweed (*Gutierrezia californica*), island broom (*Acmispon dendroideus)*, silver bush lupine (*Lupinus albifrons),* and Virginia glasswort (*Salicornia depressa*). Herbs commonly present include San Miguel Island milkvetch (*Astragalus miguelensis*), California orach (*Etriplex californica*), ripgut brome (*Bromus diandrus*), coast morning glory (*Calystegia macrostegia*), saltgrass (*Distichlis spicata*), and purple needlegrass (*Stipa pulchra*).

Within the BSA, this vegetation is dominated by Menzie's goldenbush with smaller amounts of coyote brush. California buckwheat, and quailbush (*Atriplex lentiformis*). This community occurs in one patch in the BSA north of Phase 2A. Approximately an acre of this community occurs in the BSA.

4.2.1.10 Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance)

This vegetation classification generally consists of mulefat (*Baccharis salicifolia*) as the dominant in the shrub canopy with coastal sagebrush, willow baccharis (*Baccharis emoryi*), coyote brush, laurel sumac, tree tobacco (*Nicotiana glauca*), arrow weed (*Pluchea sericea*), blackberry species (*Rubus* spp.), narrow leaved willow (*Salix exigua*), arroyo willow, black elderberry, and tamarisk species (*Tamarix* spp.) as co-dominants. Emergent trees may be present at low cover, including grey pine (*Pinus sabiniana*), California sycamore, Fremont cottonwood, oak species (*Quercus* spp.), or willow species (*Salix* spp.). Shrubs are less than five meters in height, the canopy is continuous with tie tiers at less than two meters and at less than five meters, and the herbaceous layer is sparse.

Within the BSA, this vegetation is dominated by mulefat with smaller amounts of arroyo willow and coyote brush. This community occurs in the BSA of all three phases and most of this vegetation in the Phase 2 BSA. Approximately 32 acres of this community occur in the BSA.

4.2.1.11 Perennial Pepperweed Patches (*Lepidium latifolium* Herbaceous Semi-Natural Alliance)

This vegetation classification is dominated by perennial pepperweed (*Lepidium latifolium*). Emergent trees and shrubs may be present at low cover.

Within the BSA, this vegetation is dominated by perennial pepperweed. This community occurs in one patch in the BSA at the edge of Phases 2A and 3A. Approximately 0.6 acre of this community occurs in the BSA.

4.2.1.12 Poison hemlock or fennel patches (*Conium maculatum- Foeniculum vulgare* Herbaceous Semi-Natural Alliance)

This vegetation classification generally consists of thoroughwort (*Ageratina adenophora*), poison hemlock (*Conium maculatum*), wild teasel (*Dipsacus fullonum*), Indian teasel (*Dipsacus sativus*) and/or sweet fennel (*Foeniculum vulgare*). Emergent trees and shrubs may be present at low cover, including oak trees and coyote brush.

Within the BSA, this vegetation is dominated by poison hemlock. This community occurs in one patch in the BSA at the edge of Phases 2A and 3A. Approximately 0.1 acre of this community occurs in the BSA.

4.2.1.13 Shining Willow Groves (*Salix lucida* ssp. *lasiandra* Forest and Woodland Alliance)

This vegetation classification generally consists of shining willow (*Salix lucida*) as dominant or co-dominant in the tree canopy with bigleaf maple, white alder (*Alnus rhombifolia*), American dogwood, California sycamore, Freemont cottonwood, black cottonwood, coast live oak, willows, and blue elderberry.

Within the BSA, this vegetation is dominated by shining willow with smaller amounts of mulefat, other willow species, and castor bean. This community occurs in one large patch in the BSA in Phase 2A west of Butterfield Park. Approximately 9 acres of this community occurs in the BSA.

4.2.1.14 Smartweed and Cocklebur Patches (*Polygonum lapathifolium - Xanthium strumarium* Herbaceous Alliance)

This vegetation classification generally consists of sunflower (*Helianthus annuus*), curlytop knotweed (*Polygonum lapathifolium*), and/or cocklebur (*Xanthium strumarium*) or other knotweed or smartweed species as dominant or co-dominant in the herbaceous layer with five-angled dodder (*Cuscuta pentagona*), tall flatsedge (*Cyperus eragrostis*), barnyard grass (*Echinochloa* sp.), pale spikerush (*Eleocharis macrostachya*), western goldentop (*Euthamia occidentalis*), rushes (*Juncus* spp.) and docks (*Rumex* spp.).

Within the BSA, this vegetation consists of cocklebur, sunflower, and perennial pepperweed. One 0.02-acre patch occurs in the BSA in Temescal Wash in Phase 2.

4.2.1.15 Tamarisk Thicket (*Tamarix* spp. Shrubland Semi-Natural Alliance)

This vegetation classification generally consists of salt cedar (*Tamarix ramosissima*) or another *Tamarix* species dominant in the shrub canopy. Emergent trees may be present at low cover, including Freemont's cottonwoods or willow trees.

Within the BSA, this vegetation is dominated by salt cedar. This community occurs in one linear patch along West Rincon Street in the BSA east of Phase 2. Approximately 0.2 acre of this community occurs in the BSA.

4.2.1.16 Upland mustards or star-thistle fields (*Brassica nigra* – Centaurea [*solstitialis, melitensis*] Herbaceous Semi-Natural Alliance)

This vegetation classification generally consists of black mustard (*Brassica nigra*), common mustard (*Brassica rapa*), Italian thistle (*Carduus pycnocephalus*), Maltese star thistle (*Centaurea melitensis*), yellow starthistle (*Centaurea solstitialis*), cardoon artichoke thistle (*Cynara cardunculus*), Geraldton carnation weed (*Euphorbia terracina*), short-pod mustard, Dyer's woad (*Isatis tinctoria*), or wild radish (*Raphanus sativus*), or similar ruderal forb is dominant in the herbaceous layer. Emergent trees and shrubs may be present at low cover.

Within the BSA, this vegetation is dominated by short-pod mustard and Maltese star-thistle with smaller amounts of other non-native annual grasses, mostly bromes, and non-native annual herbs. This community occurs along West Rincon Street in Phase 2 and in the eastern portion of Phase 3A. Approximately 8.6 acres of this community occurs in the BSA.

4.2.1.17 Western Ragweed Meadow (*Ambrosia psilostachya* Provisional Herbaceous Alliance)

This vegetation classification generally consists of western ragweed as dominant or co-dominant in the herbaceous layer with ripgut brome, soft chess (*Bromus hordeaceus*), Bermuda grass (*Cynodon dactylon*), filarees (*Erodium* spp.), gumplants (*Grindelia* spp.), barely (*Hordeum murinum*), checkerbloom (*Sidalcea malviflora*), and blue-eyed grass (*Sisyrinchium bellum*).

Within the BSA, this vegetation is dominated by western ragweed. Other non-native annuals occur in the flat area at the base of the Prado Basin spillway; approximately two acres of this community occur in one patch west of Phase 3A at the base of the Prado Basin spillway within the BSA.

4.2.1.18 Wild Oats and Annual Brome Grasslands (*Avena* spp.-*Bromus* spp. Herbaceous Semi-Natural Alliance)

This vegetation classification generally consists of slim oat (*Avena barbata*), wild oats (*Avena fatua*), purple false brome (*Brachypodium distachyon*), rattlesnake grass (*Briza maxima*), ripgut brome, soft chess, and foxtail barley (*Hordeum murinum*) as dominant or co-dominant in the herbaceous layer with other non-natives such as Australian saltbush (*Atriplex semibaccata*) and barley species (*Hordeum* sp.).

Emergent trees and shrubs may be present at low cover. Herbs are less than four feet in height and cover is open to continuous.

Within the BSA, this vegetation is dominated by bromes and other non-native annual grasses. Wild oats and annual brome grasslands occur in large patches in the BSA surrounding Phases 2A and 3A. Approximately 56 acres of this community occur in the BSA.

4.2.2 Land Cover Types

4.2.2.1 Disturbed/Developed

This land cover type includes areas that have been graded or paved and are developed with urban infrastructure. These areas are generally periodically maintained for weed control, precluding any significant growth of non-ornamental species, but may be sparsely interspersed with ruderal pioneer plant species that readily colonize open disturbed soil such as along disturbed areas or roadsides. The Phase 2 BSA includes Corydon Street, West Rincon Street, and disturbed areas between West Rincon Street and the Corona Airport. The Phase 2A BSA includes dirt access roads, a large borrow pit, portions of the Corona Airport and Butterfield Park, and buildings south and west of Phase 2A. The Phase 3A BSA includes portions of SR-91. Approximately 141 acres of this land cover type occurs in the BSA.

4.2.2.2 Non-vegetated Channel

Non-vegetated channel is not a MCVII classification. In this land cover type, the area is unvegetated on a relatively permanent basis. The area is usually dominated by sand, gravel, or rock and usually exhibits an ordinary-high water mark. Variable water lines inhibit the growth of vegetation; although, some grasses or other weedy species may grow along the outer edges of the channel. Vegetation may exist here but is usually less than 10 percent total cover (Holland 1986).

A drainage ditch occurs along the south side of Butterfield Drive in the Phase 2A BSA. Approximately 0.3 acre of this land cover type occurs within the BSA.

4.2.2.3 Open Water

This land cover type was used to map the approximate limits of the open water habitat within the Santa Ana River in the western portion of the BSA west of Phase 3A. Approximately two acres of this land cover type occurs within the BSA.

4.2.2.4 Partially Vegetated Channel

This land cover type is a non-vegetated channel but has more than 10 percent vegetative cover. Partially vegetated channel is not a MCVII classification. The lack of vegetation is due to flowing water during the rainy season. The area is usually dominated by sand, gravel, or rock and usually exhibits an ordinary-high water mark. Variable water lines inhibit the growth of vegetation; although, some grasses or other weedy species may grow along the outer edges of the channel.

This land cover type includes Temescal Wash east and west of West Rincon Street in Phase 2. Some large willow trees have been established on the edges of the wash. Approximately two acres of this land cover type occur within the BSA.

4.2.2.5 Restoration Areas

Areas mapped as restoration were either observed to be undergoing active habitat restoration activities or were areas that have been previously restored and are being monitored or have been completed.

Two restoration areas occur within Phase 2A, and two restoration areas occur in the western portion of the BSA west of Phase 3A. Approximately 10.5 acres of this land cover type occur within the BSA.

4.2.2.6 Ruderal Areas

Ruderal vegetation is not a MCVII classification. This land cover type is usually sparsely vegetated with pioneer plant species that readily colonize open disturbed soil. In the BSA these include non-native annual grasses, bromes, redstem filaree, and Maltese star-thistle.

Ruderal patches occur in the Phase 2A Survey Area near Auto Center Drive and the western portion of the BSA west of Phase 3A. Approximately 5.5 acres of this land cover type occur within the BSA.

4.2.3 Plant Species Observed

Table 3 includes a list of 119 vascular plant species that were observed in the BSA.

Table 3 Vascular Plant Species Observed in the BSA

Scientific Name	Common Name
Acmispon glaber	deerweed
Acmispon strigosus	strigose lotus
*Ailanthus altissima**	tree of heaven
Ambrosia psilostachya	western ragweed
Amsinckia intermedia	fiddleneck
*Anagallis arvensis**	scarlet pimpernel
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Artemisia dracunculus	tarragon
*Arundo donax**	giant reed
Asclepias fascicularis	narrow leaf milkweed
Atriplex canescens	hoary saltbush
Atriplex lentiformis	quailbush
*Atriplex semibacatta**	Australian saltbush

Scientific Name	Common Name
*Avena fatua**	wild oats
Baccharis pilularis	coyote bush
Baccharis salicifolia	mulefat
Baccharis sarothroides	Broom baccharis
*Bromus diandrus**	ripgut brome
*Bromus madritensis**	foxtail brome
*Bromus rubens**	red brome
Calystegia macrostegia	coast morning glory
Camissoniopsis micrantha	Spencer primrose
*Carduus pycnocephalus**	Italian thistle
*Carya illinoinensis**	pecan
*Centaurea melitensis**	Maltese star-thistle
Chenopodium californicum	California goosefoot
*Chrysanthemum coronarium**	garland daisy
*Cirsium vulgare**	bull thistle
*Conium maculatum**	poison hemlock
Corethrogyne filaginifolia	common sandaster
Croton californicus	California croton
Croton setigerus	turkey mullen
Cryptantha intermedia	common cryptantha
Cucurbita foetidissima	coyote gourd
Cuscuta californica	California dodder
Datura wrightii	jimsonweed
Deinandra fasciculata	clustered tarweed
Deinandra paniculata+	paniculate tarplant
Diplacus aurantiacus	sticky monkeyflower
*Dysphania ambrosioides**	Mexican tea
Eleocharis macrostachya	spike rush
Elymus condensatus	giant wildrye
Encelia californica	bush sunflower
Encelia farinosa	brittlebush
Ericameria palmeri	Palmer goldenweed
Erigeron canadensis	Canada horseweed
Eriogonum fasciculatum	California buckwheat
*Erodium cicutarium**	redstem filaree
Eucalyptus sp.*	gum tree

Scientific Name	Common Name
Euphorbia polycarpa	smallseed sandmat
*Festuca perenniis**	Italian ryegrass
*Foeniculum vulgare**	sweet fennel
Helianthus annuus	hairy-leaved sunflower
*Helminthotheca echioides**	bristly ox-tongue
Heteromeles arbutifolia	toyon
Heterotheca grandiflora	telegraph weed
*Hirschfeldia incana**	shortpod mustard
*Hordeum marinum**	barley
*Koelreuteria bipinnata**	goldenrain tree
*Lactuca serriola **	prickly lettuce
Lasthenia californica	goldenfields
*Lepidium latifolium**	perennial pepperweed
Lupinus bicolor	lupine
Malosma laurina	laurel sumac
*Malva parviflora**	cheeseweed
Marah macrocarpa	Chilicothe
*Marrubium vulgare**	horehound
*Medicago polymorpha**	California burclover
*Melilotus indicus**	annual yellow sweetclover
*Nicotiana glauca**	tree tobacco
Nicotiana quadrivalvis	Indian tobacco
*Oncosiphon pilulifer**	stinknet
Opuntia oricola	chaparral pricklypear
*Parkinsonia aculeata**	Jerusalem thorn
Phacelia ramosissima	branching phacelia
Plantago erecta	dot-seed plantain
Platanus racemosa	California sycamore
Pluchea sericea	arrow weed
*Polypogon monspeliensis**	rabbit's foot grass
Populus fremontii	Fremont cottonwood
Pseudognaphalium californicum	California cudweed
*Pseudognaphalium luteoalbum**	cudweed
Quercus agrifolia	coat live oak
*Raphanus sativus**	wild radish
*Ricinus communis**	castor bean

Scientific Name	Common Name
Rosa californica	California wild rose
Rubus ursinus	pacific blackberry
*Rumex pulcher**	fiddledock
Salix gooddingii	black willow
Salix laevigata	red willow
Salix lasiandra	shining willow
Salix lasiolepis	arroyo willow
*Salsola tragus**	Russian thistle
Salvia apiana	white sage
Salvia mellifera	black sage
Sambucus nigra ssp. *caerulea*	blue elderberry
*Schinus molle**	Peruvian peppertree
*Schinus terebinthifolius**	Brazilian peppertree
*Schismus barbatus**	old han schismus
Schoenoplectus californicus	California bulrush
*Silybum marianum**	milk thistle
*Sisymbrium irio**	London rocket
Solanum douglasii	Douglas' nightshade
*Sonchus arvensis**	perennial sow thistle
*Sonchus asper**	spiny sow thistle
*Sorghum halepense**	Johnsongrass
*Stipa miliacea**	smilo grass
Stipa pulchra	purple needlegrass
Trifolium willdenovii	tomcat clover
Toxicodendron diversilobum	poison oak
*Typha angustifolia**	narrowleaf cattail
Typha domingensis	southern cattail
Urtica dioica	stinging nettle
*Urtica urens**	dwarf nettle
*Veronica anagallis-aquatica**	water speedwell
Vitis girdiana	California wild grape
Washingtonia robusta*	Mexican fan palm
Xanthium strumarium	cocklebur
Notes: * = Non-native species, + = California Rare Plant Rank 4.2	

4.3 COMMON WILDLIFE

4.3.1 Terrestrial Invertebrates

While a focused survey for insects was not conducted within the BSA during the 2021 surveys; randomly selected areas within the appropriate micro habitats (e.g., leaf litter, woody debris piles, etc.) were visually inspected to determine the presence/absence of invertebrates and gastropods, as a variety of common insects are known to occur in the area. Conditions in the BSA provide a suite of microhabitat variations for a variety of terrestrial insects and other invertebrates. As in all ecological systems, invertebrates in the BSA play a crucial role in biological processes. They serve as the primary or secondary food source for amphibian, bird, reptile, and mammal predators; they provide important pollination vectors for numerous plant species; they act as efficient components in controlling pest populations; and they support the naturally occurring maintenance of an area by consuming detritus and contributing to necessary soil nutrients. The visually inspected areas of the BSA detected a wide variety of common and non-native invertebrates. Some of the orders identified in the BSA included beetles (*Coleoptera* spp.), flies (*Diptera* spp.), grasshoppers (*Orthoptera* spp.), crickets (*Gryllidae* spp.), isopods (*Isopoda* spp.), snails (*Gastropoda* spp.), spiders (*Araneae* spp.), moths and butterflies (*Lepidoptera* spp.), bees (*Apis* spp.), and ants (*Hymenoptera* spp.).

4.3.2 Fish

Temescal Wash flows under West Rincon Street in Phase 2 in the eastern portion of the BSA. The ephemeral wash is usually dry except during the rainy season, when species of small non-native fish including mosquito fish (*Gambusia affinis*) are likely to occur in the wash and flow downstream.

4.3.3 Amphibians

Amphibians often require a source of standing or flowing water to complete their life cycle. However, some terrestrial species can survive in drier areas by remaining in moist environments or by burrowing into the soil. Downed logs, bark, and other woody material in various stages of decay (often referred to as coarse woody debris), likely provide shelter and feeding sites for a variety of wildlife, including amphibians and reptiles (Maser and Trappe, 1984; Aubry et al., 1988). These species are highly cryptic and often difficult to detect. Amphibians require aquatic habitat for all or part of their life cycle, which is present within the BSA. Baja California treefrog (*Pseudacris hypochondriaca*) was heard during 2021 surveys. Other common species known to occur in the region include the western toad (*Anaxyrus boreas*) and the non-native American bullfrog (*Lithobates catesbeianus*).

4.3.4 Reptiles

The number and type of reptile species that may occur at a given site is related to biotic and abiotic features present in the BSA. These include the diversity of plant communities, substrate, soil type, and

presence of refugia such as rock piles, boulders, and native debris. Weather conditions were favorable during the survey for reptile activity.

Many reptile species, even if present, are difficult to detect because they are cryptic and their life history characteristics (e.g., foraging, thermoregulatory behavior, fossorial nature, camouflage etc.) limit their ability to be observed during most surveys. Further, many species are only active within relatively narrow thermal limits, avoiding both cold and hot conditions, and most take refuge in microhabitats that are not directly visible to the casual observer, such as rodent burrows, in crevices, under rocks and boards, and in dense vegetation where they are protected from unsuitable environmental conditions and predators (USACE and CDFG 2010). In some cases, they are only observed when flushed from their refugia. Two common reptile species were observed during 2021 surveys, the common side-blotched lizard (*Uta stansburiana*) and the western fence lizard (*Sceloporus occidentalis*). The BSA also includes suitable habitat for other common reptile species.

4.3.5 Birds

Focused surveys for burrowing owl and listed riparian birds were conducted. A list of common and special-status bird species and other wildlife species observed during 2021 surveys is included in Table 4. The BSA provides high quality nesting and foraging habitat for many bird species.

4.3.6 Mammals

Generally, the distribution of mammals on a given site is associated with the presence of factors such as access to perennial water, topographical and structural components (e.g., rock piles, vegetation) that provide cover and support prey base, and the presence of suitable soils for fossorial mammals (e.g., sandy areas). Multiple desert cottontails (*Sylvilagus audubonii*) and a few California ground squirrels were observed during the 2021 surveys. Signs of other mammal species (tracks, scat, etc.) were detected, but no live individuals were observed during the 2021 surveys. Sign observed included a wood rat midden, Botta's pocket gopher (*Thomomys bottae*) mounds, and mule deer (*Odocoileus hemionus*) tracks. Other common mammals are expected to occur within the BSA given the habitat conditions and species that are known to occur in the region. These may include coyote (*Canis latrans*), kangaroo rats (*Dipodomys* sp.), striped skunk (*Mephitis mephitis*), and raccoon (*Procyon lotor*). No special-status mammal species were observed in the BSA.

Although bats were not detected in the BSA, they likely forage and roost in the region, particularly along Temescal Wash and the riparian corridors. Many bats tend to concentrate foraging activities in riparian habitats similar to those occurring within and adjacent to the BSA where insect abundance is high (CDFW 2000).

Table 4 Wildlife Species Observed in the BSA

Scientific Name	Common Name
Birds	

Scientific Name	Common Name
Aeronautes saxatalis	white-throated swift
Anthus rubescens	American pipit
Bombycilla cedrorum	cedar waxwing
Buteo jamaicensis	red-tailed hawk
Buteo lineatus	red-shouldered hawk
Calypte anna	Anna's hummingbird
Cathartes aura[1]	turkey vulture (fly over)
Charadrius vociferus	killdeer
Colaptes auratus	northern flicker
Corvus brachyrhynchos	American crow
Dendroica coronate	yellow-rumped warbler
Dryobates pubescens	downy woodpecker
Eremophila alpestris actia[1]	California horned lark
Geococcyx californianus	greater roadrunner
Geothlypis trichas	common yellowthroat
Haemorhous mexicanus	house finch
Icteria virens[1]	yellow-breasted chat
Melospiza melodia	song sparrow
Melozone crissalis	California towhee
Mimus polyglottos	northern mockingbird
Passerina caerulea	blue grosbeak
Petrochelidon pyrrhonota	American cliff swallow
Picoides nuttallii	Nuttall's woodpecker
Pipilo maculatus	spotted towhee
Piranga ludoviciana	western tanager
Polioptila californica californica[1]	coastal California gnatcatcher
Polioptila caerulea	blue-gray gnatcatcher
Psaltriparus minimus	Bushtit
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Setophaga petechia[1]	yellow warbler
Spinus lawrencei[1]	Lawrence's goldfinch
Spinus psaltria	lesser goldfinch
Sturnus vulgaris	European starling
Tyrannus verticalis	western kingbird
Vireo bellii pusillus[1]	least Bell's vireo

Scientific Name	Common Name
Zenaida macroura	mourning dove
Invertebrates	
Anthocharis cardamines	orange tip butterfly
Apis mellifera	European honeybee
Coccinellidae sp.	lady bird beetle
Nymphalis antiopa	mourning cloak butterfly
Pogonomyrmex barbatus	red harvester ant
Mammals	
Thomomys bottae[2]	Bottas's pocket gopher (burrows)
Neotoma sp.[2]	woodrat (midden)
Odocoileus hemionus[2]	mule deer (tracks)
Ostospermophilus beecheyi	California ground squirrel
Sylvilagus audubonii	desert cottontail
Reptiles	
Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard

Notes: [1] = Special-status Species including WRCMSHCP covered, [2] = Species observed by sign

4.4 AQUATIC RESOURCES

Aquatic resources within 100 feet of the proposed Project area (Aquatic Resources Survey Area) were delineated on May 6, December 8, 2021, and June 9, and June 16, 2022; details of the results are included in Appendix D - Aquatic Resources Survey Report and Preliminary Jurisdictional Assessment. Drainages with an OHWM, three-parameter wetlands, and sensitive riparian vegetation were mapped in the Aquatic Resources Survey Area (Appendix A Figures 5-1 to 5-4). The mapped waters and wetlands are under the jurisdiction of the USACE, SWRCB/Santa Ana RWQCB, and/or CDFW.

Determinations of jurisdictional waters, wetlands, and riparian habitat in this report were based on current conditions, (i.e., normal circumstances) and were made in accordance with relevant USACE, SWRCB and CDFW guidance. Determinations are subject to verification by the USACE, Santa Ana RWQCB and CDFW. Stantec advises all interested parties to treat the information contained herein as preliminary pending verification of jurisdictional boundaries by the regulatory agencies.

4.5 SOILS

Prior to conducting the field reconnaissance, historic soils data from the Natural Resources Conservation Service was used to determine potential soil types that may occur within the BSA (refer to Appendix A Figure 4). Characteristics of soils present on the site are summarized in Table 5; there are no hydric soils present in the proposed Project area.

Table 5 Historic Soil Units Occurring within the BSA

Map Unit Symbol	Map Unit Name	Description	Area within BSA (acres)
AkC	Arbuckle loam, 2 to 8 percent slopes	A well-drained non-hydric soil associated with alluvial fans at elevations between 100 and 1,600 feet, high runoff; loam, gravelly loam, and stratified sandy loam to vert gravelly sandy clay loam; parent material consists of alluvium derived from metasedimentary rock; minor components include Cortina, Garretson, and Perkins.	32.57
AkD	Arbuckle loam, 8 to 15 percent slopes	A well-drained non-hydric soil associated with alluvial fans at elevations between 100 and 1,600 feet, high runoff; loam, gravelly loam, and stratified sandy loam to very gravelly sandy clay loam; parent material consists of alluvium derived from metasedimentary rock; minor components include Perkins, Garretson, and Cortina.	17.81
AlC	Arbuckle gravelly loam, 2 to 9 percent slopes, dry, MLRA 19	A well-drained non-hydric soil associated with fan remnants at elevations between 690 and 1,470 feet, medium runoff; gravely loam, gravelly very fine sandy loam, gravelly loam, gravelly clay loam, and very gravelly sandy loam; parent material is derived from alluvium derived from igneous, metamorphic, and sedimentary rock; minor components include Perkins, Garretson, and Cortina.	5.26
AlE3	Arbuckle gravelly loam, 2 to 25 percent slopes, severely eroded	A well-drained non-hydric soil associated with alluvial fans at elevations between 100 and 1,600 feet, high runoff; gravelly loam, gravelly clay loam, and stratified very gravelly sandy loam to very gravelly sandy clay loam; parent material is derived from alluvium derived from metasedimentary rock; minor components include Garretson, Cortina, and Unnamed.	22.27
BP	Borrow pit	A hole, pit, or excavated area that was dug for the purposes of removing soils for a construction project.	32.20
DAM	Dams	Impounded waterbody.	2.16
GaC	Garretson very fine sandy loam, 2 to 8 percent slopes	A well-drained non-hydric soil associated with alluvial fans at elevations between 430 and 1,740 feet, medium runoff; very fine sandy loam and loam; parent material is derived from alluvium derived from metasedimentary rock; minor components include Arbuckle, Perkins, and Cortina.	11.05
GfF2	Gaviota very fine sandy loam, 15 to 50 percent slopes, eroded	A well-drained non-hydric soil associated with hills at elevations between 100 and 4,000 feet, medium runoff; very fine sandy loam and unweathered; parent material is derived from residuum weathered from sandstone; minor components include Altamont, Vallecitos, and Gaviota.	9.17
GrB	Grangeville sandy loam, sandy substratum, drained, 0 to 5 percent slopes	A moderately well-drained non-hydric soil associated with alluvial fans at elevations between 600 and 1,800 feet, very low runoff; sandy loam; parent material is derived from alluvium derived from granite; minor components include Dello and Traver.	3.59

Map Unit Symbol	Map Unit Name	Description	Area within BSA (acres)
GvB	Grangeville fine sandy loam, saline-alkali, 0 to 5 percent slopes	A somewhat poorly drained non-hydric soil associated with alluvial fans at elevations between 10 and 1,800 feet, low runoff; fine sandy loam and sandy loam; parent material is derived from alluvium derived from granite; minor components include Dello and Traver.	29.23
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes	A well-drained non-hydric soil associated with alluvial fans at elevations between 150 to 900 feet, low runoff; coarse sandy loam, fine sandy loam, and stratified loamy sand to coarse sandy loam; parent material is derived from alluvium derived from granite; minor components include Greenfield, Ramona, Tujunga, and two unnamed soils.	3.48
MdC	Metz loamy sand, 2 to 8 percent slopes	A somewhat excessively drained non-hydric soil associated with alluvial fans at elevations between 30 and 1,200 feet, low runoff; loamy sand and stratified sand to loamy sand; parent material is derived from alluvium derived from sedimentary rock; minor components include San emigdio and two unnamed soils.	16.17
MgB	Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes	A somewhat excessively drained non-hydric soil associated with alluvial fans at elevations between 30 and 1,200 feet, very low runoff; loamy sand, stratified sand to silt loam, and stratified gravelly coarse sand to gravelly sand; parent material is derived from alluvium derived from sedimentary rock; minor components include San emigdio and an unnamed soil.	57.04
MhB	Metz loamy fine sand, sandy loam substratum, 0 to 5 percent slopes	A somewhat excessively drained non-hydric soil associated with alluvial fans at elevations between 30 and 1,200 feet, very low runoff; loamy fine sand and stratified sand to silt loam; parent material is derived from alluvium derived from sedimentary rock; minor components include San emigdio and an unnamed soil.	8.01
PeC	Perkins loam, 2 to 8 percent slopes	A well-drained non-hydric soil associated with alluvial fans at elevations between 60 and 1,700 feet, high runoff; loam and stratified very gravely sandy loam to very gravelly clay loam; parent material is derived from alluvium derived from metasedimentary rock; minor components include Arbuckle and Garretson.	48.97
PgD2	Perkins gravelly loam, 8 to 15 percent slopes, eroded	A well-drained non-hydric soil associated with alluvial fans at elevations between 60 and 1,700 feet, high runoff; gravelly loam and stratified vert gravelly sandy loam to very gravelly clay loam; parent material is derived from alluvium derived from metasedimentary rock; minor components include Arbuckle and Garretson.	18.78
RaD2	Ramona sandy loam, 8 to 15 percent slopes, eroded	A well-drained non-hydric soil associated with alluvial fans and terraces at elevations between 250 and 3,500 feet, medium runoff; sandy loam, fine sandy loam, sandy clay loam, and gravelly sandy loam; parent material is derived from alluvium derived from granite; minor components include Greenfield, Tujunga, and Hanford.	1.93

Map Unit Symbol	Map Unit Name	Description	Area within BSA (acres)
RaD3	Ramona sandy loam, 8 to 15 percent slopes, severely eroded	A well-drianed non-hydric soil associated with alluvial fans and terraces at elevations between 250 and 3,500 feet, high runoff; sandy loam, fine sandy loam, sandy clay loam, and gravelly sandy loam; parent material is derived from alluvium derived from granite; minor components include Tujunga, Hanford, and Greenfield.	1.62
SeC2	San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded	A well-drained non-hydric soil associated with alluvial fans at elevations between 600 and 1,800 feet, low runoff; fine sandy loam and stratified sandy loam to silt loam; parent material is derived from residuum weathered from sedimentary rock; minor components include Metz and San timoteo.	2.24
SgA	San Emigdio loam, 0 to 2 percent slopes	A well-drained non-hydric soil associated with alluvial fans at elevations between 430 and 2,340 feet, very low runoff; loam, fine sandy loam, and stratified sandy loam to silt loam; parent material is derived from alluvium derived from sedimentary rock; minor components include Metz and san timoteo.	20.93
TeG	Terrace escarpments	A steep slope pf 15 percent or greater made up of various layers of soil; parent material is derived from alluvium derived from mixed sources.	17.97
		Total	**362.45**

5.0 SPECIAL-STATUS BIOLOGICAL RESOURCES

The background information presented above combined with habitat assessments performed during the surveys was used to evaluate special-status natural communities and special-status plant and animal taxa that either occur or may have the potential to occur within the BSA and adjacent habitats. For the purposes of this BRTR, special-status taxa are defined as plants or animals that:

- Have been designated as either rare, threatened, or endangered by CDFW or the USFWS, and are protected under either the California Endangered Species Act or FESA,
- Are candidate species being considered or proposed for listing under these same acts,
- Are recognized as SSC by the CDFW,
- Are ranked by CNPS as CRPR 1, 2, 3, or 4 plant species,
- Are fully protected by the FGC, Sections 3511, 4700, 5050, or 5515,
- Included in the CDFW Special Animals List (CDFW 2021c),
- Are of expressed concern to resource/regulatory agencies, or local jurisdictions, or
- Are covered species under the WRCMSHCP.

5.1 SPECIAL-STATUS NATURAL COMMUNITIES

Special-status natural communities are defined by CDFW (2009) as, "...communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects." All vegetation within the state is ranked with an "S" rank, however only those that are of special concern (S1-S3 rank) are generally evaluated under CEQA. Shining willow grove occurs within the BSA; and is a CDFW natural community with a sensitivity ranking of S3 (vulnerable).

The BSA also occurs within the region covered by the WRMSHCP. Three riparian communities (mulefat thickets, arroyo willow thickets, and shining willow groves) and five native upland scrub habitats (California buckwheat scrub, California sagebrush scrub, coyote brush scrub, elderberry stands, and Menzie's goldenbush scrub) occur within the BSA and are WRC sensitive vegetation communities.

5.2 DESIGNATED CRITICAL HABITAT

The BSA occurs within and adjacent to DCH for the following federally listed species: Santa Ana sucker (*Catostomus santaanae*), coastal California gnatcatcher (*Polioptila californica californica*), southwestern willow flycatcher, and least Bell's vireo. DCH for these species occupies the Santa Ana River floodplain

extending from the San Bernardino Mountains in the northeast to the Chino Hills in the southwest. The coastal California gnatcatcher and the least Bell's vireo occur within the BSA.

5.3 SPECIAL-STATUS PLANTS

One special-status plant species, paniculate tarplant (*Deinandra paniculata*), a CNPS CRPR 4.2 species, was observed in coastal sage scrub in the Phase 3A during the spring 2021 rare plant survey (Appendix A Figure 3-4).

Table 6 presents a list of special-status plants, including federally- and state-listed species and CRPR 1-4 species and species protected by the WRCMSHCP that are known to occur in the region surrounding the BSA (within ten miles) (Appendix A Figure 6s and 6A).

Records searches of the USFWS iPaC CNDDB, the CNPS Online Inventory, and the CCH were performed for special-status plant taxa. Each of the taxa identified in the record searches was assessed for their potential to occur within the BSA based on the following criteria:

- **Present**: Taxa were observed within the BSA during recent botanical surveys or population has been acknowledged by CDFW, USFWS, or local experts.
- **High**: Both a documented recent record (within 10 years) exists of the taxa within the BSA, or immediate vicinity (approximately 5 miles) and the environmental conditions (including soil type) associated with taxa presence occur within the BSA.
- **Moderate**: Both a documented recent record (within 10 years) exists of the taxa within the BSA, or the immediate vicinity (approximately 5 miles) and the environmental conditions associated with taxa presence are marginal and/or limited within the BSA; the BSA is located within the known current distribution of the taxa and the environmental conditions (including soil type) associated with taxa presence occur within the BSA.
- **Low**: A historical record (over 10 years) exists of the taxa within the BSA, or general vicinity (approximately 10 miles) and the environmental conditions (including soil type) associated with taxa presence are marginal and/or limited within the BSA.
- **Not Likely to Occur:** The environmental conditions associated with taxa presence do not occur within the BSA.

Table 6 Known and Potential Occurrences of Special-Status Plant Taxa within the BSA

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Abronia villosa var. *aurita* chaparral sand-verbena	1B.1	Chaparral, coastal scrub, desert dunes; sandy substrates; 75-1600 meters (m).	(Jan) Mar-Sep	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 1.14 miles southeast of the BSA; this occurrence was recorded in 1934.
Allium marvinii Yucaipa onion	1B.2, WRCMSHCP	Clay openings in chaparral, 760-1,065 m.	Apr-May	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 3.24 miles south, southwest of the BSA; this occurrence was recorded in 1992.
Ambrosia pumila San Diego ambrosia	1B.1, FE, WRCMSHCP	Chaparral, coastal scrub, valley and foothill grassland, and vernal pools; sandy loam or clay substrates (sometimes alkaline); often found in disturbed areas; 20-415 m.	Apr-Oct	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 8.06 miles to the east, northeast of the BSA; this occurrence was recorded in 2006.
Astragalus brauntonii Braunton's milk-vetch	1B.1	Chaparral, coastal scrub, and valley and foothill grasslands. Occurs in recent burns or disturbed areas, usually sandstone with carbonate layers; 4-640 m.	Jan-Aug	**Moderate** Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 2.59 miles to the southwest of the BSA; this occurrence was recorded in 2020.
Atriplex coulteri Coulter's saltbush	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland, ocean bluffs, ridgetops, as well as alkaline low places; alkaline, dry, or clay soils; 2-460 m.	Mar-Oct	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 5.38 miles to the north, northwest of the BSA; this occurrence was recorded in 1917.

Special-Status Biological Resources

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Baccharis malibuensis Malibu baccharis	1B.1	Chaparral, cismontane woodland, coastal scrub, and riparian woodland; 150-305 meters.	Aug	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 6.10 miles to the south, southwest of the BSA; this occurrence was recorded in 2008.
Calochortus plummerae Plummer's mariposa-lily	4.2, WRCMSHCP	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grasslands; granitic and rocky substrates; 100-1700m.	May-Jul	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 4.69 miles south of the BSA; this occurrence was recorded in 1992.
Calochortus weedii var. *intermedius* intermediate mariposa-lily	1B.2, WRCMSHCP	Chaparral, coastal scrub, and valley and foothill grasslands; rocky, calcareous; 105 to 855 m.	May-Jun	**Moderate** Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 2.20 miles south, southeast of the BSA; this occurrence was recorded in 2017.
Calystegia felix lucky morning-glory	1B.1	Historically associated with wetland and marshy places, but possibly found in drier habitats as well; meadows, seeps, and riparian scrub (alluvial); sometimes found in silty loam and alkaline substrates; 30-215 m.	Mar-Sep	**Moderate** Suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 2.17 miles north the BSA; this occurrence was recorded in 1917.

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Centromadia pungens ssp. *laevis* smooth tarplant	1B.1, WRCMSHCP	Chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland; alkaline substrate; 0-640 m.	Apr-Sep	**Moderate** Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 6.37 miles northeast of the BSA; this occurrence was recorded in 2010.
Chorizanthe parryi var. fernandina San Fernando Valley spineflower	SE, 1B.1	Coastal scrub (sandy) and valley and foothill grasslands; 150-1,220 m.	Apr-Jul	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 7.05 miles southwest of the BSA; this occurrence was recorded in 1902.
Chorizanthe parryi var. *parryi* Parry's spineflower	1B.1, WRCMSHCP	Chaparral, cismontane woodland, coastal scrub, and valley and foothill grasslands; sandy or rocky substrates; open habitat; 275-1220 m.	Apr-Jun	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 8.45 miles southeast of the BSA; this occurrence was recorded in 2009.
Chorizanthe polygonoides var. *longispina* long-spined spineflower	1B.2, WRCMSHCP	Chaparral, coastal scrub, meadows and seeps, valley and foothill grasslands, and vernal pools; often clay substrates; 30-1530 m.	Apr-Jul	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 3.38 miles west, southwest of the BSA; this occurrence was recorded in 2001.
Clinopodium chandleri San Miguel savory	1B.2, WRCMSHCP	Chaparral, coastal scrub, riparian woodlands, and valley and foothill grasslands; rocky and Gabboric substrates; 120-1075 m.	Mar-Jul	**Low** No recent occurrences within 10 miles.
Deinandra paniculata paniculate tarplant	4.2	Coastal scrub; valley and foothill grasslands; and vernal pools; 25-940 m.	Mar-Nov	**Present** Documented in coastal scrub in Phase 3A

Special-Status Biological Resources

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Dudleya multicaulis many-stemmed dudleya	1B.2, WRCMSHCP	Chaparral, coastal scrub, and valley and foothill grasslands; often clay substrates; 15-790 m.	Apr-Jul	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 0.91 mile south of the BSA; this occurrence was recorded in 1985.
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woollystar	1B.1, FE, SE, WRCMSHCP	Chaparral and coastal scrub (alluvial fan); sandy or gravelly substrate; 91-610 m.	Apr-Sep	**Moderate** Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 4.77 miles northeast of the BSA; this occurrence was recorded in 2006.
Hesperocyparis forbesii Tecate cypress	1B.1	Closed-cone coniferous forest and chaparral; clay, gabbroic or metavolcanic; 80 to 1,500 m.	N/A	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 2.53 miles south, southwest of the BSA; this occurrence was recorded in 2011.
Horkelia cuneata var. *puberula* mesa horkelia	1B.1	Chaparral (maritime), cismontane woodland, and coastal scrub; sandy or gravelly substrate; 70-810 m.	Feb-Jul (Sep)	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 6.05 miles southwest of the BSA; this occurrence was recorded in 2008.
Lepechinia cardiophylla heart-leaved pitcher sage	1B.2, WRCMSHCP	Closed-cone coniferous forest, chaparral, and cismontane woodland; 520 to 1,370 m.	Apr-Jul	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 4.23 miles northwest of the BSA; this occurrence was recorded in 2016.

Special-Status Biological Resources

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Lepidium virginicum var. *robinsonii* Robinson's peppergrass	4.3	Chaparral and coastal scrub; 1-885 m.	Jan-Jul	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is within BSA; this occurrence was recorded in 2010.
Monardella australis ssp. *jokerstii* Jokerst's monardella	1B.1	Chaparral and lower montane coniferous forest. Occurs on steep scree or talus slopes between breccia, secondary alluvial benches along drainages and washes; 1,350-1,750 m.	Jul-Sep	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 2.15 miles north, northwest of the BSA; this occurrence was recorded in 1952.
Monardella hypoleuca ssp. *intermedia* intermediate monardella	1B.3	Chaparral, cismontane woodland, and lower montane coniferous forest; usually understory; 400 to 1,250 m.	Apr-Sep	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest recorded occurrence is approximately 3.58 miles south of the BSA; this occurrence was recorded in 1986.
Nolina cismontana chaparral nolina	1B.2	Chaparral and coastal scrub. Occurs on sandstone or gabbro; 140-1,275 m.	(Mar) May-Jul	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 2.16 miles south of the BSA; this occurrence was recorded in 1990.
Penstemon californicus California beardtongue	1B.2, WRCMSHCP	Chaparral, lower montane coniferous forest, and pinyon and juniper woodland, often in sandy soils; 1,170-2,300 m.	May-June (Aug)	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest recorded occurrence is approximately 6.83 miles west, southwest of the BSA; this occurrence was recorded in 1981.

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Pentachaeta aurea ssp. *allenii* Allen's pentachaeta	1B.1	Coastal scrub (openings) and valley and foothill grasslands; 75-520 m.	Mar-Jun	**Moderate** Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 4.84 miles southwest of the BSA; this occurrence was recorded in 2000.
Phacelia keckii Santiago Peak phacelia	1B.3	Closed-cone coniferous forest and chaparral; 545-1,600 m.	May-Jun	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 6.01 miles south of the BSA; this occurrence was recorded in 1981.
Pseudognaphalium leucocephalum white rabbit-tobacco	2B.2	Chaparral, cismontane woodland, coastal scrub, and riparian woodland; sandy and gravelly substrates; 0-2,100 m.	(Jul) Aug-Nov (Dec)	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 3.28 miles west of the BSA; this occurrence was recorded in 1928.
Sidalcea neomexicana salt spring checkerbloom	1B.2	Playas, chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub; alkali springs and marshes; 15 to 1,530 m.	Mar-Jun	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 1.79 miles north of the BSA; this occurrence was recorded in 1917.
Symphyotrichum defoliatum San Bernardino aster	1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and valley and foothill grasslands (vernally mesic); often found near ditches, streams, and springs; 2-2040 m.	Jul-Nov (Dec)	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 5.63 miles north, northwest of the BSA; this occurrence was recorded in 1928.

Sources: CCH 2021, CDFW 2021a, 2021d; CNPS 2021, WRCMSHCP 2015

Notes: [1] = Months appearing in parenthesis listed under blooming period indicates an additional, but uncommon, blooming periods for that species.

Special-Status Biological Resources

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Status Codes				
FE Federally listed Endangered Species				
SE State-listed Endangered Species				
WRCMSHCP = Western Riverside County MSHCP covered				
California Rare Plant Rank (CRPR)				
1A Plants considered by the CNPS to be extinct in California.				
1B Plants rare, threatened, or endangered in California and elsewhere.				
2B Plants presumed extinct in California but more common elsewhere.				
4 Plants of limited distribution – a watch list.				
.1 Seriously threatened in California (high degree/immediacy of threat).				
.2 Fairly threatened in California (moderate degree/immediacy of threat).				
.3 Not very threatened in California (low degree/ immediacy of threat or no current threats known).				

5.4 SPECIAL-STATUS WILDLIFE

Special-status taxa include those listed as threatened or endangered under the federal or California Endangered Species Acts, taxa proposed for such listing, Species of Special Concern, and other taxa that have been identified by the USFWS, CDFW, or local jurisdictions as unique or rare and which have the potential to occur within the BSA. Species protected by the WRCMSHCP are also included.

Seven special-status bird species, coastal California gnatcatcher, California horned lark (*Eremophila alpestris actia*), least Bell's vireo, Lawrence's goldfinch (*Spinus lawrencei*), turkey vulture (*Cathartes aura*), yellow-breasted chat (*Icteria virens*), and yellow warbler (*Setophaga petechia*) were observed in the BSA during 2021 surveys. Additional details on the least Bell's vireo observations and flycatcher and cuckoo surveys are provided in Appendix E. Focused surveys for burrowing owl were conducted but no owls were observed or are expected to occur in the BSA (Appendix F).

The CNDDB was queried for occurrences of special-status wildlife taxa within the BSA occurs and surrounding ten-mile area, as discussed above in Section 2.0. Table 7 summarizes the special-status wildlife taxa known to occur regionally (within 10 miles) and their potential for occurrence in the BSA (Appendix A Figure 6). Table 7 also includes WRCMSHCP covered species, USFWS iPaC data and Cornell Lab of Ornithology eBird data (Cornell 2021, USFWS 2021, WRCMSHCP 2015). Appendix A Figures 6B and 6C present CNDDB special-status wildlife that have been documented within two miles of the BSA.

Table 8 provides WRCMSHCP covered species that are not included in Table 7 that have high potential to occur in the BSA.

Each of the taxa identified in the database reviews/searches were assessed for its potential to occur within the BSA based on the following criteria:

- **Present:** Taxa (or sign) were observed in the BSA or in the same watershed (aquatic taxa only) during the most recent surveys, or a population has been acknowledged by CDFW, USFWS, or local experts.
- **High:** Habitat (including soils) for the taxa occurs on site and a known occurrence occurs within the BSA or adjacent areas (within 5 miles of the BSA) within the past 20 years; however, these taxa were not detected during the most recent surveys.
- **Moderate:** Habitat (including soils) for the taxa occurs on site and a known regional record occurs within the database search, but not within 5 miles of the BSA or within the past 20 years; or a known occurrence occurs within 5 miles of the BSA and within the past 20 years and marginal or limited amounts of habitat occurs on site; or the taxa's range includes the geographic area and suitable habitat exists.
- **Low:** Limited habitat for the taxa occurs on site and no known occurrences were found within the database search and the taxa's range includes the geographic area.
- **Not Likely to Occur:** The environmental conditions associated with taxa presence do not occur within the BSA.

Table 7 Known and Potential Occurrences of Special-Status Wildlife within the BSA

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
INVERTEBRATES					
Bombus crotchii	Crotch bumble bee	**SA**	Coastal California east to the sierra-cascade crest and south into Mexico. Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*.	Marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 1.14 miles southeast of the BSA from 1933.	**Low**
Branchinecta sandiegonensis	San Diego fairy shrimp	**FE**	Restricted to vernal pools in coastal southern California and northwestern Baja California, Mexico.	Suitable habitat does not occur within the BSA. Suitable habitat may occur west of the BSA. The nearest and most recent recorded occurrence is approximately 7.48 miles southwest of the BSA from 2006.	**Not Likely to Occur**
Danaus plexippus	monarch butterfly	**FC**	Inhabitant of coastal sand dune habitat; erratically distributed from Ten Mile creek in Mendocino County south to Ensenada, Mexico. Inhabits foredunes and sand hummocks; it burrows beneath the sand surface and is most common beneath dune vegetation. Roosts located in wind-protected tree groves (eucalyptus, pine, cypress), with nectar and water sources nearby.	Suitable habitat occurs within the BSA. Narrow leaf milkweed (*Asclepias fascicularis*), a monarch butterfly host plant, occurs in the BSA. The nearest and most recent occurrence is within the BSA from 2021.	**High**
Eugnosta busckana	Busck's gallmoth	**SA**	Beaches, salt marshes, sand dunes & coastal scrub dunes, presumed extirpated.	Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 9.71 miles east, northeast of the BSA from 1906.	**Not Likely to Occur**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Euphydryas editha quino	Quino checkerspot butterfly	**FE, WRCMSHCP**	Native to southern California and northwestern Mexico. Occurs in localized colonies closely associated with the larval food plant, *Plantago erecta*. Adults use several chaparral annual flowers for food. Six known populations in southwestern Riverside and San Diego Counties and at least one population near Tecate, Mexico.	Suitable habitat does not occur within the BSA. The nearest recorded occurrence is approximately 4.68 miles south of the BSA from 1976.	**Not Likely to Occur**
Neolarra alba	white cuckoo bee	**SA**	Parasitic species that lays eggs in the nest of other bees.	Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 9.71 miles east, northeast of the BSA from 1928.	**Not Likely to Occur**
Rhaphiomidas terminates abdominalis	Delhi Sands flower-loving fly	**FE, WRCMSHCP**	Endemic to sand dune formations of San Bernardino Valley, from Colton to Ontario.	Suitable habitat does not occur within the BSA. The nearest recorded occurrence is approximately 6.50 miles north of the BSA from 2001.	**Not Likely to Occur**
FISH					
Catostomus santaanae	Santa Ana sucker	**FT, WRCMSHCP**	Native to the Los Angeles and Santa Ana basins in southern California. Live in the shallow portions of rivers and streams. Preferred substrates are generally coarse and consist of gravel, rubble, and boulders with growths of algae.	Surface water was present within the BSA during the May 2021 surveys. The nearest recorded occurrence is approximately 0.40 mile west, southwest of the BSA from 2002.	**Low**
Gila orcuttii	arroyo chub	**SSC, WRCMSHCP**	Found in habitats characterized by slow-moving water, mud or sand substrate, and depths greater than 40 cm. Most abundant in low gradient pools that support at least some aquatic vegetation.	Surface water was present within the BSA during the May 2021 surveys. The nearest recorded occurrence is within BSA from 1997.	**Low**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Oncorhynchus mykiss irideus pop. 10	steelhead – southern California Distinct Population Segment (DPS)	**FE**	Inhabits seasonally accessible rivers and streams with gravel for spawning. Requires sufficient flows in their natal streams to be able to return from oceans and lakes to spawn. Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County). Southern steelhead likely have greater physiological tolerance to warmer water and more variable conditions.	Surface water was present within the BSA during the May 2021 surveys. The nearest recorded occurrence is within BSA from 2013.	**Not Likely to Occur**
Rhinichthys osculus	Santa Ana speckled dace	**SSC**	Found mainly in perennial steams fed by cool springs that maintain temperatures below 20°C. In the Los Angeles Basin, they occupy shallow rifles dominated by gravel and cobble. Prefer pools in low-gradient streams with slow-moving waters with overhanging riparian vegetation.	Surface water was present within the BSA during the May 2021 surveys. The nearest and most recent recorded occurrence is approximately 8.19 miles east, northeast of the BSA from 1996.	**Low**
AMPHIBIANS					
Anaxyrus californicus	arroyo toad	**FE, SSC, WRCMSHCP**	Occurs in the central San Joaquin valley and surrounding foothills, primarily in washes, arroyos, sandy riverbanks, and riparian areas.	Suitable habitat is present within the BSA. The nearest and most recent recorded occurrence is approximately 9.26 miles south, southeast of the BSA.	**Low**
Spea hammondii	western spadefoot	**SSC, WRCMSHCP**	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools and other temporary rain pools, cattle tanks, and occasionally pools of intermittent streams are essential for breeding and egg-laying.	Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 0.10 mile south of the BSA from 1964.	**Low**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Taricha torosa	Coast Range newt	**SSC, WRCMSHCP**	Occurs in oak woodlands, chaparral, and grasslands.	Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 0.67 mile south of the BSA from 1997.	**Low**
REPTILES					
Anniella stebbinsi	southern California legless lizard	**SSC**	Generally, south of the transverse range, extending to northwestern Baja California, occurs in sandy or loose loamy soils under sparse vegetation; disjunct populations in the Tehachapi and Piute mountains in Kern County; variety of habitats; generally, in moist, loose soil, they prefer soils with a high moisture content.	Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 4.87 miles east of the BSA from 2016.	**Moderate**
Arizona elegans occidentalis	California glossy snake	**SSC**	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular Ranges, south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils	Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 7.91 miles north, northeast of the BSA from 1946.	**Low**
Aspidoscelis hyperythra	orange-throated whiptail	**WL, WRCMSHCP**	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes and other sandy areas with patches of bush and rocks. Perennial plants necessary for its major food: termites.	Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 2.01 miles south of the BSA from 1990.	**Low**

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Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Aspidoscelis tigris stejnegeri	coastal whiptail	**SSC, WRCMSHCP**	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 2.43 miles south, southeast of the BSA from 2016.	**Moderate**
Coleonyx variegatus abbotti	San Diego banded gecko	**SSC, WRCMSHCP**	Found in southwestern California from Ventura County into Baja California. Inhabits coastal scrub chaparral and desert scrub habitats, preferring granite or rocky outcrops.	Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 4.00 miles east, northeast of the BSA from 2003.	**Moderate**
Crotalus ruber	red-diamond rattlesnake	**SSC, WRCMSHCP**	Chaparral, woodland, grassland, and desert areas from coastal San Diego County to the eastern slope of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 3.64 miles east, northeast of the BSA from 2003.	**Moderate**
Emys marmorata	western pond turtle	**SSC, WRCMSHCP**	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches usually with aquatic vegetation, below 6,000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.3 mile from water for egg-laying.	Marginally suitable habitat occurs within the BSA. No perennial water occurs in the BSA. The nearest recorded occurrence is approximately 2.07 miles west of the BSA from 1992.	**Low**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Phrynosoma blainvillii	coast horned lizard	**SSC, WRCMSHCP**	Primarily in sandy soil in open areas, especially sandy washes and floodplains, in many plant communities. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants or other insects. Main prey item is harvester ants. Occurs west of the deserts from northern Baja California, Mexico north to Shasta County below 2,400 m (8,000 feet) elevation.	Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 2.67 miles south, southeast of the BSA from 2016.	**Moderate**
Salvadora hexalepis virgultea	coast patch-nosed snake	**SSC**	Occurs in semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	Suitable habitat does not occur in the BSA. The nearest and most recent recorded occurrence is approximately 6.32 miles west, southwest of the BSA from 1999.	**Not Likely to Occur**
Thamnophis hammondii	two-striped gartersnake	**SSC**	Coastal California from vicinity of Salinas to northwest Baja California, Mexico. From sea level to about 7000 feet. elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 7.98 miles southwest of the BSA from 2000.	**Low**
BIRDS					
Accipiter cooperii	Cooper's hawk	**WL, WRCMSHCP**	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	Suitable foraging and nesting habitat occur within the BSA. The nearest recorded occurrence is within the BSA from 2010.	**High (foraging)/ Moderate (nesting)**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Agelaius tricolor	tricolored blackbird	**ST, SSC, BCC, WRCMSHCP**	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate and foraging area with insect prey within a few km of the colony.	Suitable foraging and potential nesting habitat occur within the BSA. The nearest recorded occurrence is approximately 1.73 miles northeast of the BSA from 2009.	**Moderate (foraging)/Low (nesting)**
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	**WL, WRCMSHCP**	Resident in southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	Suitable foraging and nesting habitat occur within the BSA. The nearest recorded occurrence is approximately 0.50 mile southwest of the BSA from 2019.	**High**
Ammodramus savannarum	grasshopper sparrow	**SSC, WRCMSHCP**	Occurs in grasslands, hayfields, and prairies with sparse shrub cover. Known to nest in lowlands and foothills west of the Sierra Nevada Mountain range through most of California.	Suitable foraging habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 3 miles west of the BSA from 2020.	**Moderate (foraging)/Low (nesting)**
Aquila chrysaetos	golden eagle	**BGEPA, FP, WL, BCC, WRCMSHCP**	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Suitable foraging habitat occurs within the BSA. The nearest and most recent recorded occurrence is within the BSA from 2007.	**Low (foraging)/ Not Likely (nesting)**
Artemisiospiza belli	Bell's sage sparrow	**WL, BCC, WRCMSHCP**	Prefers semi-open habitats with relatively evenly spaced shrubs; dry chaparral and coastal sage scrub; shrub species include brittlebush, black sage, California buckwheat, California sagebrush, bush mallow, chamise, white sage, valley cholla, and willow.	Limited marginally suitable foraging and nesting habitat occurs within the BSA. The nearest recorded occurrence is approximately 3.7 miles to the east of the BSA from 2020.	**Low**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Asio otus	long-eared owl	**SSC**	Riparian habitat required; also uses live oak thickets and other dense stands of trees. Found in Central Valley and Southern California deserts.	Limited marginally suitable foraging and nesting habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 6.55 miles to the west, southwest of the BSA from 2019.	**Low**
Athene cunicularia	burrowing owl	**SSC, WRCMSHCP**	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Limited marginally suitable foraging and nesting habitat occurs within the BSA. The nearest recorded occurrence is within BSA from 1989. Focused surveys were conducted in 2021 and no sign of this species was observed.	**Low /Not likely**
Buteo swainsoni	Swainson's hawk	**ST, BCC, WRCMSHCP**	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Marginally suitable foraging and nesting habitat occur within the BSA. The nearest recorded occurrence is within the BSA from 2011.	**Low**
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	**SSC, BCC, WRCMSHCP**	Southern California coastal sage scrub. Wrens require tall cactus for nesting and roosting.	No suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 4.55 miles west, southwest of the BSA from 1989.	**Not Likely to Occur**
Circus hudsonius	northern harrier	**WRCMSHCP**	Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Breeds from sea level to 1700 m in the Central Valley and Sierra Nevada, and up to 800 m in northeastern California.	Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is within the BSA from 2021.	**Moderate (foraging)/Low (nesting)**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Coccyzus americanus occidentalis	western yellow-billed cuckoo	**FT, SE, BCC, WRCMSHCP**	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Suitable foraging and nesting habitat occur within the BSA. The nearest and most recent recorded occurrence is within the BSA from 2011. This species was not observed during 2021 protocol surveys.	**Low**
Coturnicops noveboracensis	yellow rail	**SSC, BCC**	Summer resident in eastern Sierra Nevada in Mono County. Freshwater marshlands.	Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is within the BSA from 1914.	**Not Likely to Occur**
Elanus leucurus	white-tailed kite	**FP, WRCMSHCP**	Occurs in coastal and valley lowlands; rarely found away from agricultural areas. Inhabits herbaceous and open stages of most habitats mostly in cismontane California. Nest placed near top of dense oak, willow, or another tree stand. Nest located near open foraging area.	Suitable foraging and marginally suitable nesting habitat occurs within the BSA. The nearest recorded occurrence is within the BSA from 2020.	**Moderate (foraging)/ Low (nesting)**
Empidonax traillii extimus	southwestern willow flycatcher	**FE, SE, WRCMSHCP**	Riparian woodlands in southern California	Limited marginally suitable foraging and nesting habitat occurs within the BSA. The nearest recorded occurrence is approximately 0.31 mile north, northwest of the BSA from 1990. This species was not observed during 2021 protocol surveys.	**Low**
Eremophila alpestris actia	California horned lark	**WL, WRCMSHCP**	Coastal regions, chiefly from Sonoma County to San Diego County. Also, main part of San Joaquin Valley and east to foothills. Short-grass prairie, “bald” hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	Suitable habitat occurs within the BSA. This species was observed in during riparian bird surveys.	**Present**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Falco peregrinus anatum	American peregrine falcon	**FP, BCC, WRCMSHCP**	Nesting habitats contain cliffs and almost always nest near water. Open habitats are often used for foraging. Non-breeding American peregrine falcons may also occur in open areas without cliffs. Many artificial habitats like towers, bridges and buildings are also utilized.	Suitable foraging habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 1.11 miles north of the BSA from 2021.	**Moderate (foraging)/ Not likely (nesting)**
Haliaeetus leucocephalus	bald eagle	**Delisted, BGEPA, SE, FP, BCC, WRCMSHCP**	Range extends from the Mexico border throughout the United States and Canada. Prefer large lakes for hunting.	Marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is within the BSA from 2021. A nesting bald eagle was reported within the basin in 2020/2021.	**Low (foraging)/ Moderate (nesting)**
Icteria virens	yellow-breasted chat	**SSC, WRCMSHCP**	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests, in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft. of ground.	Suitable foraging and nesting habitat occur within the BSA. This species was observed in riparian habitat in the BSA during protocol bird surveys	**Present**
Laterallus jamaicensis coturniculus	California black rail	**ST, FP**	Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation.	Suitable habitat does not occur within the BSA. The nearest recorded occurrence is approximately 4.23 miles northwest of the BSA form 1931.	**Not Likely to Occur**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Larus californicus	California gull	**WL**	Preferred habitats along the coast are sandy beaches, mudflats, rocky intertidal, and pelagic areas of marine and estuarine habitats, as well as fresh and saline emergent wetlands. Inland, frequents lacustrine, riverine, and cropland habitats, landfill dumps, and open lawns in cities. nests at alkali and freshwater lacustrine habitats east of the Sierra Nevada and Cascades, and an abundant visitor to coastal and interior lowlands in nonbreeding season.	Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is within the BSA from 2021.	**High (foraging)/ Low (nesting)**
Plegadis chihi	white-faced ibis	**WL, WRCMSHCP**	Occurs in freshwater marshes, irrigated lands, and tules. For nesting, they select shallow marshes with scattered areas of taller emergent vegetation such as cattail, bur-reed, or bulrush.	Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is within the BSA from 2021.	**High(foraging)/ Low (nesting)**
Polioptila californica californica	coastal California gnatcatcher	**FT, SSC, WRCMSHCP**	Obligate, permanent resident of coastal sage scrub below 2500 feet in southern California. Low, coastal sage scrub in arid washes and on mesas and slopes with California sagebrush (*Artemisia californica*) as a dominant or co-dominant species. Not all areas classified as coastal sage scrub are occupied.	Suitable foraging and nesting habitat occur within the BSA. Observed in coastal sage scrub habitat during 2021 surveys.	**Present**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Setophaga petechia	yellow warbler	**SSC, BCC, WRCMSHCP**	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets and in other riparian plants including cottonwoods, sycamores, ash, and alders.	Suitable foraging and nesting habitat occur within the BSA. This species was observed in riparian habitat in the BSA during protocol bird surveys.	**Present**
Spinus lawrencei	Lawrence's goldfinch	**BCC**	Oak, pinyon-juniper woodlands and chaparral habitats. Breed in streamside trees, oak woodland, open pine woods, pinyon-juniper woods, and chaparral. Often found close to water.	Suitable habitat occurs within the BSA. This species was observed in riparian habitat in the BSA during protocol bird surveys Observed during protocol riparian bird surveys.	**Present**
Vireo bellii pusillus	least Bell's vireo	**FE, SE, WRCMSHCP**	Summer resident of southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, *Baccharis*, mesquite.	Suitable foraging and nesting habitat occur within the BSA. Observed during 2021 biological resources field surveys.	**Present**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
MAMMALS					
Chaetodipus fallax	northwestern San Diego pocket mouse	**SSC, WRCMSHCP**	Restricted to the central and northern Baja California Peninsula and southwestern California. Commonly found in sandy herbaceous areas, usually with coarse gravel. Habitats tend to be stony soils above sandy desert fans and rocky areas within shrub communities such as coastal sage scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent scrub, and annual grassland.	Marginally suitable habitat occurs within the BSA; however, substrates are not ideal. The nearest and most recent recorded occurrence is approximately 3.47 miles south, southeast of the BSA from 2001.	**Low**
Dipodomys stephensi	Stephens' kangaroo rat	**FE, ST, WRCMSHCP**	Require annual grasses for feeding. Prefer sparse perennial plant cover and firm soils. Often occupy abandoned pocket gopher burrows.	Limited marginally suitable foraging and nesting habitat occurs within the BSA. The nearest recorded occurrence is approximately 2.61 miles east of the BSA from 1992.	**Low**
Eumops perotis californicus	western mastiff bat	**SSC**	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	Suitable foraging and roosting habitat occur within the BSA. The nearest recorded occurrence is approximately 2.92 miles west, southwest of the BSA from 1992.	**Moderate**
Lasiurus xanthinus	western yellow bat	**SSC**	Prefer riparian woodland habitat, especially with palm trees (for roosting). Also occupy cottonwood-willow riparian woodlands.	Suitable foraging and roosting habitat occur within the BSA. The nearest and most recent recorded occurrence is approximately 1.14 miles southeast of the BSA from 1999.	**Moderate**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Lepus californicus bennettii	San Diego black-tailed jackrabbit	**SSC, WRCMSHCP**	Occurs primarily in arid regions with short grass. Preferred habitats include open grasslands, agricultural fields, and sparse coastal scrub.	Marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 9.24 miles east of the BSA from 2001.	**Moderate**
Myotis yumaensis	Yuma myotis	**SA**	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings, or crevices.	Suitable foraging habitat occurs within the BSA however the preferred habitat for maternity colonies is absent. The nearest recorded occurrence is approximately 7.20 miles east, southeast of the BSA form 1997.	**Low**
Nyctinomops femorosaccus	pocketed free-tailed bat	**SSC**	Variety of arid areas in southern California; pinyon-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. rocky areas with high cliffs.	Suitable habitat does not occur within the BSA. The nearest recorded occurrence is approximately 1.14 miles southeast of the BSA from 1986.	**Not Likely to Occur**

Sources: CDFW 2021a, 2021b, 2021c, 2021e; Cornell 2021, WRCMSHCP 2015

Federal Rankings:
FE = Federally Endangered
FT = Federally Threatened
FC = Federal Candidate for Listing
BCC = USFWS Bird of Conservation Concern
BGEPA = Bald and Golden Eagle Protection Act
Delisted = removed from federal listing

County:
WRCMSHCP = Western Riverside County MSHCP covered

State Rankings:
FP = Fully Protected
SE= State Endangered
ST = State Threatened
SA = CDFW Special Animal
SC = State Candidate for Listing
WL = CDFW Watch List
SSC = Species of Special Concern
Delisted = removed from state listing

Table 8 WRCMSHCP Covered Species likely to Occur in the BSA[1]

Scientific Name	Common Name
BIRDS	
black-crowned night heron	*Picoides pubescens*
downy woodpecker	Tachycineta bicolor
tree swallow	*Tachycineta bicolor*
turkey vulture	*Cathartes aura*
Wilson's warbler	*Wilsonia pusilla*
MAMMALS	
bobcat	*Lynx rufus*
coyote	*Canis latrans*
long-tailed weasel	*Mustela frenata*

Note: [1] = If a WRCMSHCP covered species is listed in Table 7, it is not repeated in this table.

5.5 WILDLIFE CORRIDORS AND SPECIAL LINKAGES

Linkages and corridors facilitate regional animal movement and are generally centered in or around waterways, riparian corridors, flood control channels, contiguous habitat, and upland habitat. Drainages generally serve as movement corridors because wildlife can move easily through these areas, and fresh water is available. Corridors also offer wildlife unobstructed terrain for foraging and for dispersal of young individuals.

As the movements of wildlife species are more intensively studied using radio-tracking devices, there is mounting evidence that some wildlife species do not necessarily restrict their movements to some obvious landscape element, such as a riparian corridor. For example, recent radio-tracking and tagging studies of Coast Range newts (*Taricha torosa*), California red-legged frogs (*Rana draytoni*), western pond turtles (*Emys marmorata*), and two-striped garter snakes (*Thamnophis hammondii*) found that long-distance dispersal involved radial or perpendicular movements away from a water source with little regard to the orientation of the assumed riparian "movement corridor" (Hunt 1993; Rathbun et al., 1992; Bulger et al. 2002; Trentham 2002; Ramirez 2003). Likewise, carnivores do not necessarily use riparian corridors as movement corridors, frequently moving overland in a straight line between two points when traversing large distances (Newmark 1995; Beier 1993, 1995; Noss et al. 1996; Noss et al. no date). In general, the following corridor functions can be utilized when evaluating impacts to wildlife movement corridors:

- Movement corridors are physical connections that allow wildlife to move between patches of suitable habitat. Simberloff et al. (1992) and Beier and Loe (1992) correctly state that, for most species, we do not know what corridor traits (length, width, adjacent land use, etc.) are required for a corridor to be useful. But, as Beier and Loe (1992) also note, the critical features of a movement corridor may not be its physical traits but rather how well a particular piece of land fulfills several functions, including allowing dispersal, plant propagation, genetic interchange, and recolonization following local extirpation.
- Dispersal corridors are relatively narrow, linear landscape features embedded in a dissimilar matrix that links two or more areas of suitable habitat that would otherwise be fragmented and isolated from one another by rugged terrain, changes in vegetation, or human-altered environments. Corridors of

habitat are essential to the local and regional population dynamics of a species because they provide physical links for genetic exchange and allow animals to access alternative territories as dictated by fluctuating population densities.

- Habitat linkages are broader connections between two or more habitat areas. This term is commonly used as a synonym for a wildlife corridor (Meffe and Carroll 1997). Habitat linkages may themselves serve as source areas for food, water, and cover, particularly for small- and medium-size animals.
- Travel routes are usually landscape features, such as ridgelines, drainages, canyons, or riparian corridors within larger natural habitat areas that are used frequently by animals to facilitate movement and provide access to water, food, cover, den sites, or other necessary resources. A travel route is generally preferred by a species because it provides the least amount of topographic resistance in moving from one area to another yet still provides adequate food, water, or cover (Meffe and Carroll 1997).

5.5.1 Wildlife Movement in the BSA

The BSA is located within the Santa Ana River floodplain, which has been identified as an important wildlife movement corridor/riparian linkage (Penrod et al. 2001) and is part of a large area of open space within an otherwise heavily developed region. This corridor joins upland and riparian habitats. It joins the San Bernardino Mountains in the north to the Chino Hills, and by extension the Santa Ana Mountains, to the south, and Orange County to the west. Therefore, the riparian corridor, including the BSA, would be expected to experience substantial wildlife movement as fauna travel between these mountainous regions of southern California. Within the BSA, the lack of structures or other significant development and the presence of relatively intact habitat and features such as ephemeral drainages and unpaved roads all facilitate the unimpeded movement of wildlife throughout the area. The east/west corridor of the Santa Ana River floodplain is also important due to SR-91 and developed area surrounding the BSA impeding wildlife movement, especially movement south of the BSA.

6.0 REFERENCES

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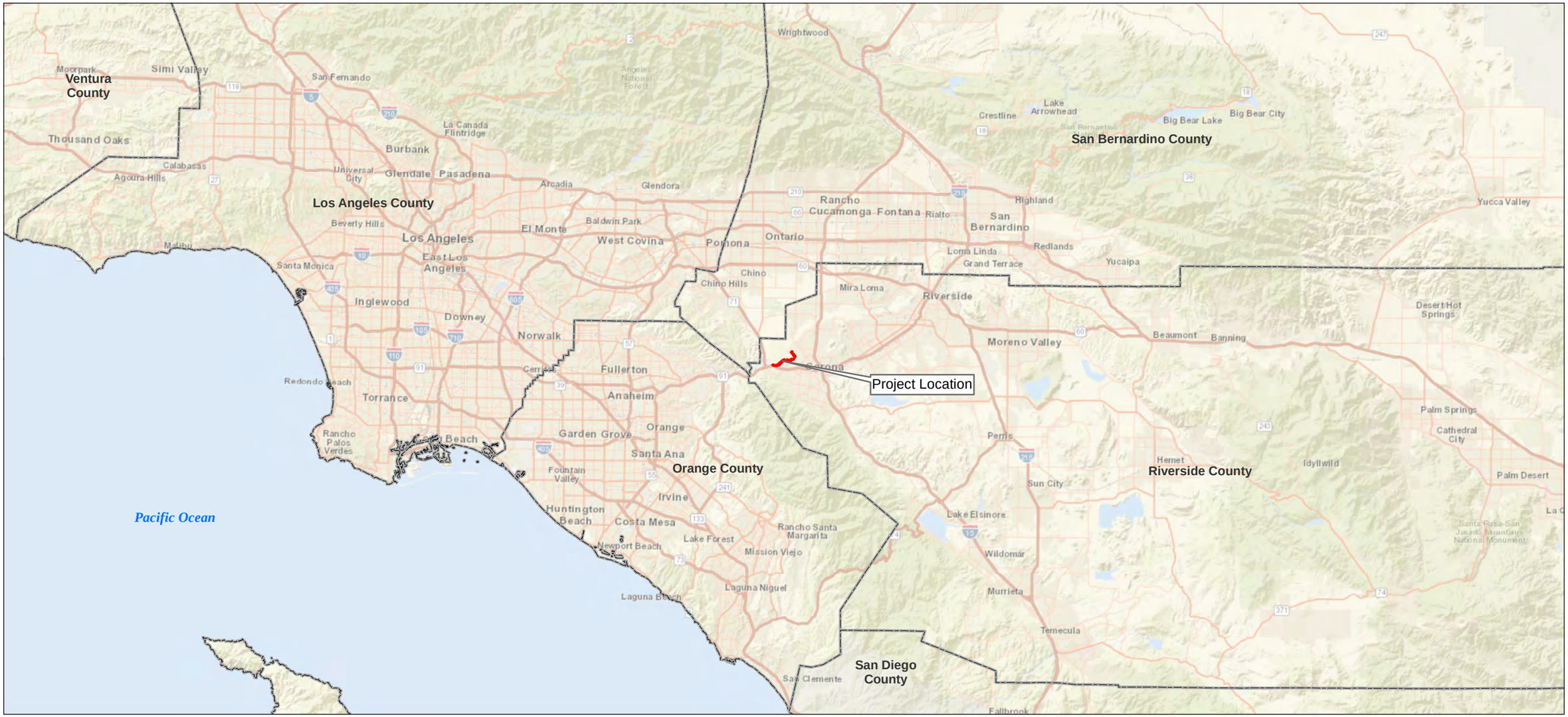
Appendix A FIGURES



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Stantec

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Near Corona	TR by SET on 2022-06-29
Riverside County, California	IR by JV on 2022-06-29
Client/Project	2042483140
Riverside County Regional Park & Open-Space District	
Santa Ana River Trail Project	
Biolgical Resources Technical Report	
Figure No.	
1	
Title	
Regional Location	

Notes

1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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△ Phase 2A End Location / Phase 3A Start Location

Railroad

Proposed Action (2022 Trail-60% Design)

Temporary Impact (54.00 ac.)

Permanent Impact (11.54 ac.)

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Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
TR by SET on 2022-06-29
IR by JV on 2022-06-29

Client/Project
2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biolgical Resources Technical Report

Figure No.
2 - 0

Title
Site Plan

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2. Data Sources:Stantec 2021.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
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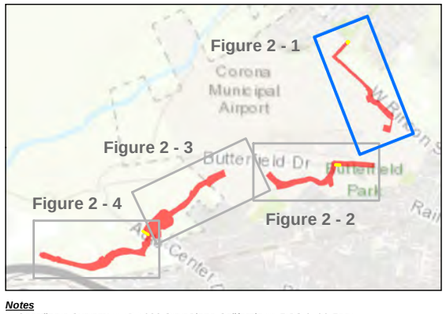

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- Permanent Impact (11.54 ac.)

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Project Location
Near Corona
Riverside County, California

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Santa Ana River Trail Project
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Figure No.
2 - 1

Title
Plan Sheet 1

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3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
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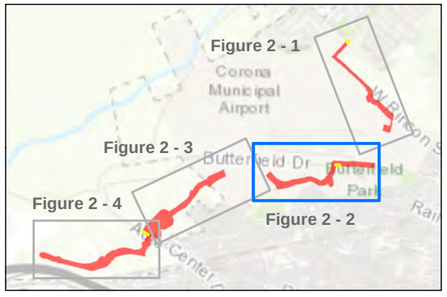

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Riverside County, California	IR by JV on 2022-06-29
Client/Project	2042483140
Riverside County Regional Park & Open-Space District	
Santa Ana River Trail Project	
Biological Resources Technical Report	
Figure No.	**2 - 2**
Title	**Plan Sheet 2**

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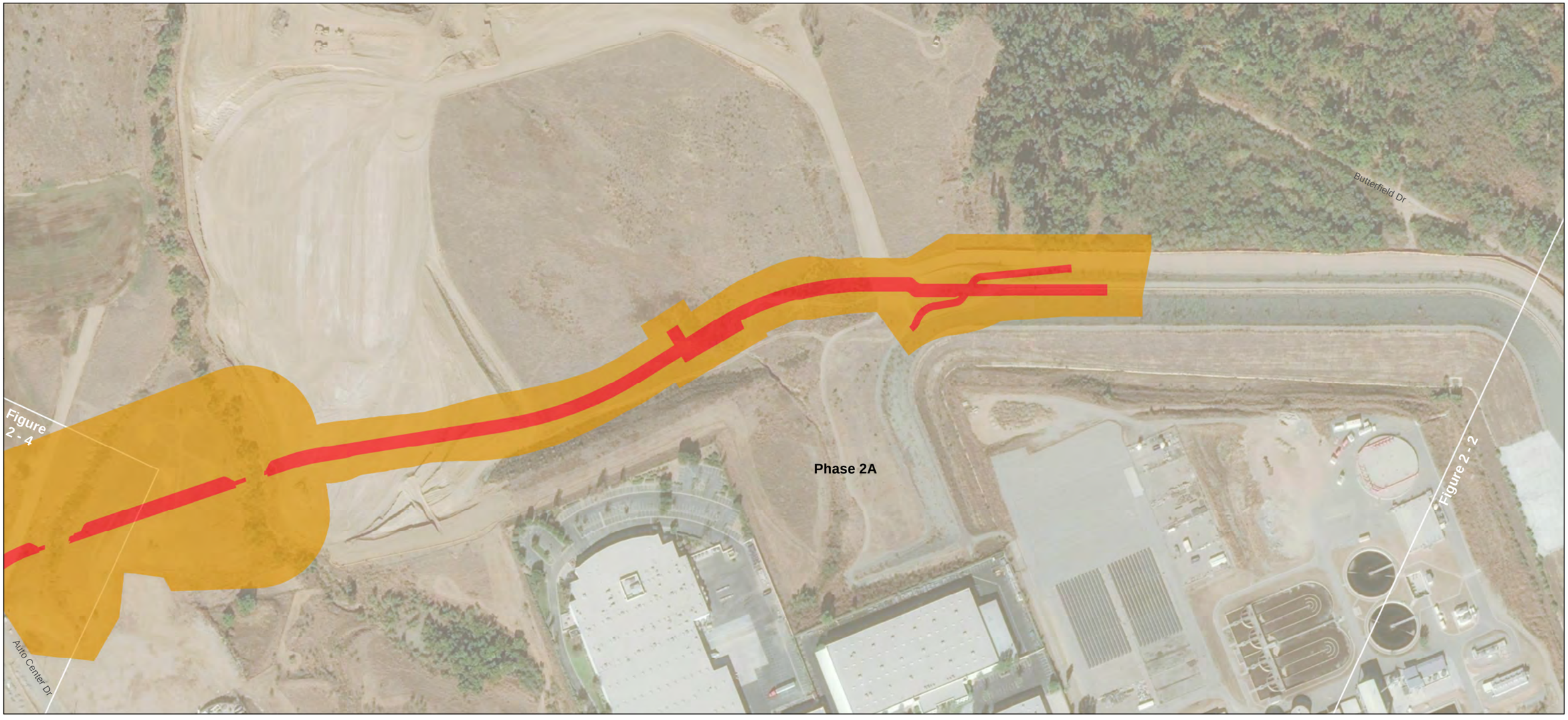

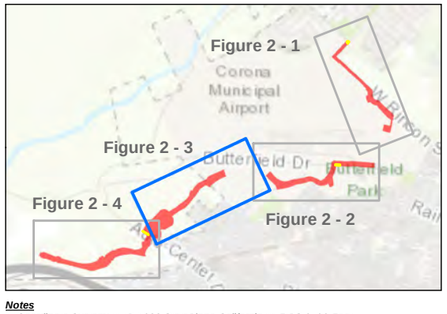

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Project Location
Near Corona
Riverside County, California

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Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
2 - 3

Title
Plan Sheet 3

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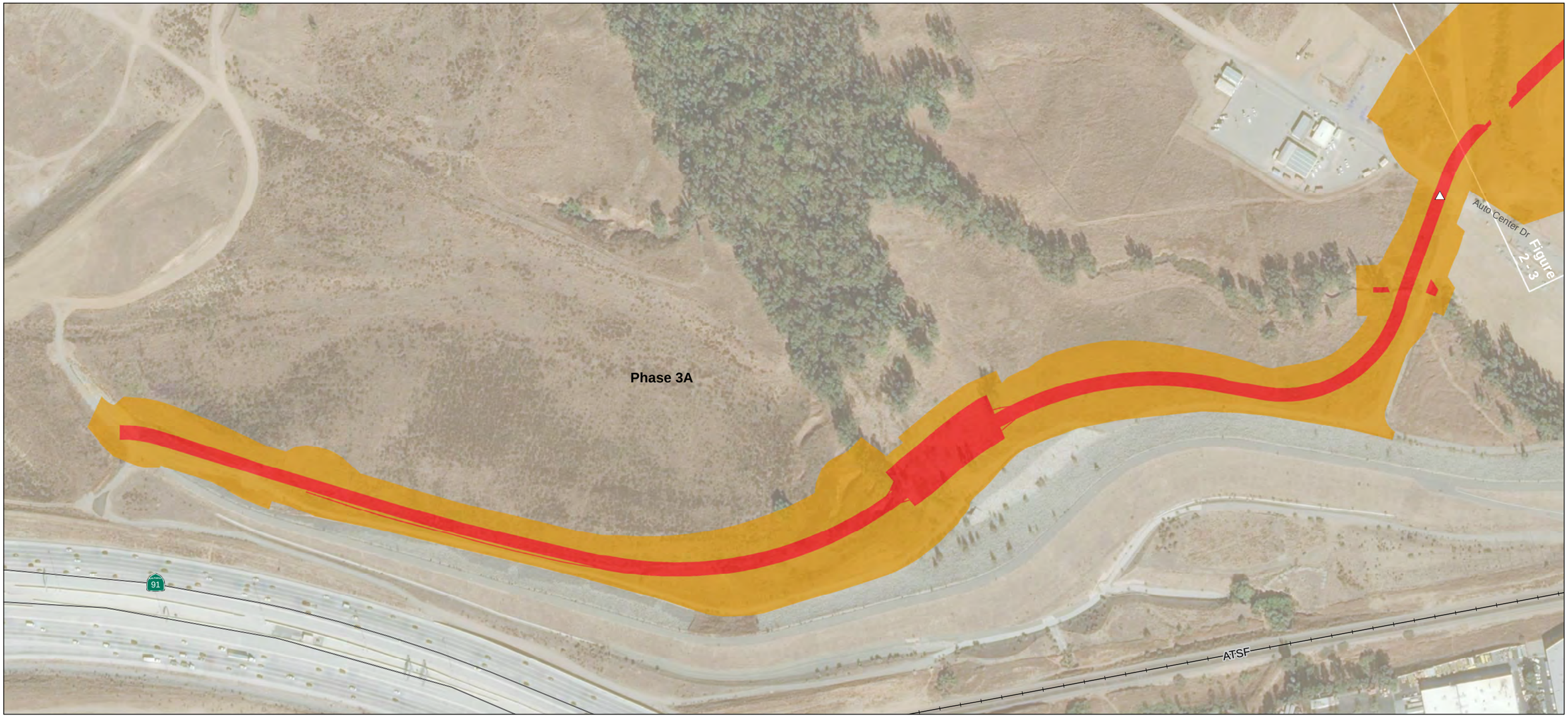

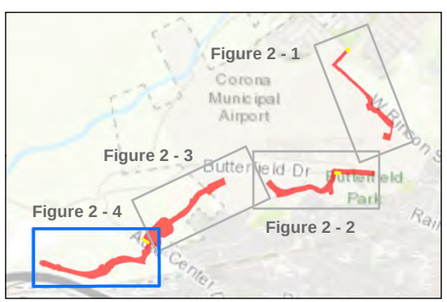

△ Phase 2A End Location / Phase 3A Start Location

Railroad

Proposed Action (2022 Trail-60% Design)

Temporary Impact (54.00 ac.)

Permanent Impact (11.54 ac.)

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Project Location
Near Corona
Riverside County, California

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Riverside County Regional Park & Open-Space District
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Figure No.
2 - 4

Title
Plan Sheet 4

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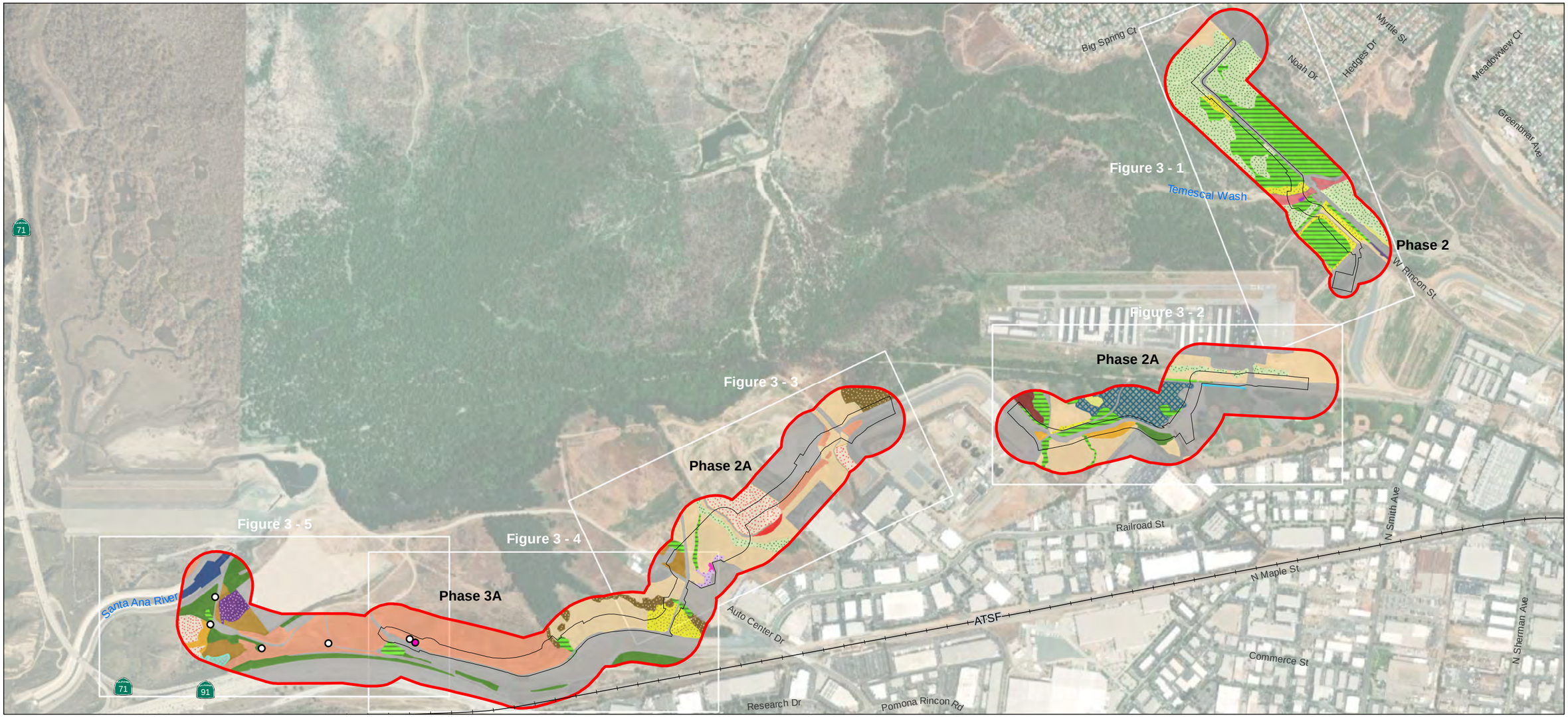

- Biological Survey Area
- Project Footprint

Special-Status Species

- Coastal California Gnatcatcher
- Paniculate Tarplant

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- California buckwheat scrub
- California sagebrush scrub
- Cheeseweed flats
- Coyote brush scrub
- Disturbed/Developed
- Elderberry stands
- Eucalyptus groves
- Giant reed stands
- Menzie's goldenbush scrub
- Mulefat thickets
- Non-vegetated channel
- Open water
- Partially vegetated channel
- Perennial pepperweed patches
- Poison hemlock or fennel patches
- Restoration
- Ruderal
- Shining willow groves
- Smartweed-cocklebur patches
- Tamarisk thickets
- Upland mustards or star-thistle fields
- Western ragweed meadow
- Wild oats and annual brome grasslands

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Notes

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Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
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Client/Project 2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
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Title
Biological Resources

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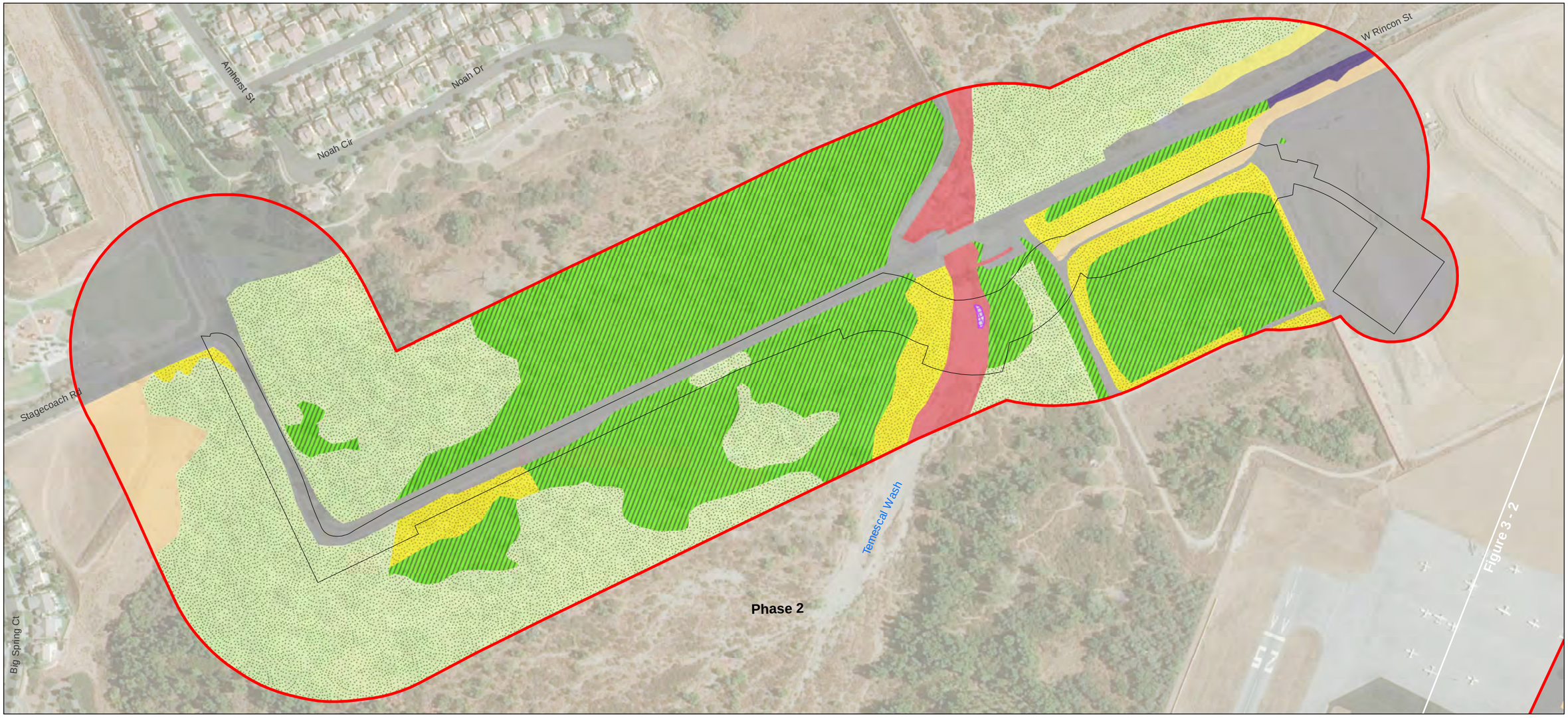

Biological Survey Area
Project Footprint

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- Disturbed/Developed
- Giant reed stands
- Mulefat thickets
- Partially vegetated channel
- Smartweed-cocklebur patches
- Tamarisk thickets
- Upland mustards or star-thistle fields
- Wild oats and annual brome grasslands

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1:3,240

N

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Stantec

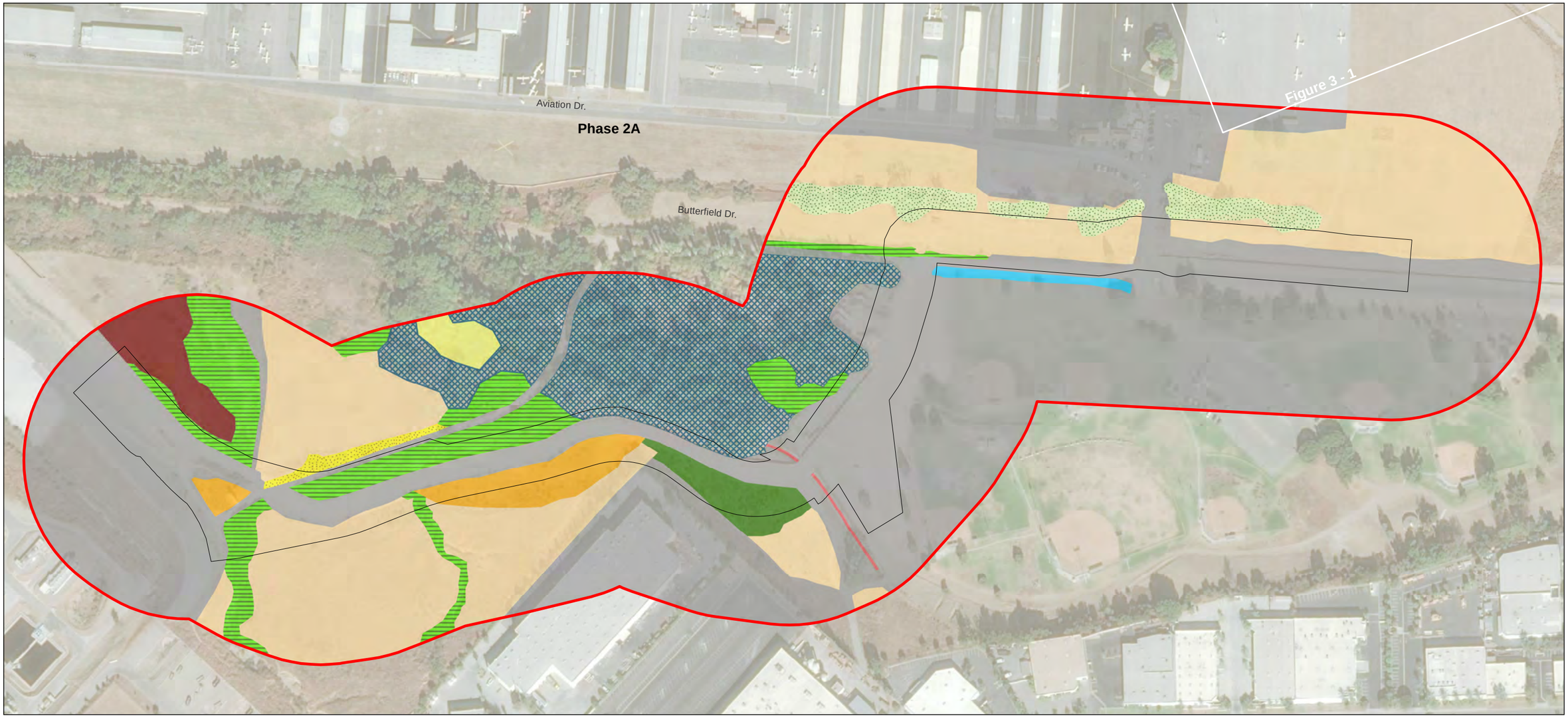
Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
TR by SET on 2022-06-29
IR by JV on 2022-06-29

Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure
3 - 1

Title
Biological Resources



Biological Survey Area
Project Footprint

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- California buckwheat scrub
- Coyote brush scrub
- Disturbed/Developed
- Giant reed stands
- Menzie's goldenbush scrub
- Mulefat thickets
- Non-vegetated channel
- Partially vegetated channel
- Shining willow groves
- Upland mustards or star-thistle fields
- Wild oats and annual brome grasslands

0 270 540 Feet

(At original document size of 11x17)
1:3,240

N

Notes

1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Stantec

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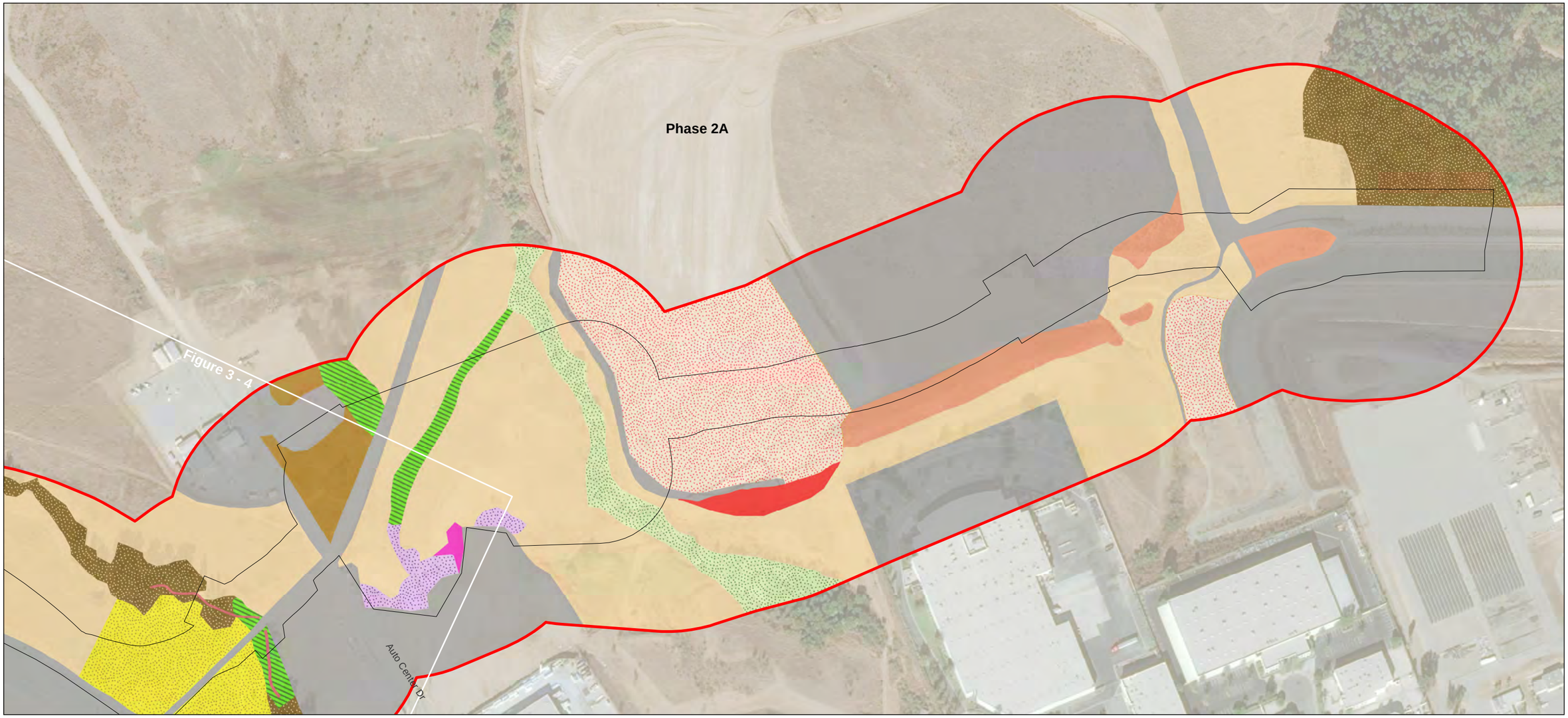
Client/Project 2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure
3 - 2

Title
Biological Resources



Biological Survey Area
Project Footprint

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- California sagebrush scrub
- Cheeseweed flats
- Disturbed/Developed
- Eucalyptus groves
- Mulefat thickets
- Partially vegetated channel
- Perennial pepperweed patches
- Poison hemlock or fennel patches
- Restoration
- Ruderal
- Upland mustards or star-thistle fields
- Wild oats and annual brome grasslands

0 270 540 Feet

(At original document size of 11x17)
1:3,240

N

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Stantec

Project Location
Near Corona
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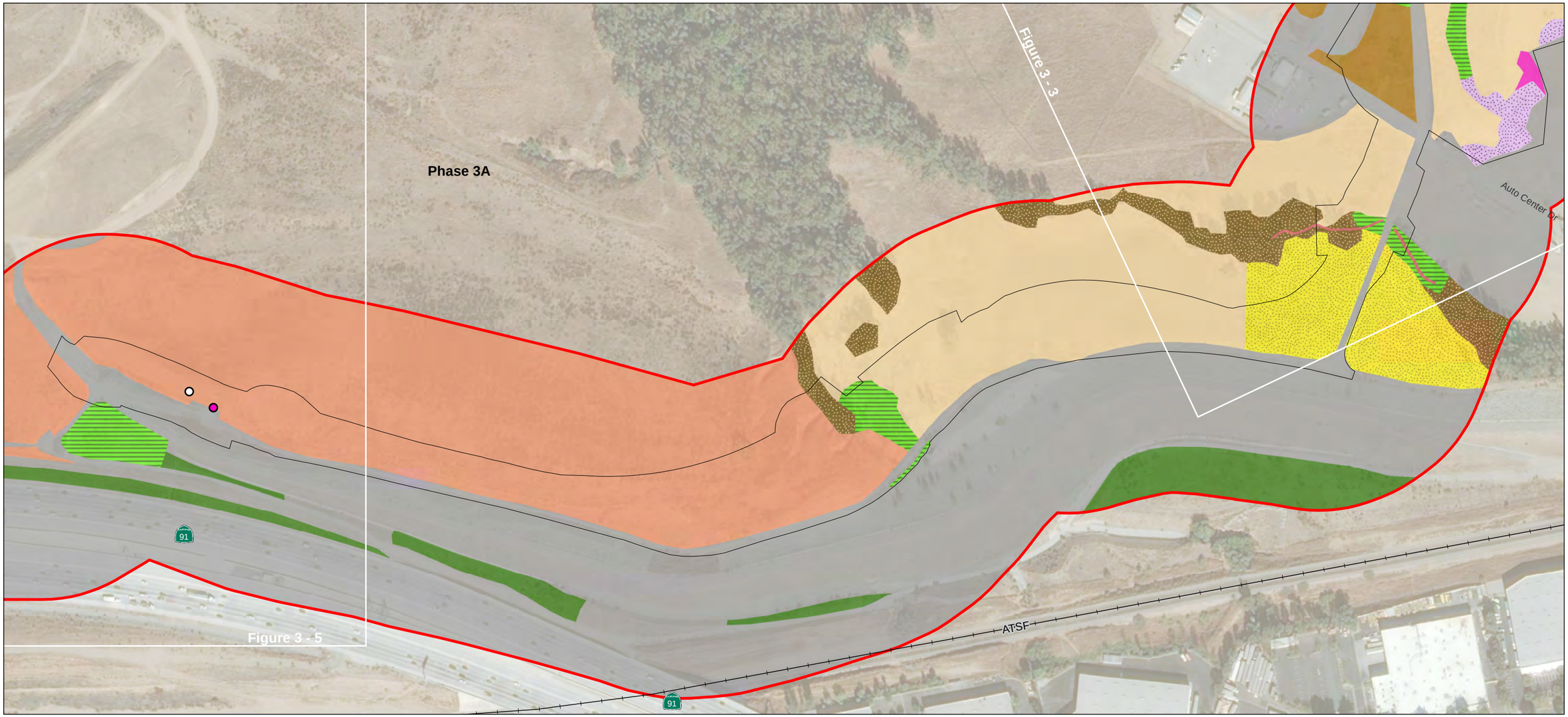
Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure
3 - 3

Title
Biological Resources



- Biological Survey Area
- Project Footprint
- Railroad

Special-Status Species

- Coastal California Gnatcatcher
- Paniculate Tarplant

Vegetation Communities and Land Cover Types

- California buckwheat scrub
- California sagebrush scrub
- Disturbed/Developed
- Eucalyptus groves
- Mulefat thickets
- Partially vegetated channel
- Perennial pepperweed patches
- Poison hemlock or fennel patches
- Ruderal
- Upland mustards or star-thistle fields
- Wild oats and annual brome grasslands

0 270 540 Feet

(At original document size of 11x17)
1:3,240

N

Notes

1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
TR by SET on 2022-06-29
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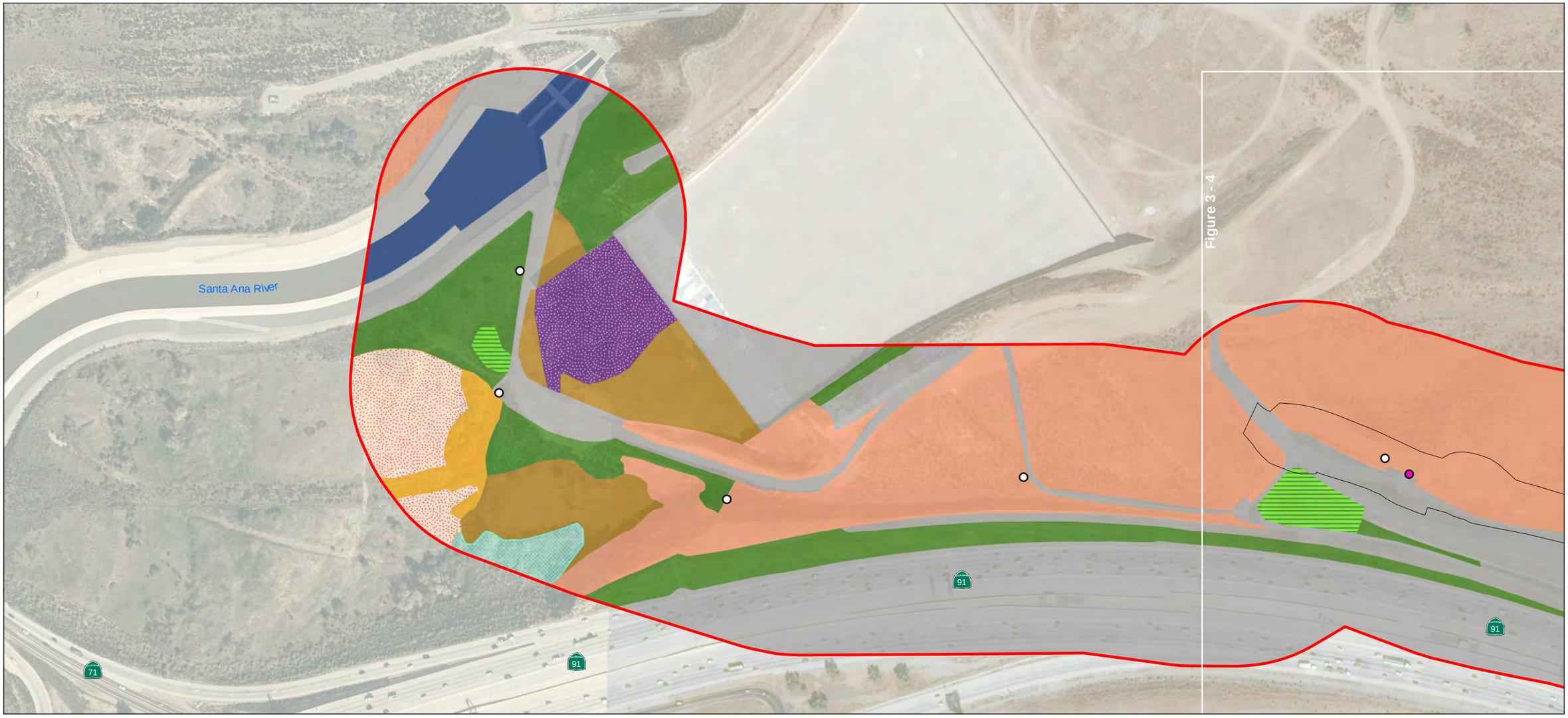
Client/Project
2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure
3 - 4

Title
Biological Resources



Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

- Biological Survey Area
- Project Footprint

Special-Status Species
- Coastal California Gnatcatcher
- Paniculate Tarplant

Vegetation Communities and Land Cover Types
- California buckwheat scrub
- California sagebrush scrub
- Coyote brush scrub
- Disturbed/Developed
- Elderberry stands
- Mulefat thickets
- Open water
- Restoration
- Ruderal
- Western ragweed meadow

0 270 540 Feet

(At original document size of 11x17)
1:3,240

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
TR by SET on 2022-06-29
IR by JV on 2022-06-29

Client/Project 2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure
3 - 5

Title
Biological Resources

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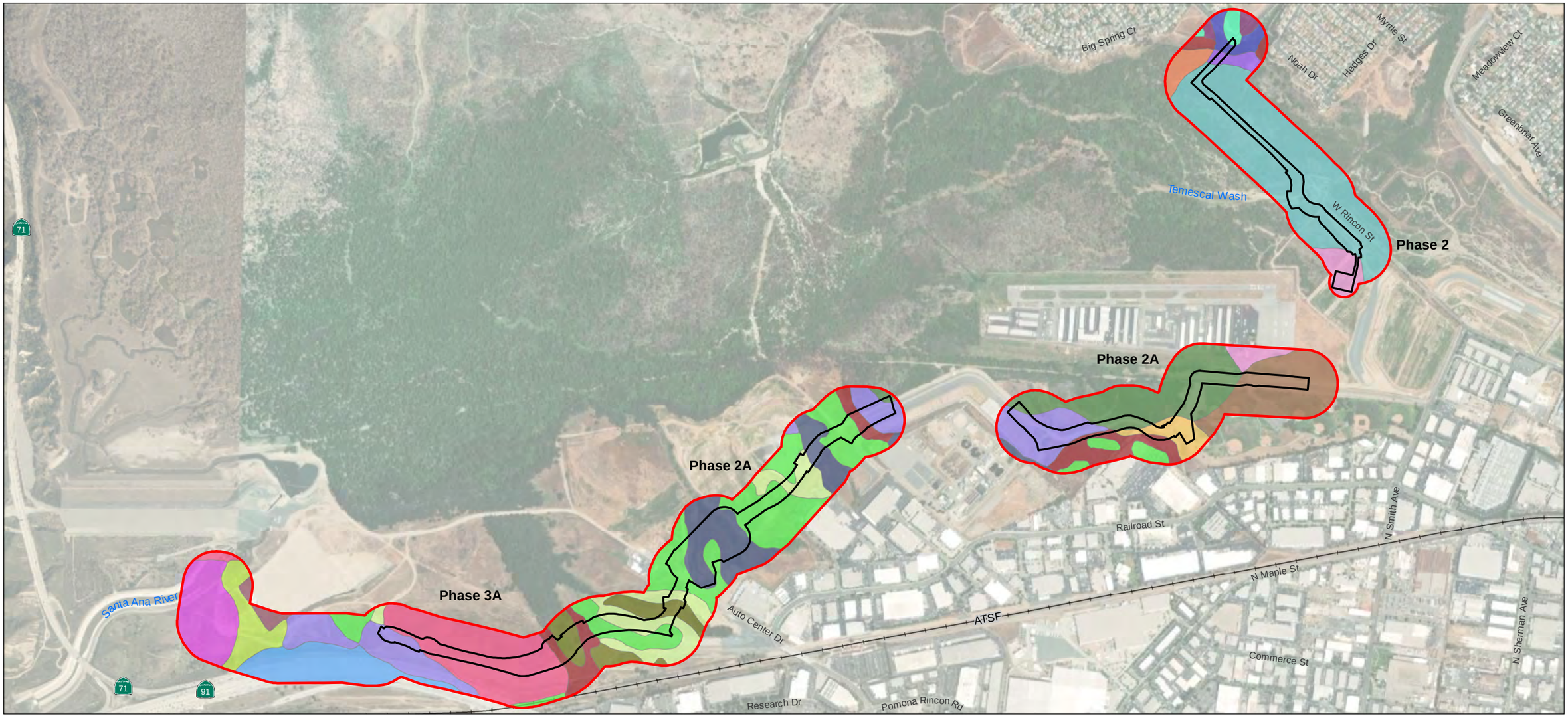

- Biological Survey Area
- Project Footprint
- Railroad

Soils Map Unit Symbol

- AkC; Arbuckle loam, 2 to 8 percent slopes
- AkD; Arbuckle loam, 8 to 15 percent slopes
- AlC; Arbuckle gravelly loam, 2 to 9 percent slopes, dry, MLRA 19
- AlE3; Arbuckle gravelly loam, 2 to 25 percent slopes, severely eroded
- BP; Borrow Pit
- DAM; Dams
- GaC; Garretson very fine sandy loam, 2 to 8 percent slopes
- GfF2; Gaviota very fine sandy loam, 15 to 50 percent slopes, eroded
- GrB; Grangeville sandy loam, sandy substratum, drained, 0 to 5 percent slopes
- GvB; Grangeville fine sandy loam, saline-alkali, 0 to 5 percent slopes
- HcC; Hanford coarse sandy loam, 2 to 8 percent slopes
- MdC; Metz loamy sand, 2 to 8 percent slopes
- MgB; Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- MhB; Metz loamy fine sand, sandy loam substratum, 0 to 5 per cent slopes
- PeC; Perkins loam, 2 to 8 percent slopes
- PgD2; Perkins gravelly loam, 8 to 15 percent slopes, eroded
- RaD2; Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3; Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- SeC2; San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded
- SgA; San Emigdio loam, 0 to 2 percent slopes
- TeG; Terrace escarpments

Notes

1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.NRCS 2021.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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(At original document size of 11x17)
1:14,400

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
TR by SET on 2022-06-29
IR by JV on 2022-06-29

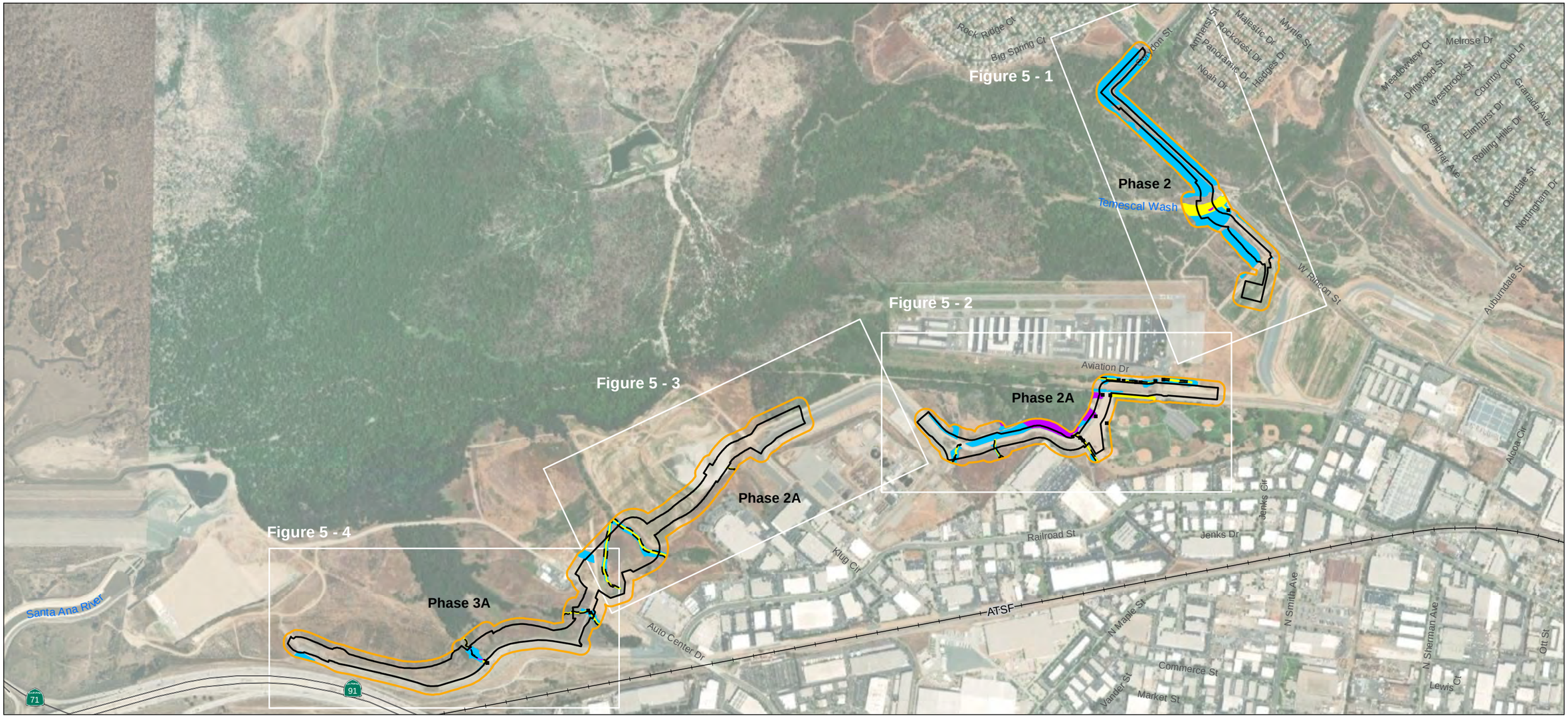
Client/Project 2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
4

Title
Historical Soils

V:\1865\business_development\Santa_Ana_River_Trail\BRTR_Figure4_SART_SoilsMap_06032021_11x17.mxd Revised: 2022-06-29 By: dalaw



- Aquatic Resources Survey Area (100 ft Buffer)
- Project Footprint
- Railroad

Potential RWQCB Jurisdictional Waters

- Waters of the State

Potential CDFW Jurisdictional Waters

- Concrete Channel
- Riparian Wetlands and Waters

Potential USACE Jurisdictional Areas

- Waters of the U.S.
- Wetlands
- Culvert

Notes

1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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(At original document size of 11x17)
1:14,400

N

Stantec

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Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
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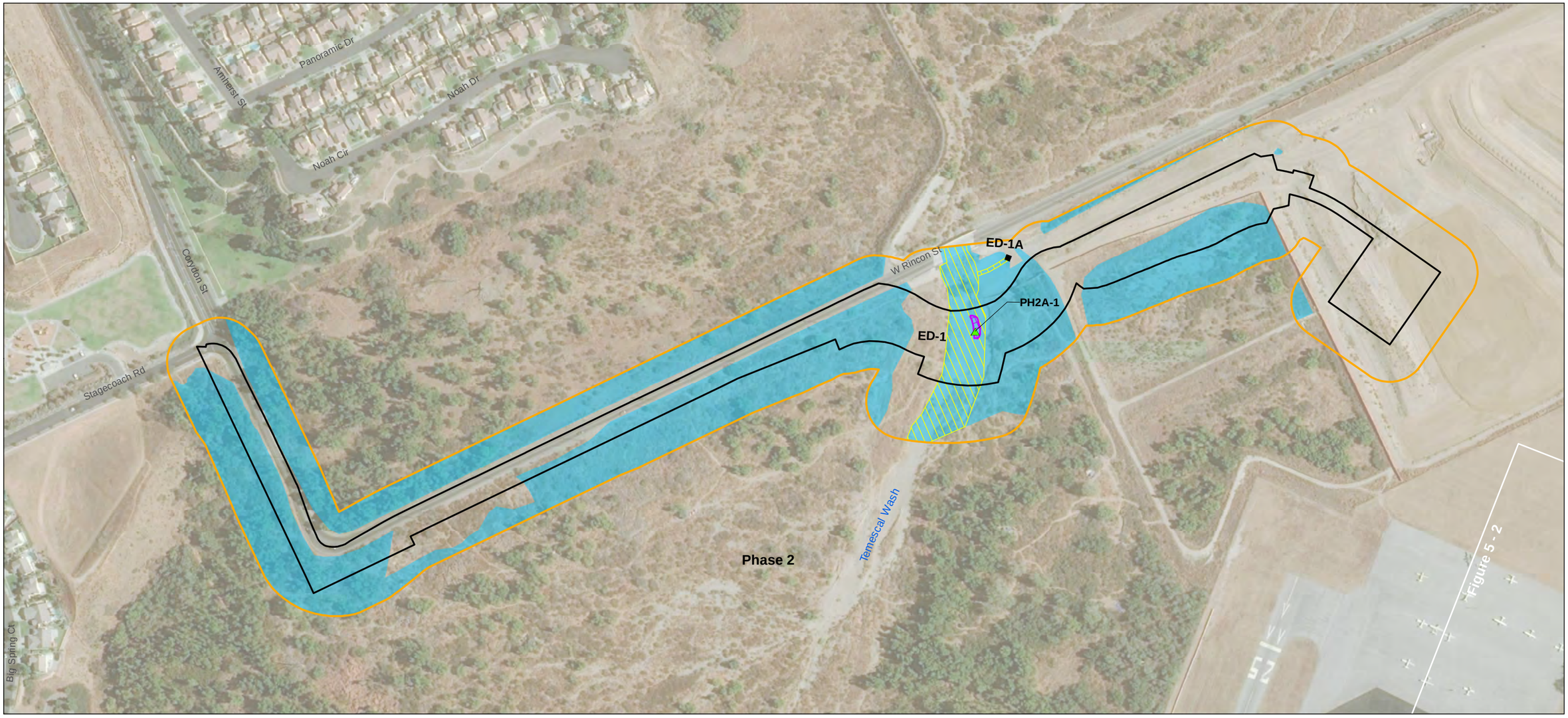
IR by JV on 2022-06-29

Client/Project
2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biolgical Resources Technical Report

Figure No.
5 - 0

Title
Aquatic Resources

V:\1865\business_development\Santa_Ana_River_Trail\BRTR_Figure5_SART_WatersMap_12302021_11x17.mxd Revised: 2022-06-29 By: ddaw



- Aquatic Resources Survey Area (100 ft Buffer)
- Project Footprint

Potential CDFW Jurisdictional Waters

- Riparian Habitat

Potential USACE Jurisdictional Areas

- Waters of the U.S.
- Wetlands
- Culvert

Sample Point

- Wetland

0 270 540 Feet

(At original document size of 11x17)
1:3,240

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
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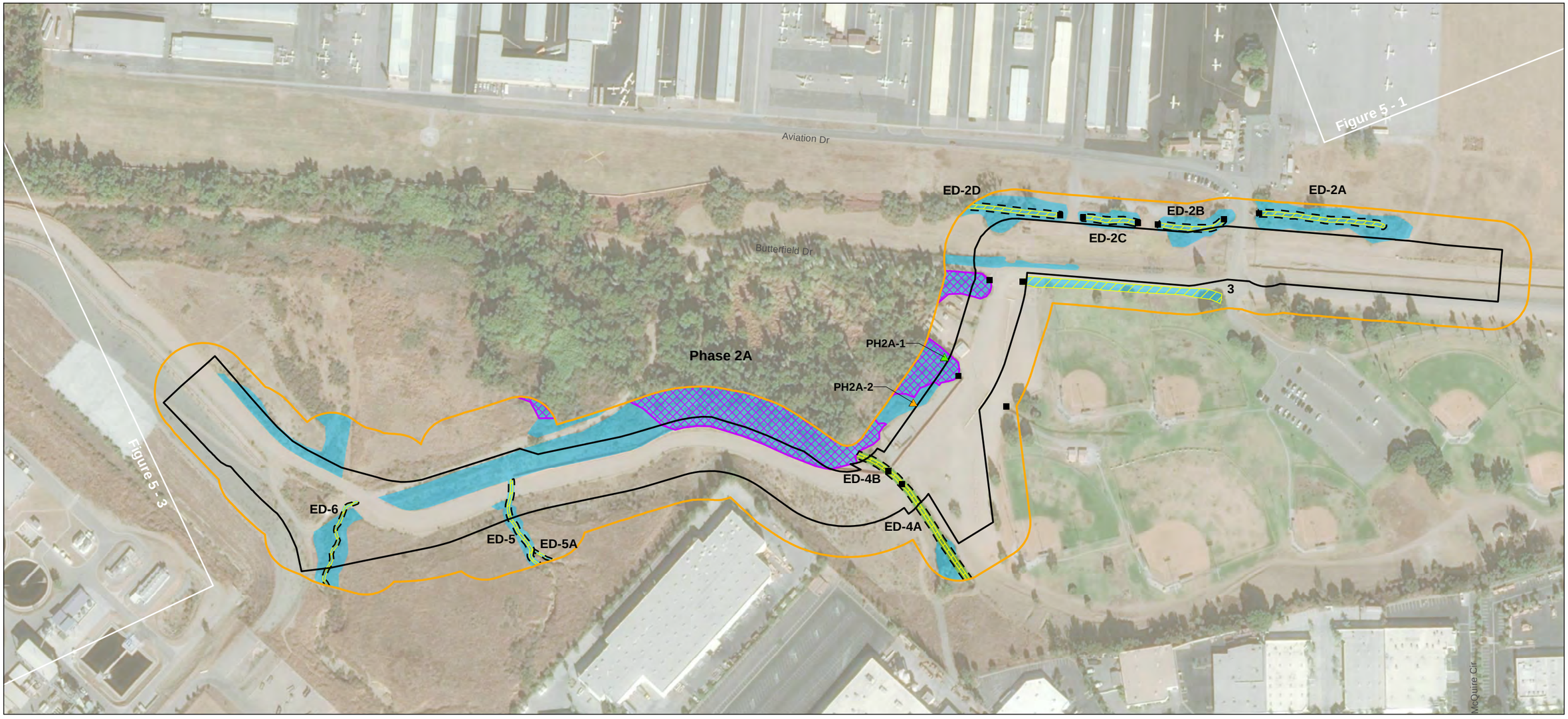
IR by JV on 2022-06-29

Client/Project
2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
5 - 1

Title
Aquatic Resources

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021,2022.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Aquatic Resources Survey Area (100 ft Buffer)
Project Footprint

Potential RWQCB Jurisdictional Waters
Waters of the State

Potential CDFW Jurisdictional Waters
Concrete Channel
Riparian Habitat

Potential USACE Jurisdictional Areas
Waters of the U.S.
Wetlands

Culvert

Sample Point
Non-wetland
Wetland

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021,2022.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

0 270 540 Feet
(At original document size of 11x17)
1:3,240

N

Stantec

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Prepared by DL on 2022-06-29
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Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
5 - 2

Title
Aquatic Resources

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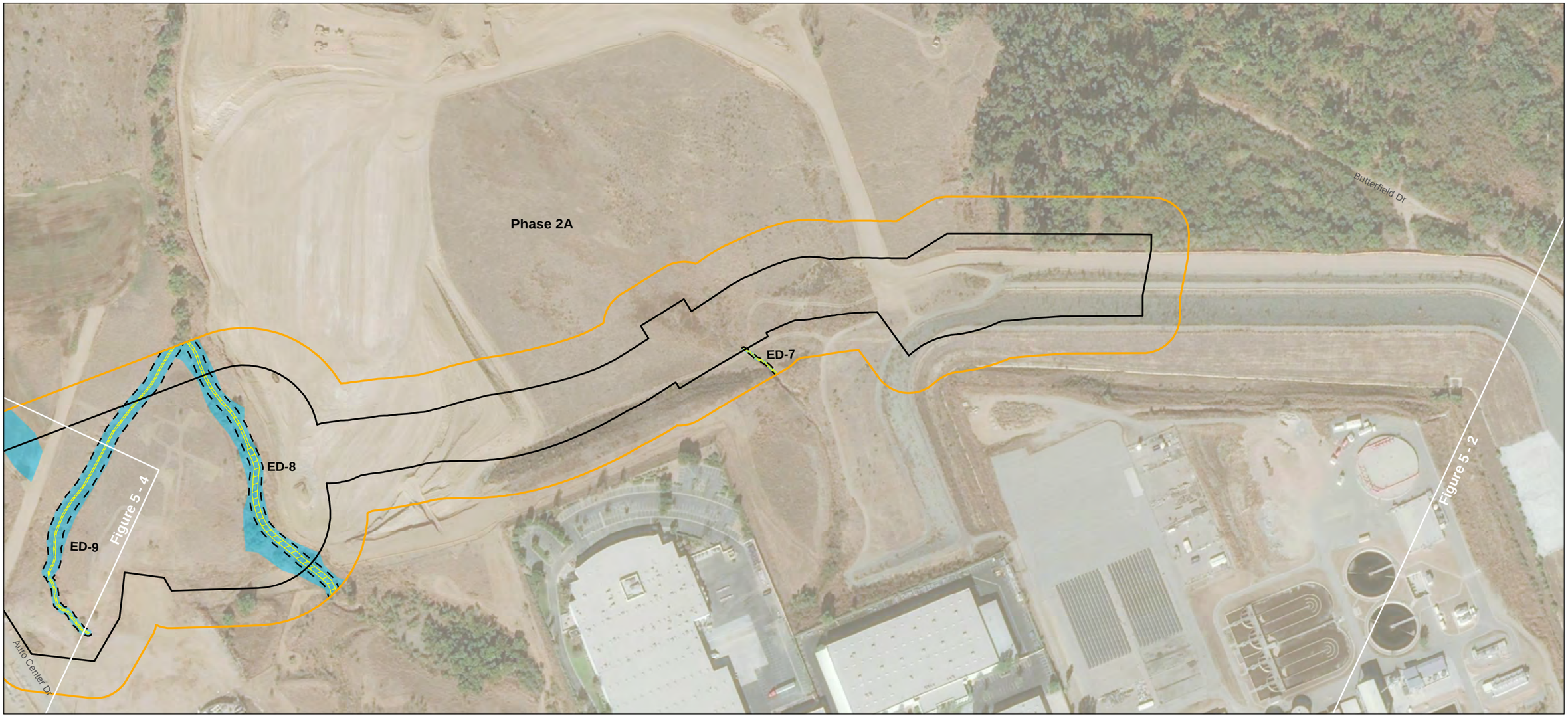

Aquatic Resources Survey Area (100 ft Buffer)

Project Footprint

Potential RWQCB Jurisdictional Waters

Waters of the State

Potential CDFW Jurisdictional Waters

Riparian Habitat

Potential USACE Jurisdictional Areas

Waters of the U.S.

0 270 540 Feet

(At original document size of 11x17)
1:3,240

N

Stantec

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Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
TR by SET on 2022-06-29
IR by JV on 2022-06-29

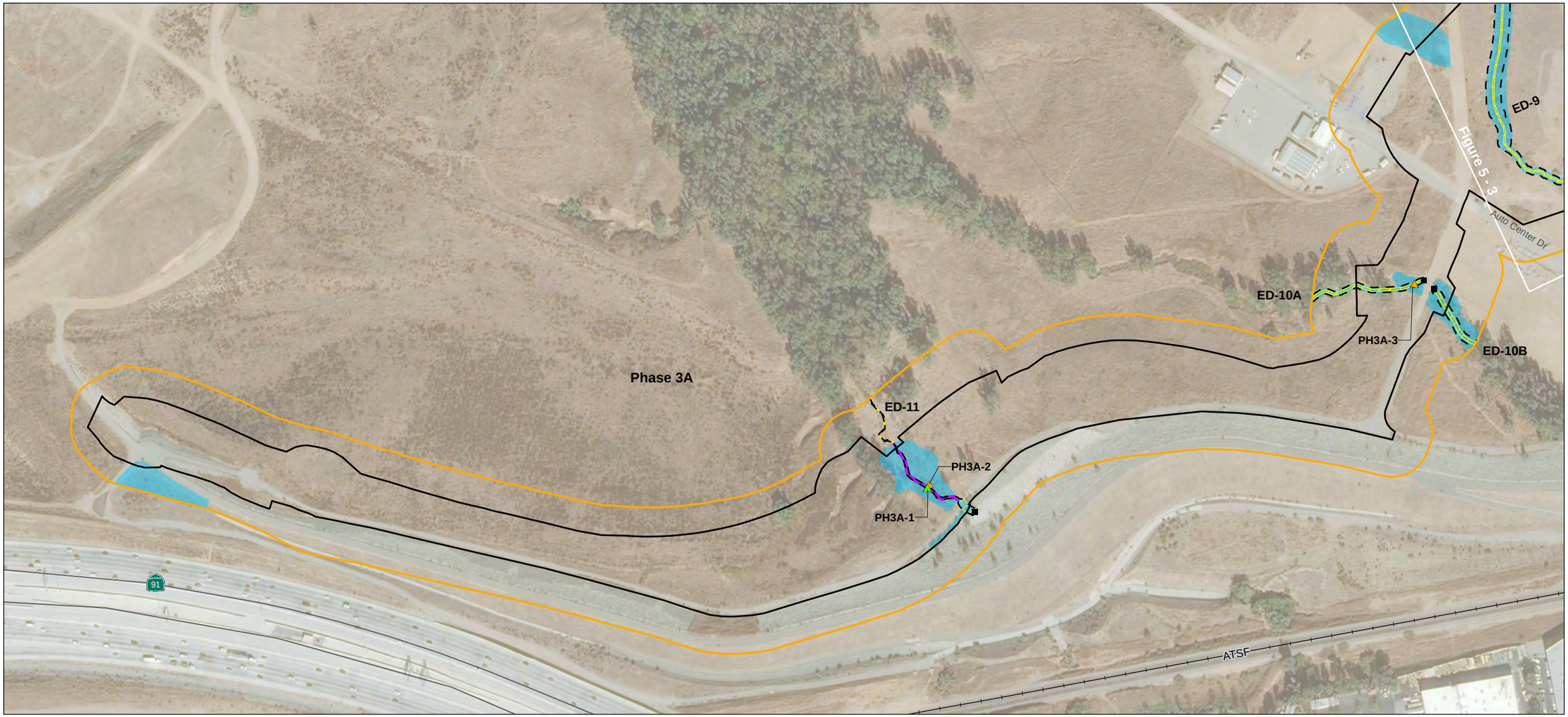
Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
5 - 3

Title
Aquatic Resources

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021,2022.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

V:\2042658\business_development\Santa_Ana_River_Trail\BRTR_Figure5_SART_WatersMap_DDP_12302021_11x17.mxd Revised: 2022-06-29 By: dalaw



- Aquatic Resources Survey Area (100 ft Buffer)
- Project Footprint
- Railroad

Potential RWQCB Jurisdictional Waters

- Waters of the State

Potential CDFW Jurisdictional Waters

- Riparian Habitat

Potential USACE Jurisdictional Areas

- Waters of the U.S.
- Wetlands
- Culvert

Sample Point

- Non-wetland
- Wetland

0 270 540 Feet

(At original document size of 11x17)
1:3,240

N

Notes

1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021,2022.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
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Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
5 - 4

Title
Aquatic Resources

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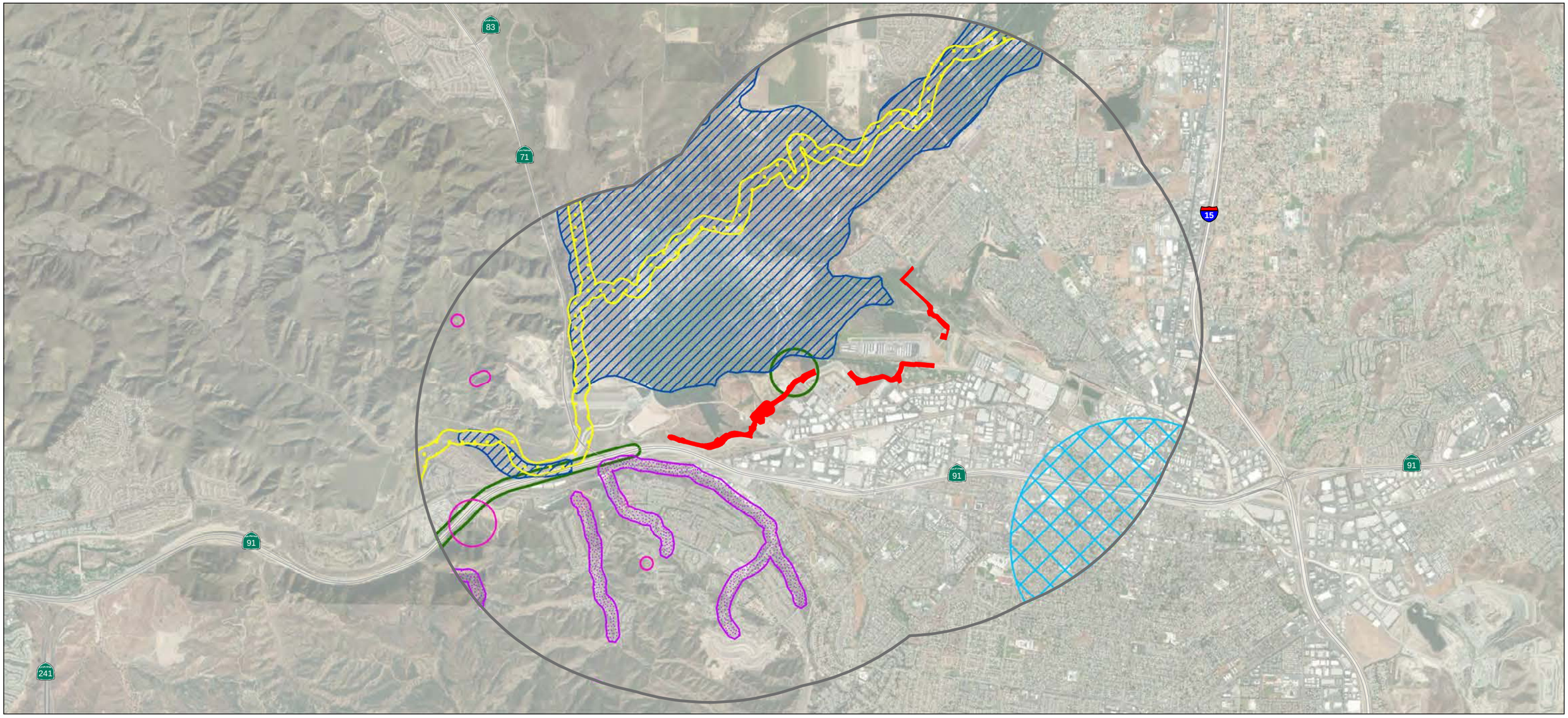


Project Location
2 Mile Search Radius

2 Mile Occurrences

Plants
- Abronia villosa var. aurita
- Dudleya multicaulis
- Lepidium virginicum var. robinsonii
- Sidalcea neomexicana

Terrestrial Communities
- Southern Cottonwood Willow Riparian Forest
- Southern Sycamore Alder Riparian Woodland

Aquatic Community
- Southern California Arroyo Chub/Santa Ana Sucker Stream

0 4,200 8,400 Feet

(At original document size of 11x17)
1:50,400

N

Stantec

Project Location
Near Corona
Riverside County, California

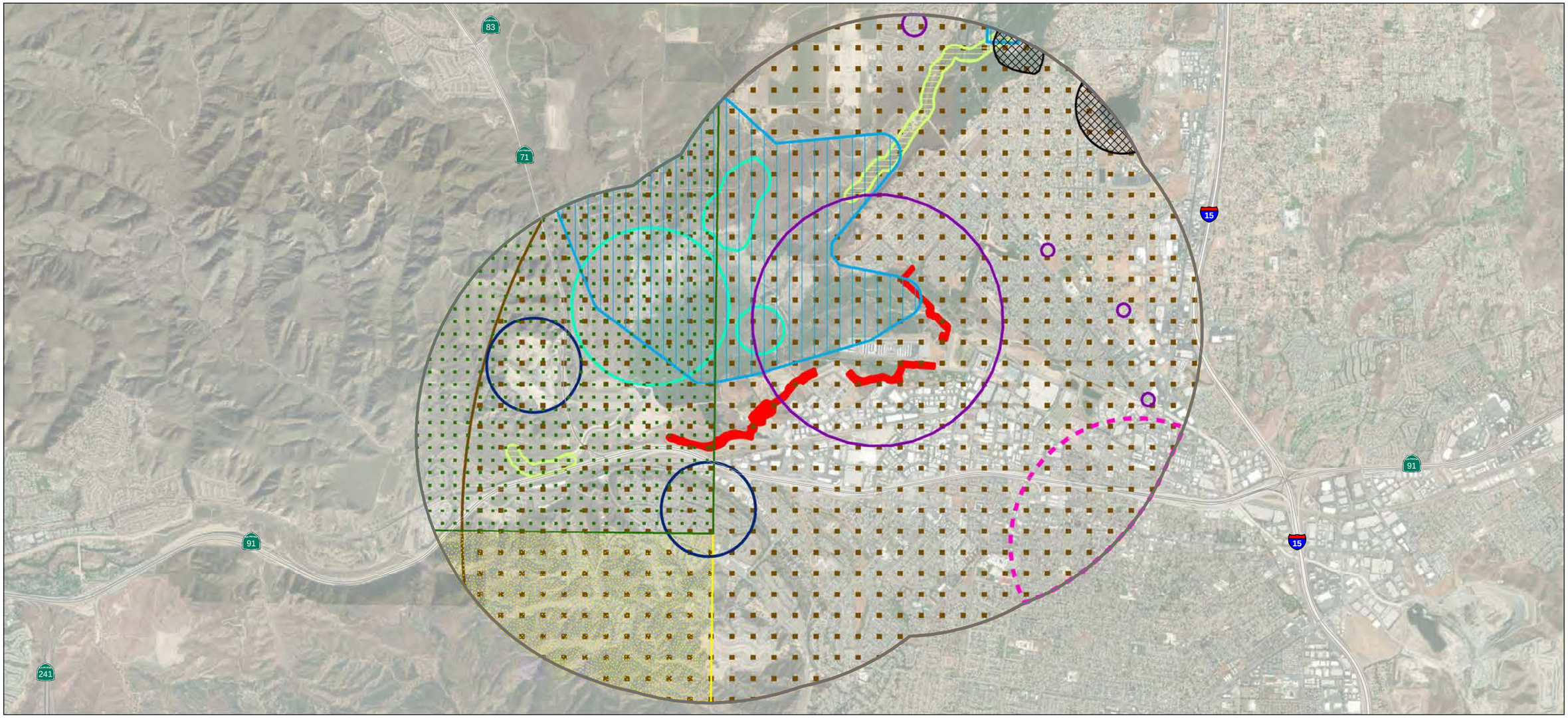
Prepared by DL on 2022-04-21
TR by SET on 2022-04-21
IR by JV on 2022-04-21

Client/Project
2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
6A

Title
2 Mile CNDDB Occurrences - Plants, Terrestrial Community, Aquatic Communities

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.CNDDB 2022.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



Project Location
2 Mile Search Radius

2 Mile Occurrences

Wildlife

- Agelaius tricolor
- Aquila chrysaetos
- Athene cunicularia
- Catostomus santaanae
- Coccyzus americanus occidentalis
- Coturnicops noveboracensis
- Empidonax traillii extimus
- Nyctinomops femorosaccus
- Spea hammondii
- Taricha torosa

0 4,200 8,400 Feet

(At original document size of 11x17)
1:50,400

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-04-21
TR by SET on 2022-04-21
IR by JV on 2022-04-21

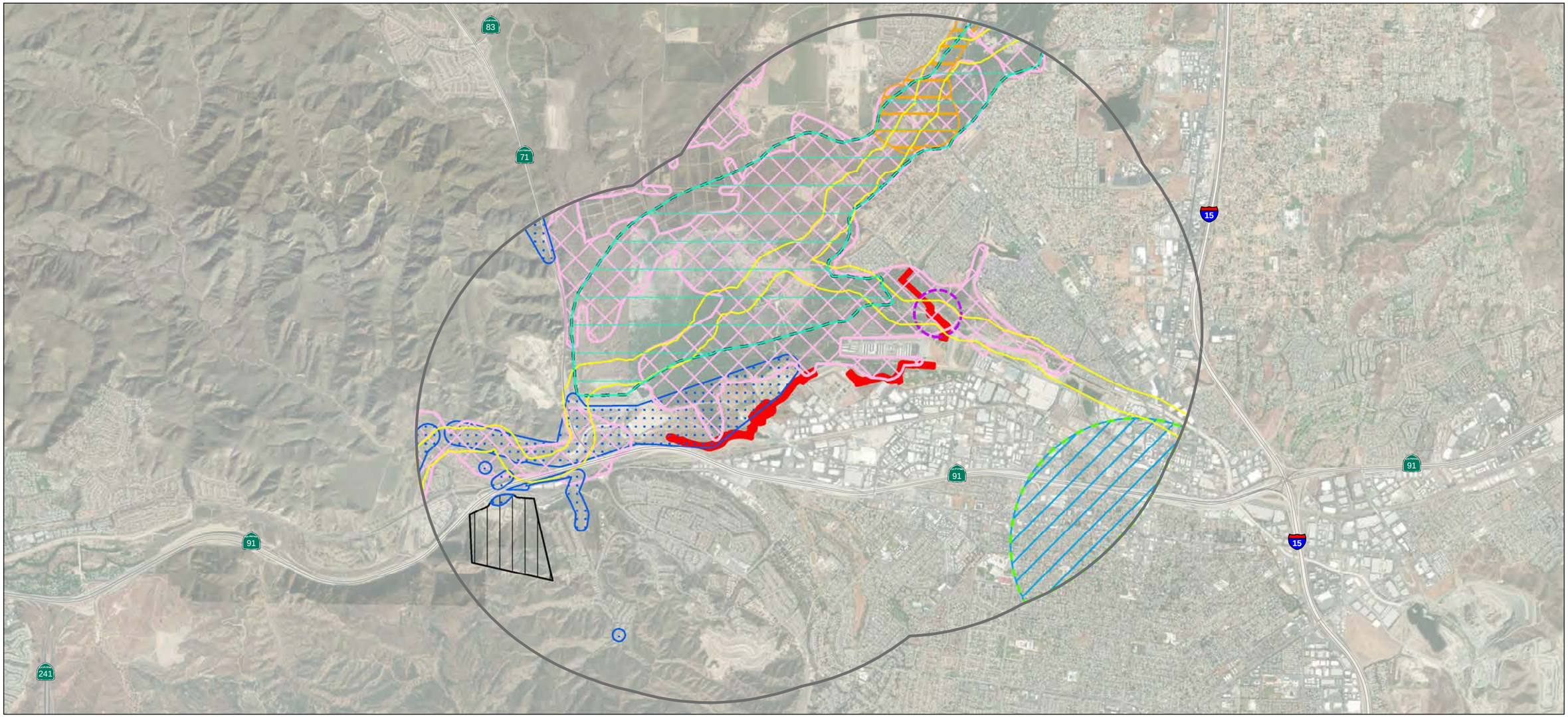
Client/Project
2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
6B

Title
2 Mile CNDDB Occurrences - Wildlife

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.CNDDB 2022.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



Project Location
2 Mile Search Radius

2 Mile Occurrences

Wildlife

- Aimophila ruficeps canescens
- Bombus crotchii
- Buteo swainsoni
- Gila orcuttii
- Icteria virens
- Lasiurus xanthinus
- Oncorhynchus mykiss irideus pop. 10
- Polioptila californica californica
- Setophaga petechia
- Vireo bellii pusillus

0 4,200 8,400 Feet

(At original document size of 11x17)
1:50,400

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-04-21
TR by SET on 2022-04-21
IR by JV on 2022-04-21

Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
6C

Title
2 Mile CNDDB Occurrences - Wildlife Continued

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.CNDDB 2022.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Appendix B PHOTOGRAPHIC LOG

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: Riverside County Regional Park & Open-Space District	**Job Number:** 204283140
Site Name: Santa Ana River Trail	**Photographer:** M. Tu, J. Varonin, A. Townsend

Photo 1: May 6, 2021

View of Temescal Wash (Drainage 1), a tributary to the Santa Ana River in Phase 2 looking northeast toward West Rincon Street

Photo 2: December 8, 2021

View of Phase 2A looking east toward Drainage 4.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Riverside County Regional Park & Open-Space District	**Job Number:** 204283140
Site Name: Santa Ana River Trail	

Photo 3: May 6, 2021

View of borrow pit in Phase 2A looking northwest

Photo 4: May 6, 2021

View of ephemeral drainage channel in Phase 2A looking north.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: Riverside County Regional Park & Open-Space District	**Job Number:** 204283140
Site Name: Santa Ana River Trail	**Photographer:** M. Tu, J. Varonin, A. Townsend

Photo 5: May 6, 2021

Drainage 10 in Phase 3A looking west

Photo 6: May 6, 2021

View of gravel road in Phase 3A looking east.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: Riverside County Regional Park & Open-Space District	**Job Number:** 204283140
Site Name: Santa Ana River Trail	**Photographer:** M. Tu, J. Varonin, A. Townsend

Photo 7: May 6, 2021

View of a mulefat (*Baccharis salicifolia*) bush in Phase 3A occupied by least Bell 's vireo (*Vireo bellii pusillus*) looking northwest.

Photo 8: May 6, 2021

Paniculate tarplant (*Deinandra paniculat*a), California Rare Plant Rank 4.2, in Phase 3A, looking north.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: Riverside County Regional Park & Open-Space District	**Job Number:** 204283140
Site Name: Santa Ana River Trail	**Photographer:** M. Tu, J. Varonin, A. Townsend
Photo 9: May 6, 2021	
	
View of coastal California gnatcatcher (*Polioptila californica californica*) occupied coastal sage scrub habitat in Phase 3A looking north.	

Appendix C ACREAGES OF VEGETATION COMMUNITIES AND LAND COVER TYPES IN THE PROJECT AREA

Table C-1 Temporary and Permanent Impacts to Vegetation Communities and Land Cover Types within the Project Area

Vegetation Communities and Land Cover Types	Temporary Impacts[1]	Permanent Imapcts[1]	Project Area[1]
	Acres		
Vegetation Communities			
Arroyo willow thickets	2.07	0.30	2.37
California buckwheat scrub	0.50	0.24	0.74
California sagebrush scrub	6.34	2.10	8.44
Coyote brush scrub	0.76	0.17	0.93
Eucalyptus groves	0.68	0.04	0.72
Menzie's goldenbush scrub	0.04	0.00	0.04
Mulefat thickets	4.73	0.76	5.48
Perennial pepperweed patches	0.62	0.00	0.62
Poison hemlock or fennel patches	0.10	0.00	0.10
Shining willow groves	0.37	0.00	0.37
Smartweed-cocklebur patches	0.02	0.01	0.03
Upland mustards or star-thistle fields	2.48	0.62	3.10
Wild oats and annual bromes grassland	13.17	2.68	15.85
Subtotal	*31.88*	*6.92*	*38.79*
Land Cover Types			
Disturbed/Developed	18.55	4.04	22.59
Partially vegetated channel	0.47	0.06	0.53
Restoration	2.22	0.49	2.71
Ruderal	0.91	0.04	0.95
Subtotal	*22.15*	*4.63*	*26.78*
Total[1]	**54.03**	**11.55**	**65.57**

Note[1] = some of the total acreages and Project area acreages do not add up due to rounding. The Project and impact acreages in this table are from April 2022 design drawings.

Appendix D AQUATIC RESOURCES REPORT

This report will be provided separately

Appendix E RIPARIAN BIRDS

LEATHERMAN
BioConsulting, Inc.

4848 Lakeview Avenue, Suite 100E
Yorba Linda, CA 92886
(714) 701-0863

September 7, 2021

Ms. Stacey Love
USFWS
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Re: Results of Focused Surveys for the Western Yellow-billed Cuckoo, Southwestern Willow Flycatcher, and Least Bell's Vireo for the Santa Ana River Trail Project, Riverside County, California (Permit No. TE824793)

Dear Ms. Love:

This letter reports the results of focused surveys to evaluate the presence or absence of the southwestern willow flycatcher (*Empidonax traillii extimus*), (flycatcher) least Bell's vireo (*Vireo bellii pusillus*) (vireo), and western yellow-billed cuckoo (*Coccyzus americanus*) (cuckoo) conducted by Leatherman BioConsulting, Inc. (LBC) for the Santa Ana River Trail Project (Project) in Riverside County, California.

The Project is located on the Prado Dam and Corona North USGS 7.5minute series quadrangle maps in Township 2 South and Range 7 West, in an area where Section lines largely are not delineated (Figure 1). The UTM coordinates (NAD83) of the approximate survey area are 0440410 meters East (mE) and 3749650 meters North (mN) at the southwest end, and 0445675 mE and 3755765 mN at the northeast end.

The proposed alignment route includes three phases in the Prado Basin from just east of State Route 71 and proceeding east and then north to Archibald Avenue in Riverside County (Figure 2). Some phases of the alignment support little, or no habitat and other phases support stretches of nearly contiguous habitat. The survey area included all potentially suitable riparian habitat within 500 of the Project alignments for each of the three target species.

The proposed Project would assist in completing a portion of the Santa Ana Trail. It would entail construction of three (3) new trail segments (2, 2A, and 3A) within the Prado Dam Flood Control Basin area, as part of the existing Santa Ana River Trail project. Currently, only portions of the trail have been completed or are being constructed.

BACKGROUND

Willow Flycatcher

The willow flycatcher (*Empidonax traillii*) is a state-listed Endangered species (CDFG 1991), whereas only the southwestern subspecies (*E.t. extimus*) is federally listed as Endangered (USFWS 1995). This survey focused on the southwestern willow flycatcher because it is the only subspecies that nests in southern California. However, migrants of all subspecies may occur in the area during spring and fall migration, so multiple visits to the survey area are required to determine if individuals observed during the first surveys are nesting birds.

The willow flycatcher was formerly a common summer resident in suitable habitat throughout California (Grinnell and Miller 1944). It has now been extirpated as a breeding bird from most of its California range, and is seriously threatened in southern California primarily because of habitat loss and degradation, and brood parasitism by brown-headed cowbirds (*Molothrus ater*) (Garrett and Dunn 1981; USFWS 1995). The population of southwestern willow flycatcher in California was estimated to include approximately 66 territories at five sites (Kus 2019). The southwestern willow flycatcher has not shown the same recovery that the vireo has shown in response to habitat restoration and cowbird trapping (Kus 2011).

The willow flycatcher closely resembles other Empidonax flycatcher species in California, but the indistinct (or completely lacking) eye ring, broader and longer bill, and generally lighter appearance through the breast and throat help to distinguish it from other species. The species' vocalizations are the best form of identification in the field (but can't be used to identify subspecies). The southwestern willow flycatcher is a migratory bird, occurring in this region only during the breeding season (May to early August). The male arrives later in the spring than most migrants, usually in mid to late May or early June.

The southwestern willow flycatcher breeds in riparian habitats along rivers, streams, or other wetlands in floodplains and broader canyons, preferring dense riparian thickets near surface water (Sogge et al. 2010), often with adjacent open areas for foraging. Vegetation structure, composition, and extent vary widely but generally include extensive areas dominated by dense stands of willows (*Salix* spp.), mule fat (*Baccharis salicifolia*), or other tree species (including tamarisk [*Tamarix* sp.] in some areas), usually with scattered cottonwoods (*Populus* spp.) overstory (USFWS 1995). These riparian areas provide both nesting and foraging habitat. Southwestern willow flycatcher will nest in areas with suitable habitat regardless of the elevation (from sea level to high mountains). Nests are constructed in thickets of trees and shrubs in a fork or horizontal branch between three and 15 feet above the ground.

The U.S. Fish and Wildlife Service (USFWS) published a final rule designating critical habitat for the flycatcher in 2005 (USFWS 2005); however, the USFWS proposed to revise the critical habitat designation in 2011, and a final rule was published in 2013 (USFWS 2013). Approximately 17,212 acres of critical habitat were designated in California.

Least Bell's Vireo

The vireo is a state and federally listed endangered species (USFWS 1986). This subspecies was once widespread throughout the Central Valley and other low elevation river systems of California (Grinnell and Miller 1944). The widespread loss of riparian habitat and brood parasitism by the brown-headed cowbird are the major causes of the decline of this species (Garrett and Dunn 1981). At the time of its listing, about 76 percent of the U. S. population is found in just five localities (USFWS 1994). The breeding population in California has increased dramatically because of brown-headed cowbird trapping efforts in breeding areas, and they are recolonizating areas where they were once locally extirpated; in fact, there were an estimated 3,504 territories reported in 2018 (Kus 2019). Continued cowbird control and exotic plant removal in riparian habitat are considered necessary for the foreseeable future in order to continue this increasing trend (USFWS 2006).

The vireo is a small grayish songbird with indistinct wing bars and facial markings. It is a very vocal species and can be easily detected from some distance by its unique song, which is given repeatedly. The vireo is migratory and only occurs in southern California during the breeding season. The males arrive sometime in late March to April and establish breeding territories, and the females arrive shortly thereafter. Nests are constructed (usually in willow trees) only about three to four feet off the ground where the female will lay 3 to 4 eggs on average. The vireo usually returns to the wintering grounds sometime in August or September. Preferred habitat is willow riparian woodland that supports dense understory thickets of scrubby willows and mule fat, especially within three to six feet of the ground (USFWS 1998).

The USFWS issued their final determination of critical habitat for the vireo in February 1994 (USFWS 1994). Approximately 37,560 acres of habitat were designated in California.

Western Yellow-billed Cuckoo

The cuckoo is a federally listed threatened and state listed endangered species (USFWS 2014a). The USFWS ruled that cuckoos west of the Rocky Mountains and Continental Divide meet the criteria for listing as a distinct population segment and that listing it as threatened was warranted. The current geographical range of the cuckoo in California is about 30 percent of what it was historically, and the current nesting population in the state likely does not exceed 40 to 50 pairs (USFWS 2013).

In California, the cuckoo is a rare summer visitor and breeder where it requires large blocks of riparian habitat for breeding (Halterman et al. 2015, USFWS 2021). It can occur from May to September (Grinnell and Miller 1944), but usually arrives and breeds in southern California from early June to mid-August (Garrett and Dunn 1981, USFWS 2013). It occurs almost exclusively in mature streamside forest with old growth willows and scattered cottonwoods (usually of at least 25 acres), particularly with a dense tangled understory of nettles (*Urtica* spp.), willows, blackberry (*Rubus* sp.), wild grape (*Vitus* sp.), mesquite (*Prosopis* spp.) etc. (Grinnell and Miller 1944; Garrett and Dunn 1981). Data collected in California indicate that nesting occurs in thickets dominated by willow trees along floodplains greater than 200 acres in extent and greater than 100 yards wide (USFWS 2021). It is rarely seen away from suitable breeding habitat

(Garrett and Dunn 1981). It was formerly fairly common and widespread in the broad lower floodplains of larger rivers in southern California and Central Valley (Garret and Dunn 1981). Its decline is primarily attributed to widespread habitat loss associated with agriculture, urban development, and flood control projects, and because the small, isolated populations that remain are more susceptible to decline (USFWS 2013). The current range of the cuckoo in California is estimated to be about 30 percent of its historical extent and estimates of the loss of riparian habitat state-wide are as high as 91 percent (USFWS 2013).

The USFWS published a proposed rule to designate critical habitat for the cuckoo in 2014 (USFWS 2014b); however, a proposed rule to revise the critical habitat designation was published in 2020 reopening the public comment period, and a final rule designating critical habitat was finally published in 2021 (USFWS 2021). Only two of 72 critical habitat units were designated in California (on the Sacramento River and South Fork Kern River) totaling approximately 36,580 acres, over 90 percent of which is in the Sacramento unit.

EXISTING HABITAT

Vegetation in the survey area consists of a variety of riparian communities that could be categorized under one of several riparian alliances under the current (online) classification system used by the California Native Plant Society (CNPS 2021). The extent and quality of the riparian vegetation varies widely among the Project phases, in some areas supporting sparse habitat with low diversity and others supporting dense habitat with high plant diversity. No surface water was present in any of the habitat surveyed. A description of the habitat in each of Project phases is provided below, beginning at the west end of the alignment and proceeding east.

Most of the habitat in the Phase 3A consists of high quality coastal sage scrub. Habitat at the west end of Phase 3A survey area consists of a relatively small, sparse patch of mule fat scrub with a few scattered blue elderberry (*Sambucus nigra* ssp. *caerulea*) trees providing structure similar to that provided by willow scrub. This most closely resembles the blue elderberry shrubland alliance (CNPS 2009). Below the existing dam, the habitat supports arroyo willow shrubland alliance dominated by mule fat, and arroyo willow (*Salix lasiolepis*), and blue elderberry. The alignment also traverses a low elevation area dominated by mule fat adjacent to a dense stand of eucalyptus trees (*Eucalyptus globulus*) where vegetation structure resembles the higher quality riparian habitat usually occupied by vireos.

The west end of Phase 2A consists primarily of non-native annual grassland and crosses disturbed lands recently used as a borrow area by a U.S. Army Corps of Engineers contractor to construct the Alcoa Dike adjacent to the Corona Airport. A portion of the area was recently hydroseeded with grassland species. Two incised drainages support the arroyo willow shrubland alliance dominated by mule fat, arroyo willow, and red willow (*Salix laevigata*). At the east end of Phase 2A, the alignment is adjacent to riparian habitat consisting of a variety of native and non-native trees including black willow (*Salix gooddingii*), red willow, eucalyptus, Brazilian pepper (*Schinus terebinthifolia*), fan palm (*Washingtonia* sp.), ash tree (*Fraxinus* sp.) and a mixed understory of mule fat, tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*),

and wild grape (*Vitus girdiana*). This most closely resembles the black willow woodland alliance.

The habitat along Phase 2 supports the most mature and diverse riparian forest in the survey area that includes the Fremont cottonwood forest alliance, black willow woodland alliance, arroyo willow shrubland alliance, and the mule fat shrubland alliance. Habitat at the southeast end is relatively open mule fat thickets and transitions to well developed willow forest habitat to the northwest. The willow forest habitat consists of dense stands of black willow and red willow with scattered Fremont's cottonwoods (*Populus fremontii*). Understory consists of dense patches of mule fat, arroyo willow, Pacific willow (*S. lasiandra*) and red willow. Some patches are deeply shaded and are dominated by dense cover of wild grape, other areas are more open and support a variety of non-native herbaceous cover, including large dense stands of perennial peppergrass (*Brassica latifolium*). This habitat was also occupied by several homeless camps, and associated trash and debris were evident in many areas. Lastly, sign (scat, trails, digs) of the domestic pig (*Sus scrofa*) were observed throughout this area indicating that they are common in this portion of the alignment.

METHODS

Prior to conducting the focused surveys, a search was conducted of the California Natural Diversity Data Base (CNDDB) (CDFW 2021a) for the Prado and Corona North USGS 7.5-minute series quadrangle maps and other references to determine if and to what extent the target species are known to occur in the Project region.

Survey methods followed the guidelines endorsed by the USFWS for each species as described below. In general, surveys were conducted in riparian habitat by walking slowly and methodically within and along the margins of all suitable riparian habitat for each species. The focus of the surveys was on the detection and identification of the target species, but all wildlife incidentally observed or detected in the survey area was documented. Identifications were made with the aid of high quality 8 X 42 Bosch and Lomb Elite binoculars. All focused surveys were conducted by Mr. Brian Leatherman (USFWS permit No. TE827493-9). A list of the species observed during the surveys is enclosed.

Surveys for the flycatcher followed the mandatory protocol developed by Sogge et al. (2010) and guidance promulgated by the USFWS (2000). The protocol requires that five surveys be conducted within three defined periods between May 15 and July 17 and at least five days apart. Sogge et al. (2010) recommend that surveys be conducted between dawn and 1030 under suitable weather conditions.

Surveys for the vireo followed the survey guidelines developed by the USFWS (2001), which requires that eight surveys be conducted 10 days apart between April 10 and July 31. Vireo surveys can be conducted between dawn and 1100 under suitable weather conditions, at a maximum rate of 1.5 km (0.93 mile) or 50 ha (124 acres) per day. Surveys reported here were conducted between dawn and 1115.

The surveys for the cuckoo followed the mandatory protocol developed by Halterman et al. (2015). The protocol requires that four surveys be conducted within three certain periods between June 15 and August 15. Halterman et al. (2015) recommend that surveys be conducted from 12 to 15 days apart between dawn and 1100 under suitable weather conditions. Surveys reported here were generally conducted between dawn and 1100.

Recorded vocalizations of the flycatcher and cuckoo were played as described in the survey protocols in an attempt to elicit a response from individuals potentially present. For the flycatcher, the tape was played for roughly 15 seconds, stopped for one or two minutes to listen for a response, and then played again before moving to the next spot. For the cuckoo, the prescribed 6-minute broadcast with five vocalizations spaced one minute apart was played every 328 feet (or 100 meters, per the survey protocol) before moving to the next spot. No vocalizations were used for the vireo in compliance with the protocol for that species.

Five of the eight surveys for the vireo were conducted on the same day as the flycatcher surveys. During those combined survey days, recent guidance from USFWS was followed so that surveys for both species were not conducted concurrently. Instead, surveys for the flycatcher were conducted on the outbound portion of the survey and surveys for the vireo were conducted on the return portion of each habitat segment within the survey area. Cuckoo surveys were conducted separately from the vireo and flycatcher surveys. Dates, times, and weather data for the focused surveys are shown in Table 1 and Table 2.

Table 1. Dates, Times, and Weather Data for Vireo and Flycatcher Surveys

DATE	SURVEY NO.	TIME		WEATHER CONDITIONS*					
				Temp (°F)		Winds (mph)		Cloud Cover (percent)	
		Start	End	Start	End	Start	End	Start	End
4-May	LBV1	600	1115	56	74	0-1	2-4	clear	clear
13-May	LBV2	615	1100	55	75	2-4	4-7	100	clear
24-May	LBV3/WIFL1	545	1100	54	78	0-2	4-7	clear	clear
4-Jun	LBV4/WIFL2	600	1100	59	85	0-2	8-12	clear	clear
14-Jun	LBV5/WIFL3	600	1030	64	88	2-4	4-7	clear	clear
25-Jun	LBV6/WIFL4	600	1015	62	77	0-2	2-4	clear	clear
5-Jul	LBV7/WIFL5	545	1015	63	78	2-4	4-7	clear	clear
15-Jul	LBV8	600	1030	67	83	2-4	2-4	clear	clear

LBV – Least Bell's Vireo, WIFL – Willow Flycatcher
*recorded with Kestrel 2000

Table 2. Dates, Times, and Weather Data for Cuckoo Surveys

DATE	SURVEY NO.	TIME		WEATHER CONDITIONS**					
				Temp (°F)		Winds (mph)		Cloud Cover (percent)	
		Start	End	Start	End	Start	End	Start	End
17-Jun	YBCU1	500	1000	63	83	0-2	8-12	100	20
2-Jul	YBCU2	530	1000	64	77	2-4	4-7	clear	clear
16-Jul	YBCU3	600	1015	65	79	0-2	4-7	100	clear
2-Aug	YBCU4	515	1000	67	84	0-2	2-4	30	clear

YBCU-yellow-billed cuckoo

RESULTS

No critical habitat for the cuckoo is designated in the survey area. Critical habitat for the flycatcher and vireo is designated in the Prado Basin and along the Santa Ana River in the vicinity of the Project.

Records for the flycatcher, vireo, and cuckoo were found in the CNDDB database (CDFW 2021a) for each of the two quads searched (Prado and Corona North). A large population of vireos continues to nest in Prado Basin and along the Santa Ana River on an annual basis. However, the small population of flycatchers that persisted for years has not been recorded in the basin since 2016 when only one pair was recorded (Kus 2019). The cuckoo occurred along the Santa Ana River and the Prado Basin historically, but recent records include only two birds in 2000 and one bird in 2011 (Clark et al. 2014).

No flycatchers or cuckoos were observed during the surveys. A total of an estimated 28 vireo territories were documented in the survey area during the focused survey effort (Figure 3), including four territories in Phase 3A, four in Phase 2A, and 20 in Phase 2. The presence of a territory was based on the detection of at least a singing male. Patches of habitat with mule fat or willow scrub or other suitable trees and shrubs with the vegetation structure favored by vireos were occupied along the entire Santa Ana River Trail survey area. No attempt was made to determine if each singing male was paired or nesting, but in most territories a female or breeding behavior was observed.

Due to the density of vireo territories along Phase 2 (along West Rincon Street), it was difficult to determine the number of individual territories. However, based on a review of the survey data, the distribution of the vireos in that area as depicted in Figure 3 represents our best estimate of the number of territories.

No brown-headed cowbirds were observed in riparian habitat during the surveys. Brown-headed cowbird trapping has been conducted in the Prado Basin for over two decades (although none were observed during the surveys).

CONCLUSION

Focused surveys were conducted for the flycatcher, vireo, and cuckoo along the Santa Ana River Trail Project survey area within suitable habitat for each species. No flycatchers or cuckoos were observed during the surveys. Twenty-eight vireo territories were documented in the survey area.

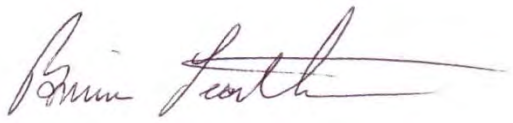
Based on the limited marginally suitable habitat and the negative focused survey results, the flycatcher and cuckoo are likely absent from the survey area at this time. In addition, based on trends in flycatcher and cuckoo populations and occurrences in the area in the recent past, none are expected to occur in the vicinity of the Project in the near future (if they are to reappear in the area, it is likely to be in the more extensive high-quality habitat immediately behind Prado Dam).

Vireos were observed throughout suitable habitat within the survey area during the focused surveys and are expected to occur in suitable riparian habitat in the Project area on an annual basis.

A copy of this letter report is being sent to the USFWS and California Department of Fish and Wildlife (CDFW) per conditions of the surveyors' 10(a)(1)(A) permit and memorandum of understanding (MOU). Figures 1-3, the references cited, a list of wildlife observed, and the required flycatcher and cuckoo survey forms are attached. Survey certification is provided below. If you have any comments or questions regarding the information provided in this report you can reach me by phone at (714) 701-0863, or by email at bleathermanwlb@aol.com.

Sincerely,

LEATHERMAN BIOCONSULTING, INC.



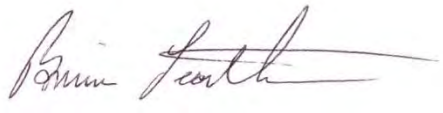
Brian Leatherman
Principal Biologist

Attachments: Figures 1-3
References
Wildlife Species List
Willow Flycatcher Survey Forms
Yellow-billed Cuckoo Survey Forms

Santa Ana River Trail Project
Survey Certification

CERTIFICATION:

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.



August 26, 2021

Brian Leatherman
Permit No. TE827493-9

Date

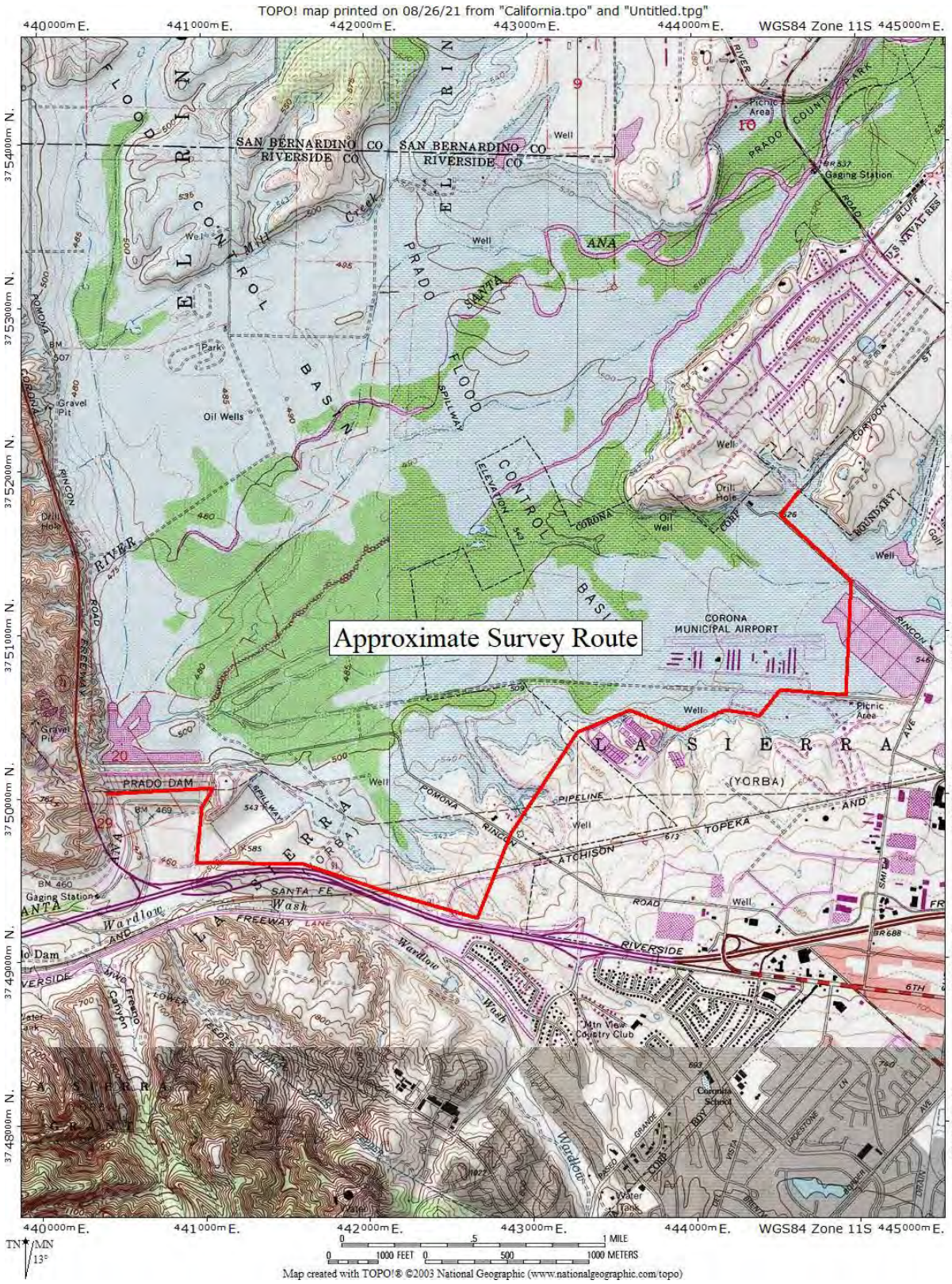


Figure 1. Santa Ana River Trail Project Region

Figure 2. Santa Ana River Trail Project Phases

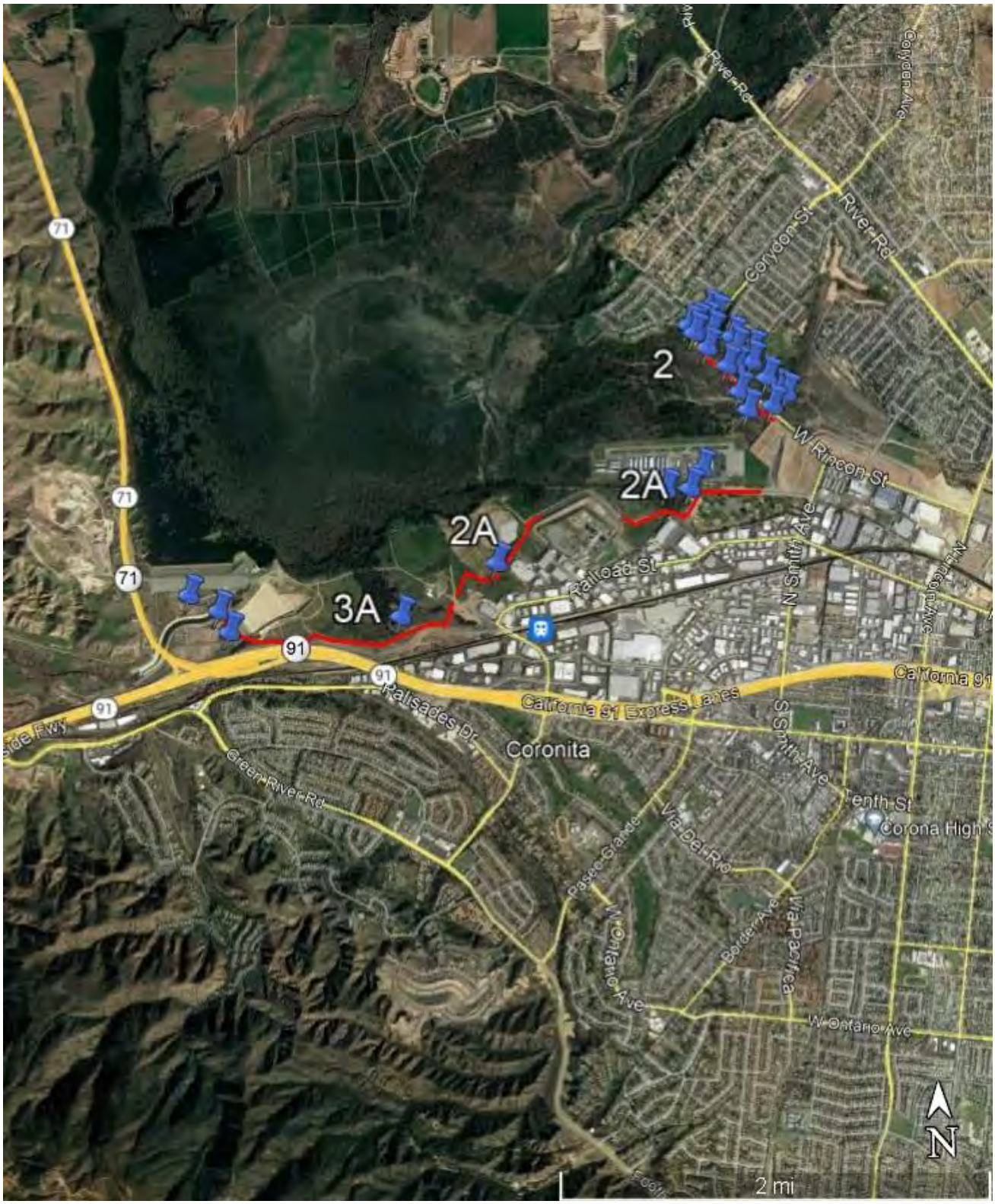


Figure 3. Least Bell's Vireo Territory Locations

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Santa Ana River Trail Project Wildlife Species List

Non-native species are indicated by an asterisk. Species on CDFW's Special Animals' list are indicated by two asterisks. Other species may have been overlooked or inactive/absent because of the season (amphibians are more active during/after rains, reptiles during summer, some birds (and bats) migrate out of the area for summer or winter, some mammals hibernate etc.), or because of the time of the survey (some species are strictly nocturnal). Taxonomy and nomenclature generally follow the Complete List of Amphibian, Reptile, Bird and Mammal Species in California (CDFW 2016).

	COMMON NAME	SCIENTIFIC NAME
	AMPHIBIANS	**AMPHIBIA**
	True Toads	**Bufonidae**
	Western toad	*Anaxyrus boreas*
	True Frogs	**Ranidae**
*	Bullfrog	*Lithobates catesbeianus*
	REPTILES	**REPTILIA**
	Box and Water Turtles	**Emydidae**
*	Pond slider	*Trachemys scripta*
	Softshells	**Trionychidae**
	Spiny softshell	*Apalone spinifera*
	Spiny Lizards, Horned Lizards, etc.	**Phrynosomatidae**
	Western fence lizard	*Sceloporus occidentalis*
	Common Side-blotched lizard	*Uta stansburiana*
	BIRDS	**AVES**
	Cormorants	**Phalacrocoracidae**
**	Double-crested cormorant	*Phalacrocorax auritus*
	Herons and Bitterns	**Ardeidae**
**	Great blue heron	*Ardea herodias*
**	Great egret	*Ardea alba*
**	Black-crowned night-heron	*Nycticorax nycticorax*
	Vultures	**Cathartidae**
	Turkey vulture	*Cathartes aura*
	Geese and Ducks	**Anatidae**
	Canada goose	*Branta canadensis*
	Mallard	*Anas platyrhynchos*
	Hawks, Eagles and Kites	**Accipitridae**
**	Cooper's hawk	*Accipiter cooperii*
	Red-shouldered hawk	*Buteo lineatus*
	Red-tailed hawk	*Buteo jamaicensis*
	Falcons	**Falconidae**
	American kestrel	*Falco sparverius*
	Quail	**Odontophoridae**
	California quail	*Callipepla californica*

Pidgeons and Doves		**Columbidae**
*	Eurasian Collared-dove	*Streptopelia decaocto*
	Mourning dove	*Zenaida macroura*
Cuckoos and Roadrunners		**Cuculidae**
	Greater roadrunner	*Geococcyx californianus*
Owls		**Strigidae**
	Great horned owl	*Bubo virginianus*
Swifts		**Apodidae**
	White-throated swift	*Aeronautes saxatalis*
Hummingbirds		**Trochilidae**
	Anna's hummingbird	*Calypte anna*
**	Allen's hummingbird	*Selasphorus sasin*
Woodpeckers		**Picidae**
**	Nuttall's woodpecker	*Dryobates nuttallii*
	Downy woodpecker	*Dryobates pubescens*
	Northern flicker	*Colaptes auratus*
Tyrant Flycatchers		**Tyrannidae**
	Western wood-pewee	*Contopus sordidulus*
	Pacific-slope flycatcher	*Empidonax difficilis*
	Black phoebe	*Sayornis nigricans*
	Say's phoebe	*Sayornis saya*
	Ash-throated flycatcher	*Myiarchus cinerascens*
	Cassin's kingbird	*Tyrannus vociferans*
Vireos		**Vireonidae**
**	Least Bell's vireo	*Vireo bellii pusillus*
Jays and Crows		**Corvidae**
	American crow	*Corvus brachyrhynchos*
	Common raven	*Corvus corax*
Larks		**Alaudidae**
**	Horned lark	*Eremophila alpestris*
Swallows		**Hirundinidae**
	Northern rough-winged swallow	*Stelgidopteryx serripennis*
	Cliff swallow	*Petrochelidon pyrrhonota*
	Barn swallow	*Hirundo rustica*
Bushtits		**Aegithalidae**
	Bushtit	*Psaltriparus minimus*
Wrens		**Troglodytidae**
	Rock wren	*Salpinctes obsoletus*
	Bewick's wren	*Thryomanes bewickii*
	House wren	*Troglodytes aedon*
Gnatcatchers		**Silviidae**
**	California gnatcatcher	*Polioptila californica*
Bluebirds and Thrushes		**Turdidae**
	Western bluebird	*Sialia mexicana*
Wrentits		**Timaliidae**
	Wrentit	*Chamaea fasciata*
Mockingbirds and Thrashers		**Mimidae**
	Northern mockingbird	*Mimus polyglottos*
Starlings		**Sturnidae**
*	European starling	*Sturnus vulgaris*

Silky Flycatchers		**Ptilogonatidae**
	Phainopepla	*Phainopepla nitens*
Wood Warblers		**Parulidae**
**	Yellow warbler	*Setophaga petechia*
	Common yellowthroat	*Geothlypis trichas*
**	Yellow-breasted chat	*Icteria virens*
Towhees and Sparrows		**Emberizidae**
	Spotted towhee	*Pipilo maculatus*
	California towhee	*Melozone crissalis*
	Song sparrow	*Melospiza melodia*
Cardinals,Grosbeaks, Buntings, Tanagers		**Cardinalidae**
	Black-headed grosbeak	*Pheucticus melanocephalus*
	Blue grosbeak	*Passerina caerulea*
	Western tanager	*Piranga ludoviciana*
Blackbirds and Orioles		**Icteridae**
	Hooded oriole	*Icterus cucullatus*
	Bullock's oriole	*Icterus bullockii*
Finches		**Fringillidae**
	House finch	*Haemorhous mexicanus*
	Lesser goldfinch	*Spinus psaltria*
**	Lawrence's goldfinch	*Spinus lawrencei*

MAMMALS		**MAMMALIA**
Hares and Rabbits		**Leporidae**
	Desert cottontail	*Sylvilagus audubonii*
Squirrels		**Sciuridae**
	California ground squirrel	*Ostospermophilus beecheyi*
Pocket Gophers		**Geomyidae**
	Botta's pocket gopher (burrows)	*Thomomys bottae*
Old World Rats and Mice		**Muridae**
	Dusky-footed woodrat (nest)	*Neotoma fuscipes*
Dogs, Wolves and Foxes		**Canidae**
	Coyote (scat, tracks)	*Canis latrans*
Pigs		**Suidae**
	Feral pig	*Sus scrofa*

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: **Santa Ana River Trail Project** State: **CA** County: **Riverside**

USGS Quad Name: **Prado** Elevation: **155** (meters)

Creek, River, or Lake Name: **Santa Ana River**

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? *Yes* **X** *No* ____

Survey Coordinates: Start: E **04 40 410m** N **37 49 650m** UTM Datum: **NAD83** (See instructions)

Stop: E **04 45 675m** N **37 55 765m** UTM Zone: **11S**

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

*****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 If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding;-potential threats [livestock, cowbirds, *Diorhabda* spp.]). If *Diorhabda* found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1	Date: 5/25/2021	0								
Observer(s): Brian Leatherman	Start: 545									
	Stop: 1115									
	Total hrs: 5.5									
Survey # 2	Date: 6/3/2021	0					# Birds	Sex	UTM E	UTM N
Observer(s): Brian Leatherman	Start: 545									
	Stop: 1100									
	Total hrs: 5.25									
Survey # 3	Date: 6/15/2021	0					# Birds	Sex	UTM E	UTM N
Observer(s): Brian Leatherman	Start: 545									
	Stop: 1045									
	Total hrs: 5									
Survey # 4	Date: 6/28/2021	0					# Birds	Sex	UTM E	UTM N
Observer(s): Brian Leatherman	Start: 530									
	Stop: 1030									
	Total hrs: 5									
Survey # 5	Date: 7/9/2021	0					# Birds	Sex	UTM E	UTM N
Observer(s): Brian Leatherman	Start: 530									
	Stop: 1030									
	Total hrs: 5									
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total survey hrs: 25.0		Total Adult Residents: 0	Total Pairs: 0	Total Territories:	Total Nests:	Were any WIFLs color-banded? Yes ____ No ____ If yes, report color combination(s) in the comments section on back of form and report to USFWS.				

Reporting Individual: **Brian Leatherman** Date Report Completed: **8/19/2021**

US Fish & Wildlife Service Permit #: **TE827493-9** State Wildlife Agency Permit #: **SC-001562**

***Submit** form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.*

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual **Brian Leatherman** Phone # **(714) 701-0863**

Affiliation **Leatherman BioConsulting Inc.** E-mail bleathermanwlb@aol.com

Site Name **Santa Ana River Trail** Date report Completed **8/19/2021**

Was this site surveyed in a previous year? Yes___ No_X___ Unknown___

Did you verify that this site name is consistent with that used in previous yrs? Yes____ No____ Not Applicable____

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 below.

Did you survey the same general area during each visit to this site this year? Yes____ No____ If no, summarize below.

Management Authority for Survey Area: Federal **X** Municipal/County **X** State____ Tribal____ Private____

Name of Management Entity or Owner (e.g., Tonto National Forest) **US Army Corps, Riverside County**

Length of area surveyed: **1.3** (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

____ Native broadleaf plants (entirely or almost entirely, > 90% native)

X Mixed native and exotic plants (mostly native, 50 - 90% native)

____ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

____ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Salix goodingii, Salix laevigata

Average height of canopy (Do not include a range): **10** (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.

Survey area along proposed bike trail route consists of isolated stretches of habitat in Prado Basin separated by different types of developments (housing, industrial, parks etc.) with very different vegetation components. Highest quality habitat along W. Rincon and Corydon Streets at northeast end of alignment.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Yellow-Billed Cuckoo Survey Summary Form (Form revised 2021)

Site Name: Santa Ana River Trail Project | County: Riverside | Elevation (m): 155 | State: CA

USGS Quad Name: Prado, Corona North | Creek, River, Wetland, Canyon, or Lake Name: Prado Basin, Santa Ana River

Site Coordinates (UTM): | UTM Zone: 11S | Start: E 440410 N 3749650 | Magnetic North Declination: 14

NAD 83 preferred | Datum: NAD83 | Stop: E 445675 N 3755765

Was site surveyed in a previous year? (Yes, No, Unknown): No | If yes, what name was used?:

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total # of YBCUs	Survey Number:	YBCU#:	Time Detected (AM):	Detection Method: I = Incidental P = Playback B=Both	Detection Type: A=Aural V=Visual B=Both	Vocalization Type: CN= Contact CO=coo AL=alarm OT=other	Number of 'kowlp' calls played prior to response:	Behavior Observed: (refer to codes)	Surveyor Detection Coordinates UTM E (6 digits)	Surveyor Detection Coordinates UTM N (7 digits)	Distance (m):	Bearing (in number degrees):	Corrected Coordinates (automatically generated) UTM E	Corrected Coordinates (automatically generated) UTM N
Survey	Date:	0	1												0	0
1	6/17/2021		1												0	0
Observer(s):	Start:		1												0	0
Brian Leatherman	500		1												0	0
	Stop:		1												0	0
	1000		1												0	0
	Total hrs:	Total:	1												0	0
	5	0	1												0	0
Survey	Date:		2												0	0
2	7/2/2021		2												0	0
Observer(s):	Start:		2												0	0
Brian Leatherman	530		2												0	0
	Stop:		2												0	0
	1000		2												0	0
	Total hrs:	Total:	2												0	0
	4.5	0	2												0	0
Survey	Date:		3												0	0
3	7/16/2021		3												0	0
Observer(s):	Start:		3												0	0
Brian Leatherman	600		3												0	0
	Stop:		3												0	0
	1015		3												0	0
	Total hrs:	Total:	3												0	0
	4.25	0	3												0	0
Survey	Date:		4												0	0
4	8/2/2021		4												0	0
Observer(s):	Start:		4												0	0
Brian Leatherman	515		4												0	0
	Stop:		4												0	0
	1000		4												0	0
	Total hrs:	Total:	4												0	0
	4.75	0	4												0	0
Survey	Date:		5												0	0
5			5												0	0
Observer(s):	Start:		5												0	0
			5												0	0
	Stop:		5												0	0
			5												0	0
	Total hrs:	Total:	5												0	0
			5												0	0

Survey Summary REQUIRED	Total Survey Hours:	Tot. # of Detections:	Total Estimated Breeding Territories: (refer to Territory Definitions below) Number of PO BreedingTerritories:	Number of PR Breeding Territories:	Number of CO Breeding Territories:	Number of Nests Found:
	18.5	0				

Sur. #:	YBCU #:	Detection Comments/Additional Behaviors/Nest UTM:

Breeding Behavior Observation Codes

Brooding/Incubating	BI
Carrying Nest Material	MAT
Copulation	COP
Distraction Display	DD
Feeds Mate	FM
Feeds Nestling	FN
Fledgling	FLG
Nest Building	NB
Carry Food	CF
Kowlp Exchange/Pair	VEX

Breeding Territory Definitions

Possible Breeding Territory (PO):	Probable Breeding Territory (PR):	Confirmed Breeding Territory (CO):
Detections within a 300 - 500 m area during at least 2 surveys and 12 - 14 days apart.	Detections within a 300-500 m area during at least 3 surveys and 12-14 days apart; or PO territory plus purposeful food carry (single observation, bird does not eat food), stick carry (single observation), multiple incidents of alarm calls in same area, or PO territory plus pair exchanging multiple kowlp or alarm calls (not coos) within 100 m of one another.	Observation of active nest (or multiple stick carries to nest being built), copulation, fledgling (unable to fly) with adult; or PR plus multiple food carries to same area or distraction display (dropped wings).

Page 2

Site Name:	Santa Ana River Trail Project	Date Report Completed:	8/26/2021
Name of Reporting Individual:	Brian Leatherman	Phone #:	714 -701-0863
Affiliation:	Leatherman BioConsulting, Inc.	Email:	bleathermanwlb@aol.com
USFWS Permit #:	TE827493-9	State Permit #:	SC-001562
Ownership: Primary:	Other (Municipal/County)	Owner Name (if applicable):	County, US ACE
Did you survey the same general area during each visit to this site this year (if no, summarize in comments section below)?			No
If site was surveyed last year, did you survey the same general area this year (if no, summarize in comments section below)?			No
Length of survey area (km):	1.26		

Overall Vegetation Characteristics:

Overall, are the species in tree/shrub layer at this site comprised predominantly of (check one):

Native broadleaf plants (>75% native)		Mixed native and exotic plants (mostly native 51%-75%)	X
Exotic/introduced plants (>75% exotic)		Mixed native and exotic plants (mostly exotic 51%-75%)	

Average Overstory/Canopy (where playback calls were used):

List up to 5 species of overstory vegetation and proportion of average canopy cover of each species . Click on dropdown menu to select scientific name. If species is missing, select OTHER and include scientific name in Comments. For relative percent cover, the total should equal 100%.

		Relative				Relative	
Species 1:	Salix goodingii	% Cover	80	Species 3:	Platanus racemosa	% Cover	5
Species 2:	Populus fremontii	% Cover	10	Species 4:	Eucalyptus sp.	% Cover	5
				Species 5:	NONE	% Cover	

General Overstory/Canopy Characteristics:

Average Height (top of trees) of Overstory (meters; do not include a range):	2.5
Estimated Absolute (as opposed to relative) Canopy Cover (percent; may be < 100%):	50

Average Subcanopy (if present; where playback calls were used):

List up to 5 species of subcanopy vegetation (if present) and estimate proportion of average subcanopy cover of each species. Click on dropdown menu to select scientific name. If species is missing, select OTHER and include scientific name in Comments. For relative percent cover, the total should equal 100%.

		Relative				Relative	
Species 1:	Salix laevigata	% Cover	50	Species 3:	OTHER	% Cover	30
Species 2:	Salix lasiolepis	% Cover	20	Species 4:	NONE	% Cover	
				Species 5:		% Cover	

General Subcanopy Characteristics:

Average Height (top of trees) of Subcanopy (meters; do not include a range):	3.5
Estimated Absolute (as opposed to relative) Subcanopy Cover (percent; may be < 100%):	20

Average Understory (if present; where playback calls were used):

List up to 5 species of understory/ shrub vegetation (not all sites will have a separate understory) and estimate proportion of average understory cover of each species. Use scientific names. For relative percent cover, the total should equal 100% even if more than 5 species present.

		Relative				Relative	
Species 1:	Baccharis salicifolia	% Cover	30	Species 3:	Lepidium latifolium	% Cover	25
Species 2:	Vitus girdiana	% Cover	25	Species 4:	Salix lasiolepis	% Cover	10
				Species 5:	Brassica spp	% Cover	10

General Understory Characteristics:

Average Height (top) of Understory (meters; do not include a range):	2
Estimated Absolute (as opposed to relative) Understory Cover (percent; may be < 100%):	75

Immediate Adjacent Habitat Along Entire Transect (Outside of survey site):

Categorize adjacent habitat (e.g. rock outcrop, desert/scrub/thornscrub, urban/residential, agriculture/pasture, orchard, oak woodland, pinyon-juniper woodland, mixed conifer forest, grassland, marsh/wet meadow, open water, ditch/irrigation). List up to 5 categories of adjacent habitat, and estimate proportion of percent cover (should =100%). If adjacent habitat type is missing, select "OTHER" and enter habitat type in Comments.

Category 1:	Urban/Residential	% Cover	30	Category 3:	Desert/Scrub/thornscrub	% Cover	20
Category 2:	Grassland	% Cover	50	Category 4:		% Cover	
				Category 5:		% Cover	

Is the survey area or adjacent area (within 300 m) dominated by surface water or saturated soil during at least 2 surveys?	No
Perennial, intermittent, or ephemeral drainage (or body of water):	Perennial

Comments. If surface water changed between surveys please describe in this section. Provide comments regarding differences between the survey patches within the site. For example, if the average canopy for this site is 30% cover, but within one patch it is 60% cover--please note. Please note significant differences between dominant overstory, subcanopy, and understory vegetation among the patches. Document these differences with photographs whenever possible. referencing comments to photo number whenever available. Note potential threats (e.g., livestock, ORV, hunting, etc.) to the site. If *Diorhabda* beetles are observed, provide location and photos. Attach additional pages or use the continuation sheet if needed.

The Santa Ana River Trail Project alignment survey area spans several miles and traverses several habitat types. The riparian habitat along the alignment varies widely in composition, structure, and diversity, and most of the riparian habitat that is suitable for other species (i.e. least Bell's vireo) is not suitable for the yellow-billed cuckoo and was not surveyed. Highest qualify habitat consists of mature willow forest dominated by S. goodingii, with an understory of dense Vitus girdiana in some areas and dense Lepidium latifolium along W. Rincon Street and Corydon Street.

Appendix F BURROWING OWL

Stantec

Memo

To:	David Lewis Capital Projects Manager Project Delivery Riverside County Transportation Commission 4080 Lemon St Riverside, CA 92501	From:	Jared Varonin 290 Conejo Ridge Ave Ste 100 Thousand Oaks, CA 91361
Project/File:	Santa Ana River Trail Project	Date:	January 10, 2021

Reference: Santa Ana River Trail Project Phase 2, 2A, and 3A Burrowing Owl Habitat Assessment and Focused Surveys

1.0 Introduction

Riverside County Regional Park & Open-Space District requested Stantec Consulting Services Inc. (Stantec) conduct a burrowing owl (*Athene cunicularia*) habitat assessment for the Santa Ana River Trail Project Phases 2, 2A, and 3A (Project).

The Project is in the northwestern corner of Riverside County, California, within the United States Geological Survey (USGS) Riverside West 7.5-minute topographic quadrangle. The Project occurs within an approximately 46-acre area. The Project area is mostly open space and surrounded to the north by the Santa Ana River and the Corona Airport, to the east by light industrial and open space, and to the south/southwest by state route 91 and open space. Land use in the general area surrounding the Project area includes developed areas (Attachment A Figures 1 and 2).

The proposed Project consists of trail construction that would complete a portion of the larger 110-mile regional Santa Ana River Trail system. Specifically, the Project includes a 2.79-mile dual-track Class I multi-use path/natural surface trail that would be constructed within the Prado Dam Flood Control Basin. The Project includes the construction of three new trail segments, Phase 2 will be 0.65-mile long, Phase 2A will be 1.37-mile long, and Phase 3A will be 0.77-mile long. The three trail segments are shown in Attachment A Figures 2-1 to 2-4. The Survey Area for the burrowing owl habitat focused surveys included the Project area and a 150-meter buffer (Burrowing Owl Survey Area) (Attachment A Figure 3).

2.0 Background

The burrowing owl uses a variety of natural and modified habitats for nesting and foraging, typically low growing vegetation. The burrowing owl occupies open areas within grasslands, shrub lands, desert, golf-courses, earthen berms, unpaved airfields, drainage ditches, fallow fields, and agricultural land use areas (RCA 2006). Natural and artificial burrows are essential to burrowing owl habitat, they provide shelter and nesting locations. The burrows are typically remnant burrows of California ground squirrel (*Otospermophilus beecheyi*) but can also be man-made structures such as culverts, asphalt, cement, or wood debris piles or openings beneath cement or asphalt pavement.

Burrowing owls hunt at dawn and dusk but are often found perched in or near the entrance of their burrow during the day. They forage for small vertebrates and invertebrates in the low vegetation. Nesting season typically occurs between February 1 and August 31.

The burrowing owl was historically abundant and widely distributed within coastal southern California, but it has declined dramatically in Los Angeles, Orange, San Diego, Riverside, and San Bernardino counties. A petition was filed to list the California population of the burrowing owl as a state endangered or threatened species (Center for Biological Diversity 2003); however, the California Department of Fish and Wildlife (CDFW) declined to list the burrowing owl as either endangered or threatened. The burrowing owl is listed by the CDFW as a California Species of Special Concern (CDFW 2021a).

Burrowing owl historically occurred on the Burrowing Owl Survey Area. Based on CDFW California Natural Diversity Database (CNDDB) data, burrowing owls were documented in the Burrowing Owl Survey Area in 1989. In 2012, burrowing owl were documented near Norco College approximately 2.2 miles northeast of the Burrowing Owl Survey Area (CDFW 2021a, Cornell 2021).

3.0 Methods

The following subsections provide the resources reviewed before conducting the burrowing owl habitat assessment and the methods used to conduct the habitat assessment.

LITERATURE REVIEW AND DESKTOP ANALYSIS

A focused literature search of the Burrowing Owl Survey Area was conducted prior to the habitat assessment for this Project. The Burrowing Owl Survey Area is located within the USGS Corona North, California, 7.5-minute topographic quadrangle. A search of the CDFW CNDDB was conducted for the Burrowing Owl Survey Area and a surrounding ten-mile buffer area to determine special-status plants, wildlife, and vegetation communities that have been documented within this area (CDFW 2021a). The database included portions of the following quadrangles surrounding the Burrowing Owl Survey Area:

- Guasti
- Fontana
- Black Star Canyon
- Ontario
- Prado Dam
- Lake Mathews
- Corona South
- Riverside West

Additional data regarding the potential occurrence of burrowing owl was gathered from the following sources:

- Special Animals List (CDFW 2021b)
- Bird Species of Special Concern (CDFW 2021c)
- Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan (WRCMSHCP) (RCA 2006)
- WRCMSHCP (2015)
- WRCMSHCP Burrowing Owl Reports (RCA 2017)
- WRCMHCP Burrowing Owl Survey Area (RCA 2021)

BURROWING OWL HABITAT ASSESSMENT

Based on the Burrowing Owl Survey Instructions for the WRCMSHCP (RCA 2006), three qualified biologists walked the entire Project area to identify the presence or absence of burrowing owl habitat (RCA 2006) (Attachment A Figures 2-1 to 2-4). In areas with potential habitat for burrowing owls (primarily open grassland or ruderal habitat), the biologists surveyed for burrows or other potential signs of burrowing owl. Ground squirrel burrows were mapped with ArcCollector connected to a sub-meter Arrow global positioning system receiver.

FOCUSED BURROW SURVEYS

One qualified biologist conducted the four focused surveys. The biologist used binoculars to scan suitable habitat and the area of mapped burrows to determine owl presence prior to walking the Burrowing Owl Survey Area. The biologist walked transects through the area adjacent to the ground squirrel burrows.

4.0 Existing Conditions

The Burrowing Owl Survey Area is adjacent to the Santa Ana River, the Prado Basin, and the Corona Municipal Airport within unincorporated Riverside County. Elevations within the Project area range from 500 to 600 feet above mean sea level.

VEGETATION COMMUNITIES AND LAND COVER TYPES

As defined in the Manual of California Vegetation, Second Edition (MCVII) (Sawyer et al. 2009), a vegetation alliance is “a category of vegetation classification which describes repeating patterns of plants across a landscape. Each alliance is defined by plant species composition and reflects the effects of local climate, soil, water, disturbance, and other environmental factors.” Generally, Stantec’s mapping and description of plant communities follows the classification system described in MCVII. The MCVII is generally limited to communities that are native to or naturalized within California; however, (generally disturbed) habitat occurs within the Burrowing Owl Survey Area that is not defined in MCVII. Therefore, land cover types assigned to these types of habitats are descriptive in nature and are not specifically referenced in the MCVII. The scientific and common names of each species detailed within this report correspond to those described in the second edition of *The Jepson Manual* (Baldwin et al. 2012).

The vegetation communities and land cover types in the Burrowing Owl Survey Area are presented on Figures 3-1 to 3-4 in Attachment A.

Vegetation Communities

Arroyo Willow Thickets (Salix lasiolepis Shrubland Alliance)

This vegetation classification generally consists of arroyo willow (*Salix lasiolepis*) as the dominant in the tall shrub or low tree canopy with bigleaf maple (*Acer macrophyllum*), coyote brush (*Baccharis pilularis*), mulefat (*Baccharis salicifolia*), common buttonbush (*Cephalanthus occidentalis*), American dogwood (*Cornus sericea*), California wax myrtle (*Morella californica*), California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), black cottonwood (*Populus trichocarpa*), other willows (*Salix* sp.), and black elderberry (*Sambucus nigra*) as co-dominants. Emergent trees may be present at a low cover.

The plants are usually less than 10 meters in height, canopy is open to continuous, and the herbaceous layer is variable.

Within the Burrowing Owl Survey Area, this vegetation community is dominated by arroyo willow with smaller amounts of mulefat shrubs and scattered black willows. Most of the arroyo willow thickets occur in the Survey Area surrounding Phase 2.

California Buckwheat Scrub (Eriogonum fasciculatum Shrubland Alliance)

This vegetation classification generally consists of California buckwheat (*Eriogonum fasciculatum*) as a dominant in the shrub canopy in cismontane stands with California sagebrush (*Artemisia californica*), coyote brush, sticky monkeyflower (*Diplacus aurantiacus*), bush sunflower (*Encelia californica*), brittlebush (*Encelia farinosa*), Menzies' goldenbush (*Isocoma menziesii*), common deerweed (*Acmispon glaber*), chaparral mallow (*Malacothamnus fasciculatus*), white sage (*Salvia apiana*), or black sage (*Salvia mellifera*) as co-dominant species. Emergent trees may be present at low cover. Shrubs are usually less than two meters in height, canopy is continuous or intermittent, and the herbaceous layer is variable and may be grassy.

Within the Burrowing Owl Survey Area, this vegetation is dominated by California buckwheat with smaller amounts of California sagebrush, deerweed, and California brittlebush. California buckwheat scrub occurs in small patches in the Burrowing Owl Survey Area surrounding Phases 2A, 3, and 3A.

Coastal Sagebrush Scrub (Artemisia californica Shrubland Alliance)

This vegetation classification generally consists of California sagebrush as the dominant in the shrub canopy with chamise (*Adenostoma fasciculatum*), coyote brush, bladderpod (*Cleome isomeris*), sticky monkeyflower, bush sunflower, brittlebush, desert tea (*Ephedra californica*), interior goldenbush (*Ericameria linearifolia*), coastal buckwheat (*Eriogonum cinereum*), California buckwheat, yellow yarrow (*Eriophyllum confertiflorum*), chaparral yucca (*Hesperoyucca whipplei*), Menzie's goldenbush, heart leaved keckella (*Keckiella cordifolia*), southern honeysuckle (*Lonicera subspicata*), deerweed, laurel sumac (*Malosma laurina*), chaparral prickly pear (*Opuntia littoralis*), evergreen buckthorn (*Rhamnus ilicifolia*), lemonade berry (*Rhus integrifolia*), sugar bush (*Rhus ovata*), white sage, black sage, and poison oak (*Toxicodendron diversilobum*). Emergent trees or tall shrubs may be present at low cover, including southern California black walnut (*Juglans californica*), coast live oak (*Quercus agrifolia*), or black elderberry. Shrubs are less than two meters in height or in two tiers with a second less than five meters tall. The canopy is intermittent to continuous, and the herbaceous layer is variable.

Within the Burrowing Owl Survey Area, this vegetation is dominated by California sagebrush with smaller amounts of California buckwheat and coyote brush. California sagebrush scrub occurs in large patches in the Survey Area in Phases 2A, 3, and 3A.

Cheeseweed Flats (Malva parviflora)

This non MCVII vegetation classification generally consists of a monoculture of cheeseweed (*Malva parviflora*). Within the Burrowing Owl Survey Area, this vegetation is dominated by monoculture of dense cheeseweed with other non-native annual species such as short-pod mustard (*Hirschfeldia incana)* occasionally observed. Cheeseweed flats occur in one patch in the Survey Area southeast of Phase 2A and

the area appears to have been previously disturbed and may have been used as an access road in the past.

Common and Giant Reed Marshes (Phragmites australis Arundo donax Herbaceous Semi-Natural Alliance)

This vegetation classification is dominated by common reed (*Phragmites australis*) or giant reed (*Arundo donax*). Within the Burrowing Owl Survey Area, this vegetation is dominated by giant reed. One reed marsh occurs in the Burrowing Owl Survey Area north of Phase 2A in an area surrounded by native riparian vegetation.

Coyote Brush Scrub (Baccharis pilularis Shrubland Alliance)

This vegetation classification generally consists of coyote brush, California coffeeberry (*Frangula californica*) and/or coast silk tassel (*Garrya elliptica*) is dominant to co-dominant in the shrub canopy with coastal sagebrush, sticky monkeyflower, California buckwheat, deerweed, California blackberry (*Rubus ursinus*), white sage*,* purple sage (*Salvia leucophylla*) and poison oak. Emergent trees may be present at low cover.

Within the Burrowing Owl Survey Area, this vegetation is dominated by coyote brush with smaller amounts of deerweed, bush sunflower, mulefat, and Menzie's goldenbush. Coyote brush scrub occurs in small patches in the Phase 2A Survey Area and in the Survey Area west of Phase 3A.

Eucalyptus Groves (Eucalyptus spp. Woodland Semi-Natural Alliance)

This non MCVII vegetation classification generally consists of eucalyptus species/gum trees (*Eucalyptus* sp.) as the dominant in the tree canopy. The trees are less than 60 meters in height, canopy is open to continuous, shrub layer is generally sparse, and the herbaceous layer is sparse to intermittent.

Within the Burrowing Owl Survey Area, this vegetation is dominated by large eucalyptus trees with bare ground along low drainage areas. Eucalyptus groves occur in the Survey Area in Phases 2A and 3A.

Menzie's Goldenbush Scrub (Isocoma menziesii Shrubland Alliance)

This vegetation classification generally consists of Menzie's goldenbush as dominant or co-dominant in the shrub canopy with coastal sagebrush, coyote brush, broom baccharis (*Baccharis sarothroides*), giant coreopsis (*Coreopsis gigantea*), matchweed (*Gutierrezia californica*), island broom (*Acmispon dendroideus)*, silver bush lupine (*Lupinus albifrons),* and Virginia glasswort (*Salicornia depressa*). Herbs commonly present include *San Miguel Island milkvetch* (*Astragalus miguelensis*), California orach (*Etriplex californica*), ripgut brome (*Bromus diandrus*), coast morning glory (*Calystegi macrostegia*), saltgrass (*Distichlis spicata*), and purple needlegrass (*Stipa pulchra*).

Within the Burrowing Owl Survey Area, this vegetation is dominated by Menzie's goldenbush with smaller amounts of coyote brush. California buckwheat, and quailbush (*Atriplex lentiformis*). This community occurs in one patch in the Survey Area north of Phase 2A.

Mulefat Thickets (Baccharis salicifolia Shrubland Alliance)

This vegetation classification generally consists of mulefat (*Baccharis salicifolia*) as the dominant in the shrub canopy with coastal sagebrush, willow baccharis (*Baccharis emoryi*), coyote brush, laurel sumac, tree tobacco (*Nicotiana glauca*), arrow weed (*Pluchea sericea*), blackberry species (*Rubus* sp.), narrow leaved willow (*Salix exigua*), arroyo willow, black elderberry, and tamarisk species (*Tamarix* sp.) as co-dominants. Emergent trees may be present at low cover, including grey pine (*Pinus sabiniana*), California sycamore, Fremont cottonwood, oak species (*Quercus* sp.), or willow species (*Salix* sp.). Shrubs are less than five meters in height, the canopy is continuous with tie tiers at less than two meters and at less than five meters, and the herbaceous layer is sparse.

Within the Burrowing Owl Survey Area, this vegetation is dominated by mulefat with smaller amounts of arroyo willow and coyote brush. This community occurs in the Survey Area of all three phases and most of this vegetation in the Phase 2 Survey Area. Approximately 30 acres of this community occurs in the Survey Area.

Perennial Pepperweed Patches (Lepidium latifolium Herbaceous Semi-Natural Alliance)

This vegetation classification is dominated by perennial pepperweed (*Lepidium latifolium*). Emergent trees and shrubs may be present at low cover. Within the Burrowing Owl Survey Area, this vegetation is dominated by perennial pepperweed. This community occurs in one small patch in the Survey Area at the edge of Phases 2A and 3A.

Poison hemlock or fennel patches (Conium maculatum- Foeniculum vulgare Herbaceous Semi-Natural Alliance)

This vegetation classification generally consists of thoroughwort (*Ageratina adenophora*), poison hemlock (*Conium maculatum*), wild teasel (*Dipsacus fullonum*), Indian teasel (*Dipsacus sativus*) and/or sweet fennel (*Foeniculum vulgare*), or another non-native invasive plant of the *Apiaceae* is dominant or co-dominant with other non-native plants in the herbaceous layer. Emergent trees and shrubs may be present at low cover, including oak trees and coyote brush.

Within the Burrowing Owl Survey Area, this vegetation is dominated by poison hemlock. This community occurs in one small patch in the Survey Area at the edge of Phases 2A and 3A.

Shining Willow Groves (Salix lucida ssp. lasiandra Forest and Woodland Alliance)

This vegetation classification generally consists of shining willow (*Salix lucida*) as dominant or co-dominant in the tree canopy with bigleaf maple, white alder (*Alnus rhombifolia*), American dogwood, California sycamore, Freemont cottonwood, black cottonwood, coast live oak, willows, and blue elderberry.

Within the Burrowing Owl Survey Area, this vegetation is dominated by shining willow with smaller amounts of mulefat, other willow species, and castor bean. This community occurs in one large patch in the Survey Area in Phase 2A west of Butterfield Park. Approximately 10 acres of this community occurs in the Survey Area.

Tamarisk Thicket (Tamarix spp. Shrubland Semi-Natural Alliance)

This vegetation classification generally consists of salt cedar (*Tamarix ramosissima*) or another *Tamarix* species dominant in the shrub canopy. Emergent trees may be present at low cover, including Freemont's cottonwoods or willow trees.

Within the Burrowing Owl Survey Area, this vegetation is dominated by salt cedar. This community occurs in one linear patch along West Rincon Street in the Survey Area east of Phase 2.

Upland mustards or star-thistle fields (Brassica nigra – Centaurea [solstitialis, melitensis] Herbaceous Semi-Natural Alliance)

This vegetation classification generally consists of black mustard (*Brassica nigra*), common mustard (*Brassica rapa*), Italian thistle (*Carduus pycnocephalus*), Maltese star thistle (*Centaurea melitensis*), yellow starthistle (*Centaurea solstitialis*), cardoon artichoke thistle (*Cynara cardunculus*), Geraldton carnation weed (*Euphorbia terracina*), short-pod mustard, Dyer's woad (*Isatis tinctoria*), or wild radish (*Raphanus sativus*), or similar ruderal forb is dominant in the herbaceous layer. Emergent trees and shrubs may be present at low cover.

Within the Burrowing Owl Survey Area, this vegetation is dominated by short-pod mustard and Maltese star-thistle with smaller amounts of other non-native annual grasses, mostly bromes, and non-native annual herbs. This community occurs along West Rincon Street in Phase 2 and in the eastern portion of Phase 3A.

Wild Oats and Annual Brome Grasslands (Avena spp.-Bromus spp. Herbaceous Semi-Natural Alliance)

This vegetation classification generally consists of slim oat (*Avena barbata*), wildoats (*Avena fatua*), purple false brome (*Brachypodium distachyon*), rattlesnake grass (*Briza maxima*), ripgut brome, soft chess, and foxtail barley (*Hordeum murinum*) as dominant or co-dominant in the herbaceous layer with other non-natives such as Australian saltbush (*Atriplex semibaccata*) and barley species (*Hordeum* sp.). Emergent trees and shrubs may be present at low cover. Herbs are less than four feet in height and cover is open to continuous.

Within the Burrowing Owl Survey Area, this vegetation is dominated by bromes and other non-native annual grasses. Wild oats and annual brome grasslands occur in large patches in the Survey Area surrounding Phases 2A and 3A. Approximately 50 acres of this community occur in the Survey Area.

Land Cover Types

Disturbed/Developed

This land cover type includes areas that have been graded or paved and are developed with urban infrastructure. These areas are generally periodically maintained for weed control, precluding any significant growth of non-ornamental species, but may be sparsely interspersed with ruderal pioneer plant species that readily colonize open disturbed soil such as along disturbed areas or roadsides. The Phase 2 Survey Area includes Corydon Street, West Rincon Street, and disturbed areas between West Rincon Street and the Corona Airport. The Phase 2A Survey Area includes dirt access roads, a large borrow pit, portions of the

Corona Airport and Butterfield Park, and buildings south and west of Phase 2A. The Phase 3A Survey Area includes portions of State Route 91. Over 100 acres of this land cover type occurs in the Survey Area.

Non-vegetated Channel

Non-vegetated channel is not a MCVII classification. In this land cover type, the area is unvegetated on a relatively permanent basis. The area is usually dominated by sand, gravel, or rock and usually exhibits an ordinary-high water mark. Variable water lines inhibit the growth of vegetation; although, some grasses or other weedy species may grow along the outer edges of the channel. Vegetation may exist here but is usually less than 10 percent total cover (Holland 1986).

A drainage ditch occurs along the south side of Butterfield Drive in the Phase 2A Survey Area.

Partially vegetated channel

This land cover type is like non-vegetated channel but has more than 10 percent vegetative cover. Partially vegetated channel is not a MCVII classification. The lack of vegetation is due to flowing water during the rainy season. The area is usually dominated by sand, gravel, or rock and usually exhibits an ordinary-high water mark. Variable water lines inhibit the growth of vegetation; although, some grasses or other weedy species may grow along the outer edges of the channel.

This land cover type includes Temescal wash east and west of West Rincon Street in Phase 2. Some large willow trees have been established on the edges of the wash.

Restoration Areas

Areas mapped as restoration were either observed to be undergoing active habitat restoration activities or were areas that have been previously restored and are being monitored or have been completed. Two restoration areas occur within the Phase 2A Survey Area.

Ruderal Areas

Ruderal vegetation is not a MCVII classification. This land cover type is usually sparsely vegetated with pioneer plant species that readily colonize open disturbed soil. In the Burrowing Owl Survey Area these include non-native annual grasses, bromes, redstem filaree, and Maltese star-thistle. Ruderal patches occur in the Phase 2A Survey Area near Auto Center Drive.

5.0 Results

Based on the WRCMSHCP Burrowing Owl Survey Area and Survey Instructions and the existing conditions in the Survey Area, the entire Project area was assessed for habitat to support burrowing owl (Figure 2-1 to 2-4). On May 6, 2021, biologists from Stantec conducted the burrowing owl habitat assessment and the first focused burrow survey. The other three focused burrow surveys were conducted on June 30, August 12, and September 3, 2021.

Most of the Project area consists of unsuitable burrowing owl habitat that consists of dense riparian habitat and coastal sage scrub with an understory of non-native grasses (Figures 3-1 to 3-4).

The highest quality burrowing owl habitat was observed in disturbed non-vegetated areas in Phase 2A along Butterfield Drive just south of the Corona Airport (Figure 3-2). The mulefat thickets in the Phase 2A on along the north side of West Rincon Drive are partially disturbed and open and provide marginally suitable habitat for burrowing owl (Attachment A Figure 3-1). Marginally suitable non-native grasslands (Wild Oats and Annual Brome Grasslands) occur in Phases 2, 2A, and 3A (Attachment A Figures 3-1 to 3-4). Much of the non-native grassland habitat in the Project area consists of dense thatch that is not suitable for burrowing owl. Other potential burrowing owl habitat consists of restoration areas, ruderal habitat, and non-vegetated disturbed areas along the edge the dirt roads in Phases 2, 2A, and 3A (Attachment A Figures 3-1 to 3-4).

The four focused surveys were conducted in the Project area and the 150-meter-wide Burrowing Owl Survey Area in the suitable habitat described in the previous paragraph. The surveys were conducted in suitable conditions for burrowing owl. The temperature ranged from 60 to 81 degrees Fahrenheit (F) and it was a sunny day with clear skies and no clouds with a slight breeze during the first survey on May 6, 2021. On June 30, the temperature ranged from 68 to 85 degrees F; it was a sunny, clear day with no clouds and a slight breeze. On August 12, the temperature ranged from 86 to 95 degrees F; it was a sunny, clear day with no clouds; and windy at the start of the survey and calm by the end of the survey. On September 3, the temperature ranged from 66 to 79 degrees F; and it was a sunny, clear day with a slight breeze at the end of the survey.

Signs of ground squirrels were present, and individuals were observed, only within the eastern extent of the Project area/Survey Area; the sign/individuals were in the general vicinity of the Corona Municipal Airport. Three ground squirrel burrows were observed within a disturbed/developed area in the eastern portion of Phase 2A and mapped on Figure 3-2. The ground squirrel burrows ranged in size from 5 to 8 inches wide (Photograph 1).

No burrowing owl or sign of burrowing owl was observed.

Photograph 1. Ground squirrel burrows near Phase 2A

6.0 Conclusion

There are not any recent records of burrowing owl in the vicinity of the Survey Area and no burrowing owl or sign of burrowing owl was observed during these surveys. Based on the 2021 burrowing owl habitat assessment conducted for this Report, most of the Burrowing Owl Survey Area no longer contains suitable habitat for burrowing owl. However, pre-construction burrowing owl surveys are required by the WRCMSHCP in suitable burrowing owl habitat prior to construction. The surveys will need to be conducted no more than 30 days prior to ground disturbance.

Please contact us if you have any questions.

Respectfully,

Stantec Consulting Services Inc.

Melissa Tu
Senior Biologist
Phone: (858) 633-4225
melissa.tu@stantec.com

Jared Varonin
Principal Biologist/Ecosystems Practice Leader
Phone: (805) 358-7696
Jared.Varonin@stantec.com

Attachment: Attachment A Figures

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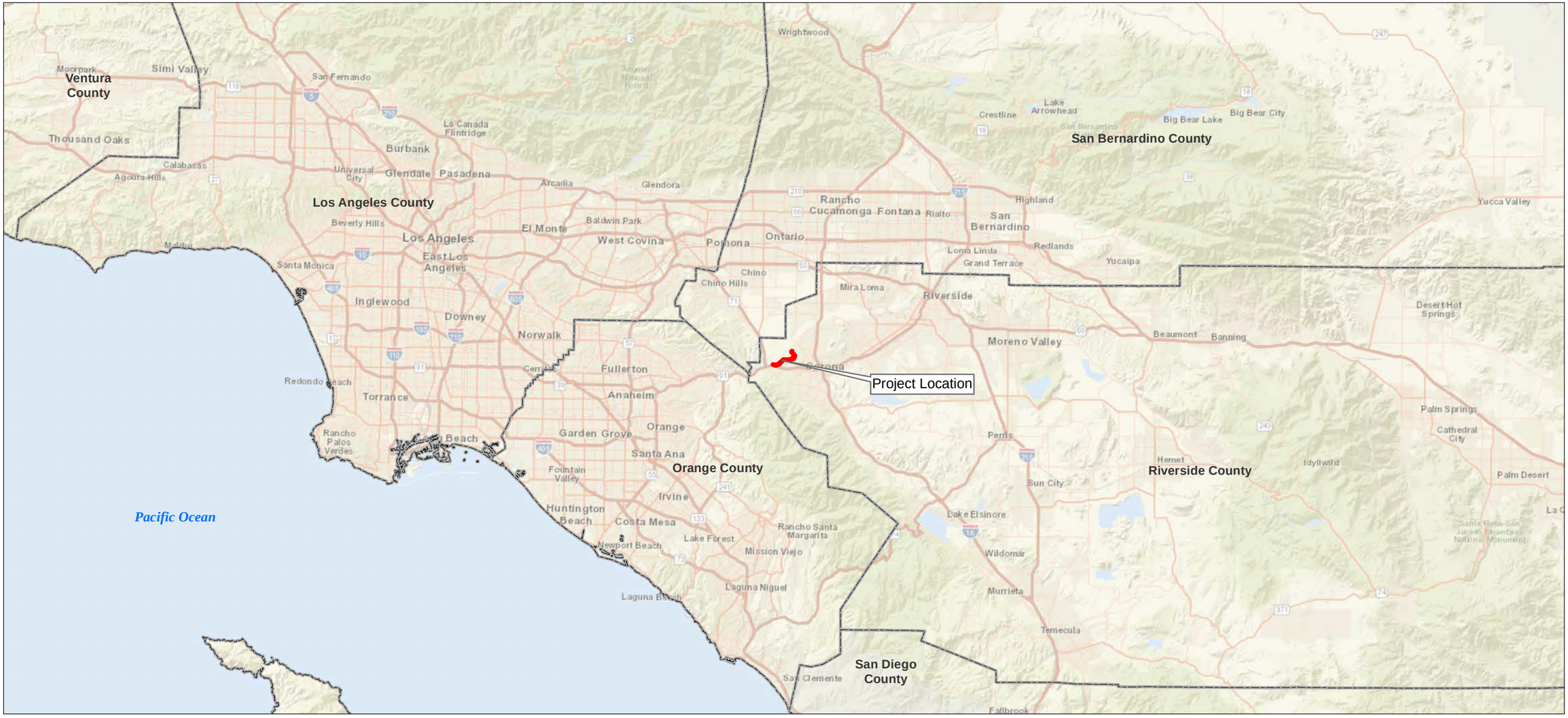
Attachment A Figures



Project Location

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Stantec

Project Location	Prepared by DL on 2022-01-04
Near Corona	TR by SET on 2022-01-04
Riverside County, California	IR by JV on 2022-01-04
Client/Project	2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.

1

Title

Regional Location

Notes

1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

V:\1858\business_development\Santa Ana River Trail\Figure1_SART_BUOW_ProjectDescription_RegionalLocationMap_12222021_11x17.mxd Revised: 2022-01-07 By: dalaw

- Laydown Yard: Temporary Impact
- Grading: Temporary Impact
- Grading: Permanent Impact
- Riprap: Permanent Impact
- Trail: Permanent Impact
- Ingress/Egress Location
- △ Phase 2A End Location / Phase 3A Start Location
- Railroad

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Stantec

Project Location	Prepared by DL on 2022-01-04
Near Corona Riverside County, California	TR by SET on 2022-01-04 IR by JV on 2022-01-04
Client/Project	2042483140
Riverside County Regional Park & Open-Space District Santa Ana River Trail Project Burrowing Owl Habitat Assessment and Focused Surveys	
Figure No.	
2	
Title	
Site Plan	

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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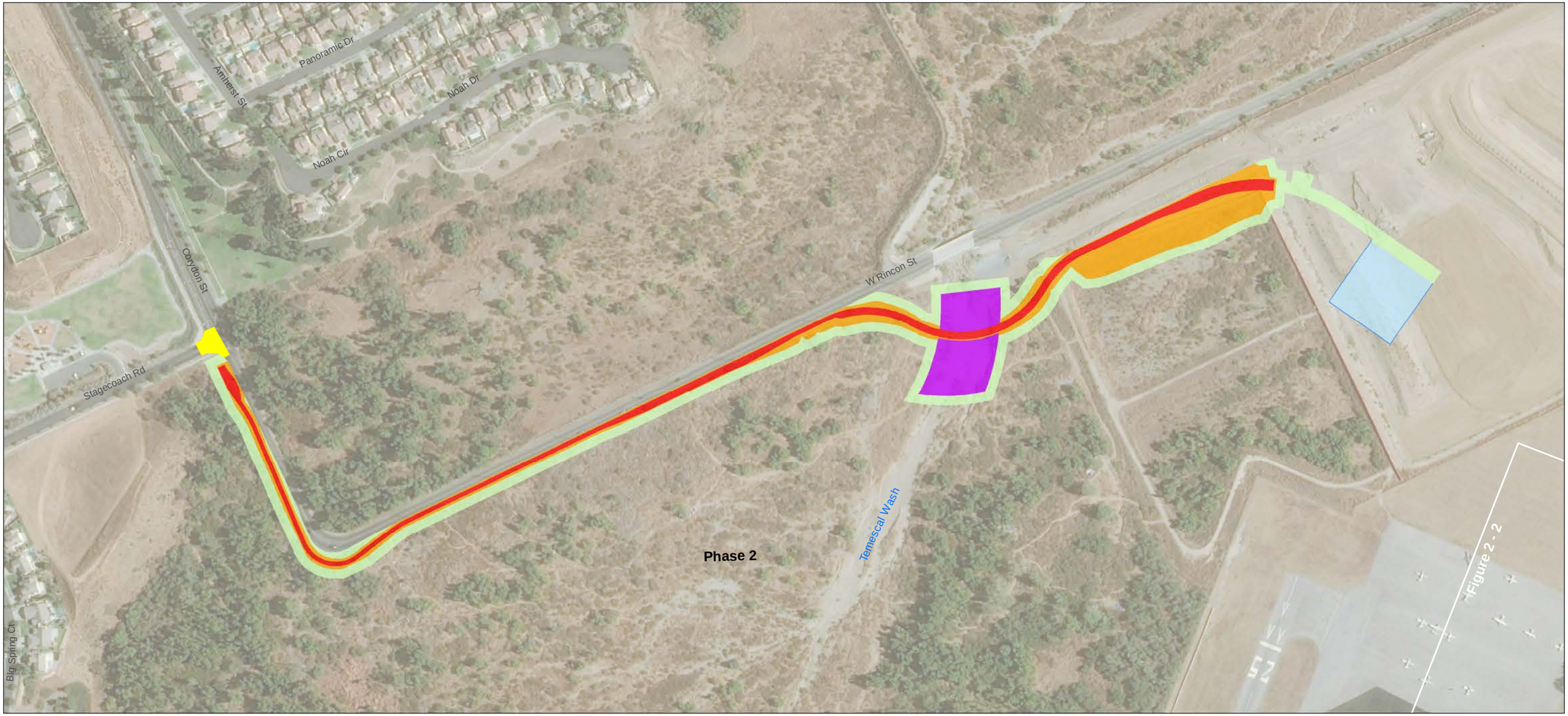

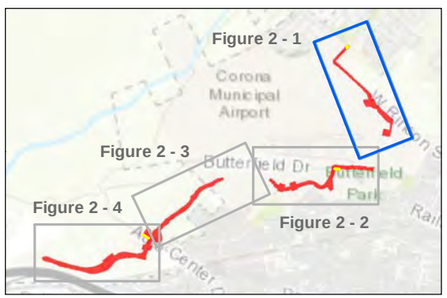

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- Riprap: Permanent Impact
- Trail: Permanent Impact
- Ingress/Egress Location

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Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-01-04
TR by SET on 2022-01-04
IR by JV on 2022-01-04

Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
2 - 1

Title
Plan Sheet 1

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
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3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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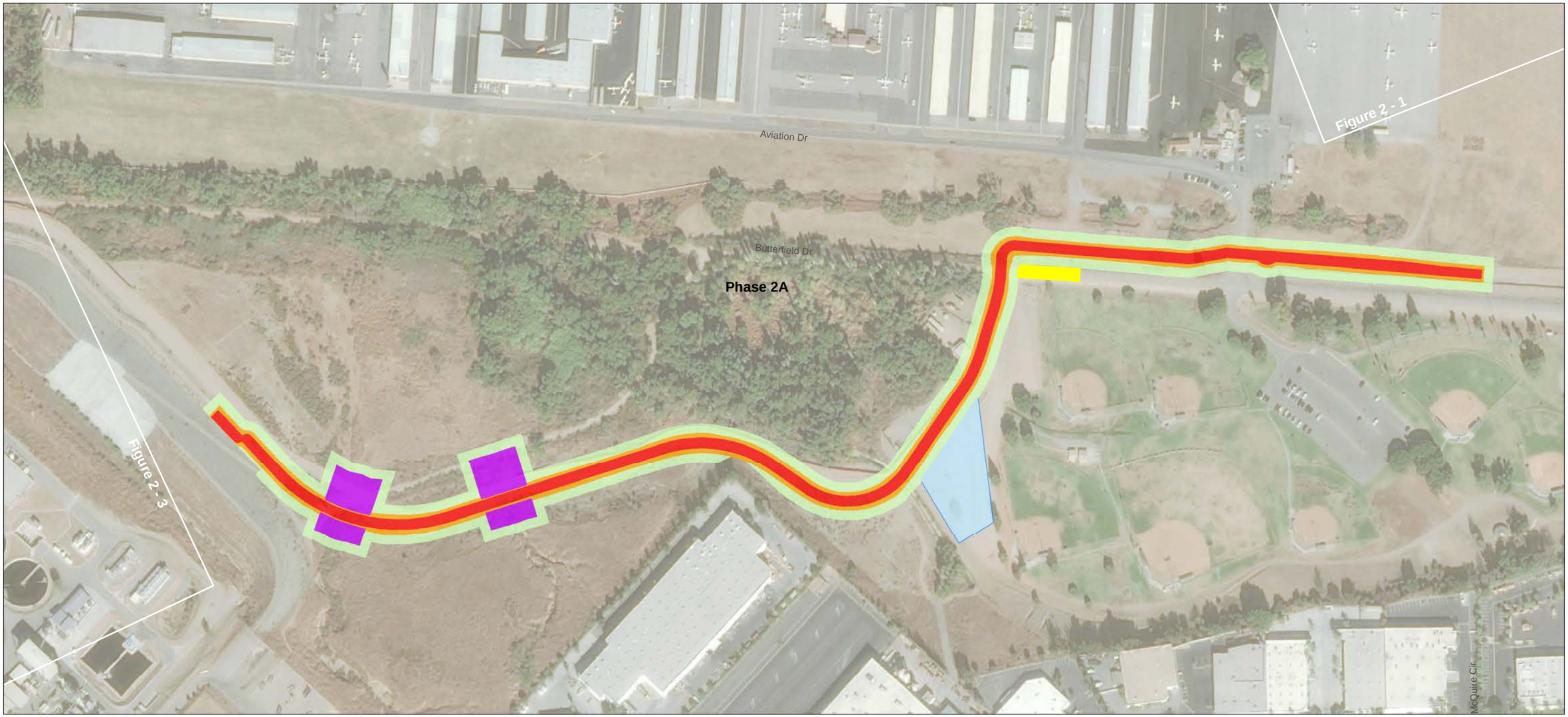

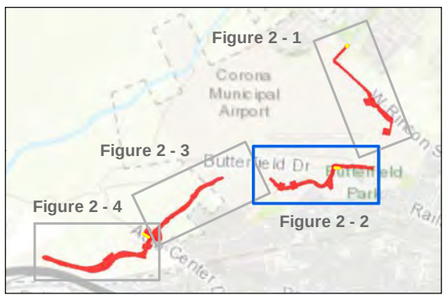

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- Riprap: Permanent Impact
- Trail: Permanent Impact
- Ingress/Egress Location

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Stantec

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Near Corona
Riverside County, California

Prepared by DL on 2022-01-04
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IR by JV on 2022-01-04

Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
2 - 2

Title
Plan Sheet 2

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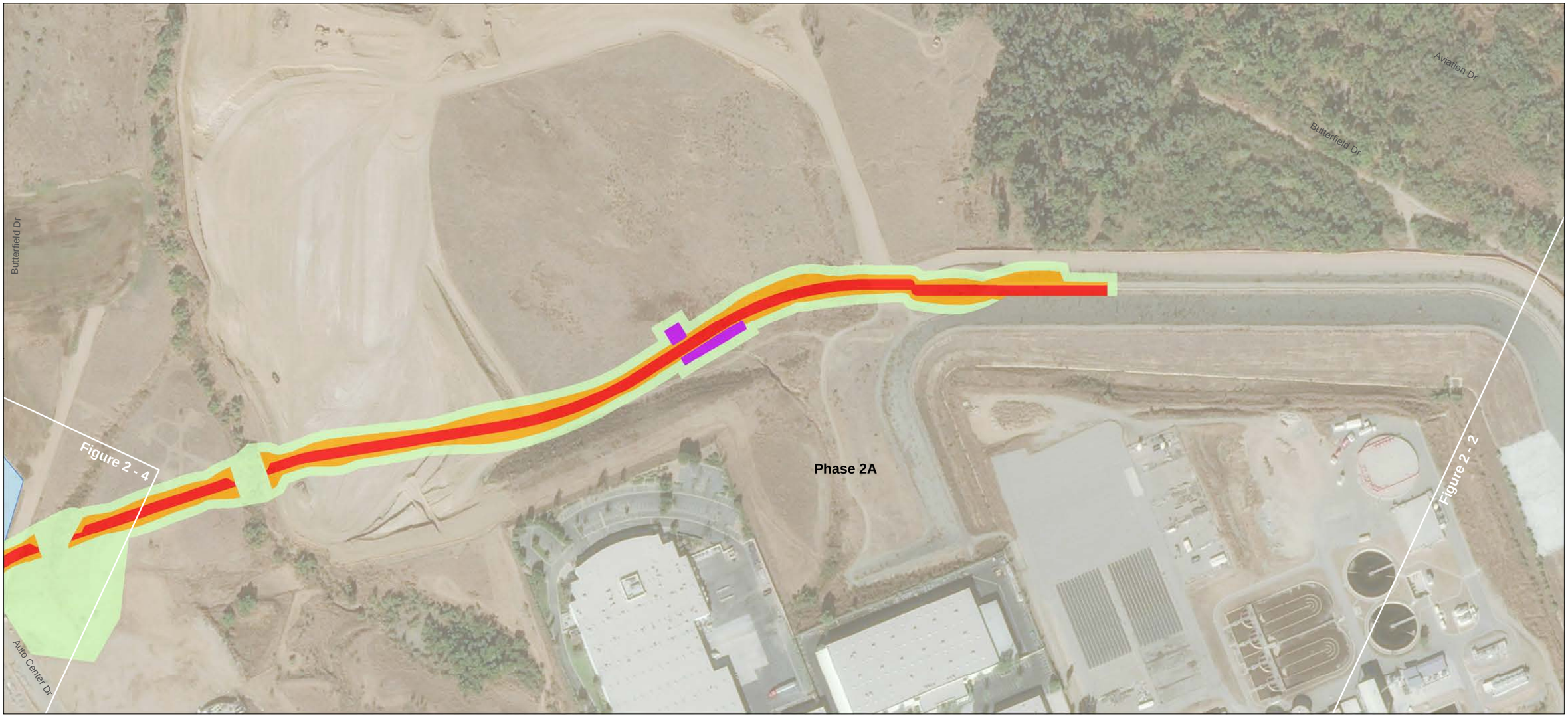
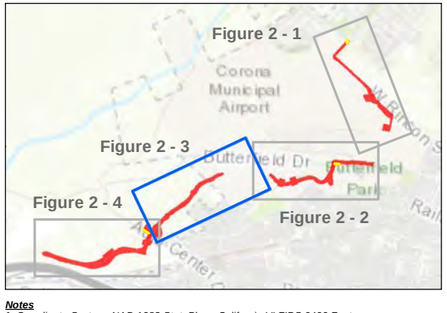
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community





- Laydown Yard: Temporary Impact
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- Riprap: Permanent Impact
- Trail: Permanent Impact

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N

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Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-01-04
TR by SET on 2022-01-04
IR by JV on 2022-01-04

Client/Project 2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
2 - 3

Title
Plan Sheet 3

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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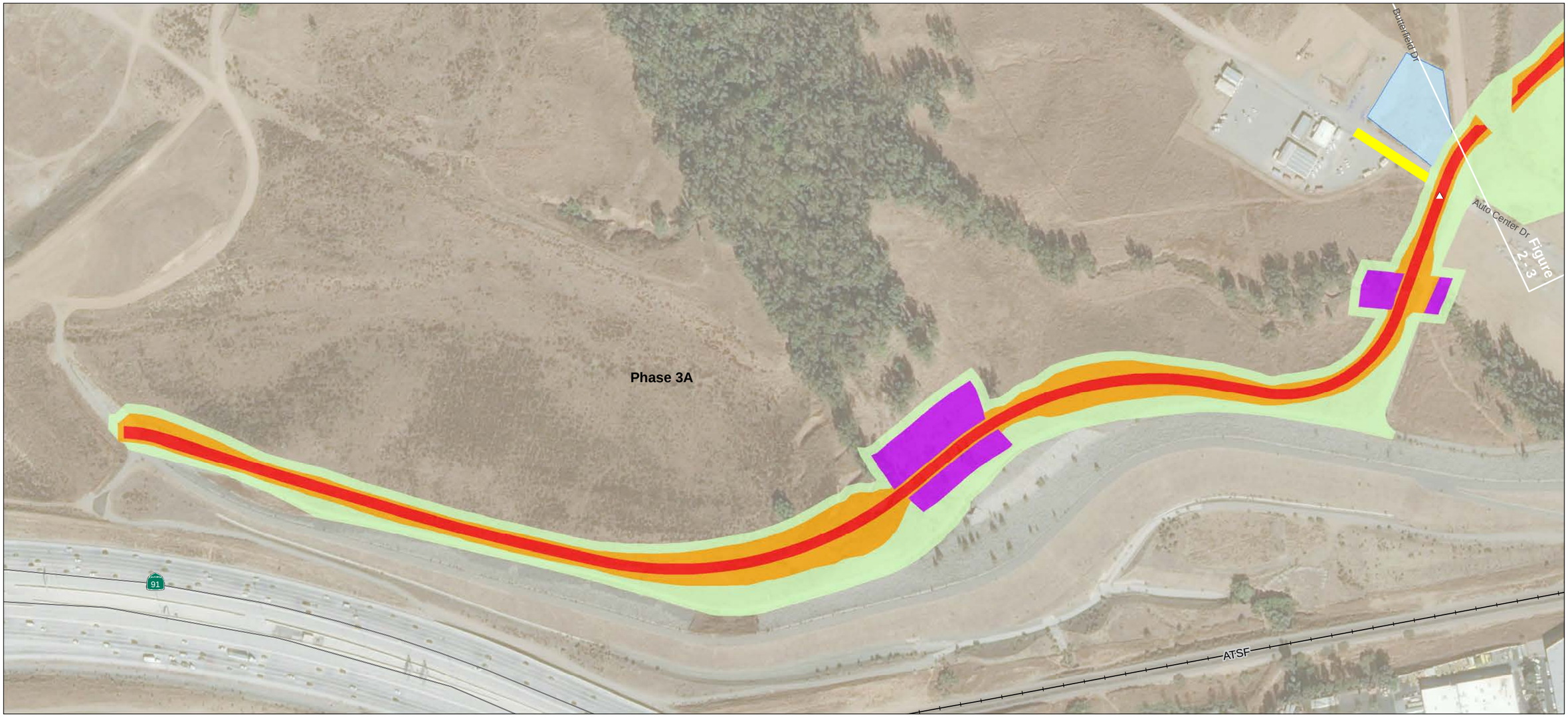

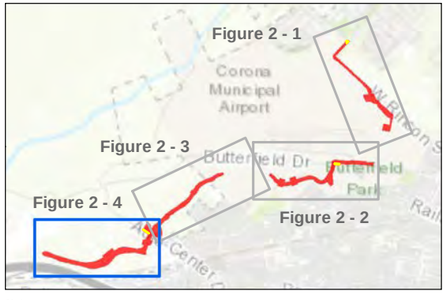

- Laydown Yard: Temporary Impact
- Grading: Temporary Impact
- Grading: Permanent Impact
- Riprap: Permanent Impact
- Trail: Permanent Impact
- Ingress/Egress Location
- △ Phase 2A End Location / Phase 3A Start Location
- Railroad

0 270 540 Feet

(At original document size of 11x17)
1:3,240

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-01-04
TR by SET on 2022-01-04
IR by JV on 2022-01-04

Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
2 - 4

Title
Plan Sheet 4

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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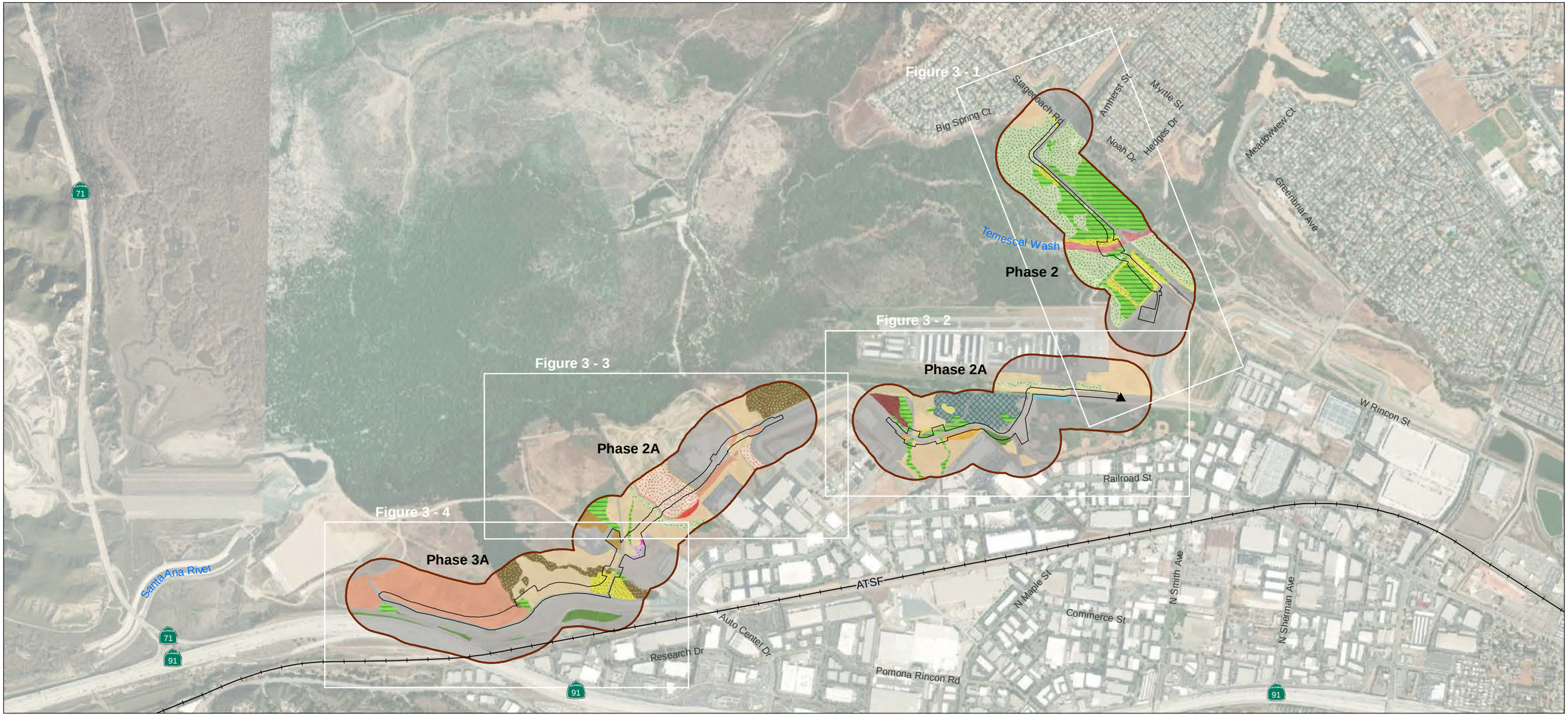

- Burrowing Owl Survey Area (150 Meter)
- Project Footprint
- ▲ Mammal burrow

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- California buckwheat scrub
- California sagebrush scrub
- Cheeseweed flats
- Coyote brush scrub
- Disturbed/Developed
- Eucalyptus groves
- Giant reed stands
- Menzie's goldenbush scrub
- Mulefat thickets
- Non-vegetated channel
- Partially vegetated channel
- Perennial pepperweed patches
- Poison hemlock or fennel patches
- Restoration
- Ruderal
- Shining willow groves
- Tamarisk thickets
- Upland mustards or star-thistle fields
- Wild oats and annual brome grasslands

0 1,500 3,000 Feet

(At original document size of 11x17)
1:18,000

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-01-04
TR by SET on 2022-01-04
IR by JV on 2022-01-04

Client/Project 2042483140

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Santa Ana River Trail Project
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Figure No.
3 - 0

Title
Biological Resources

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.NRCS 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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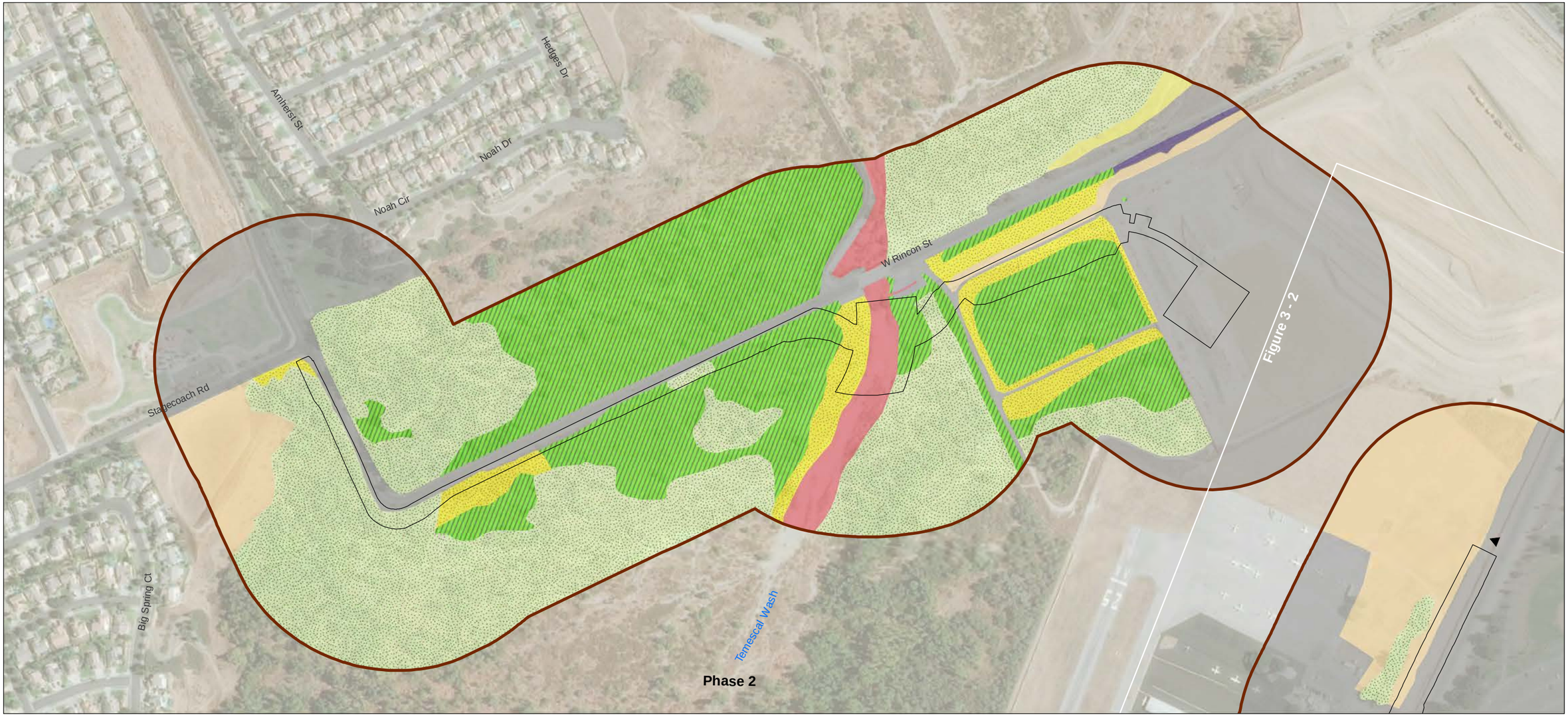

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0 350 700 Feet

(At original document size of 11x17)
1:4,200

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-01-04
TR by SET on 2022-01-04
IR by JV on 2022-01-04

Client/Project
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Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
3 - 1

Title
Biological Resources

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.NRCS 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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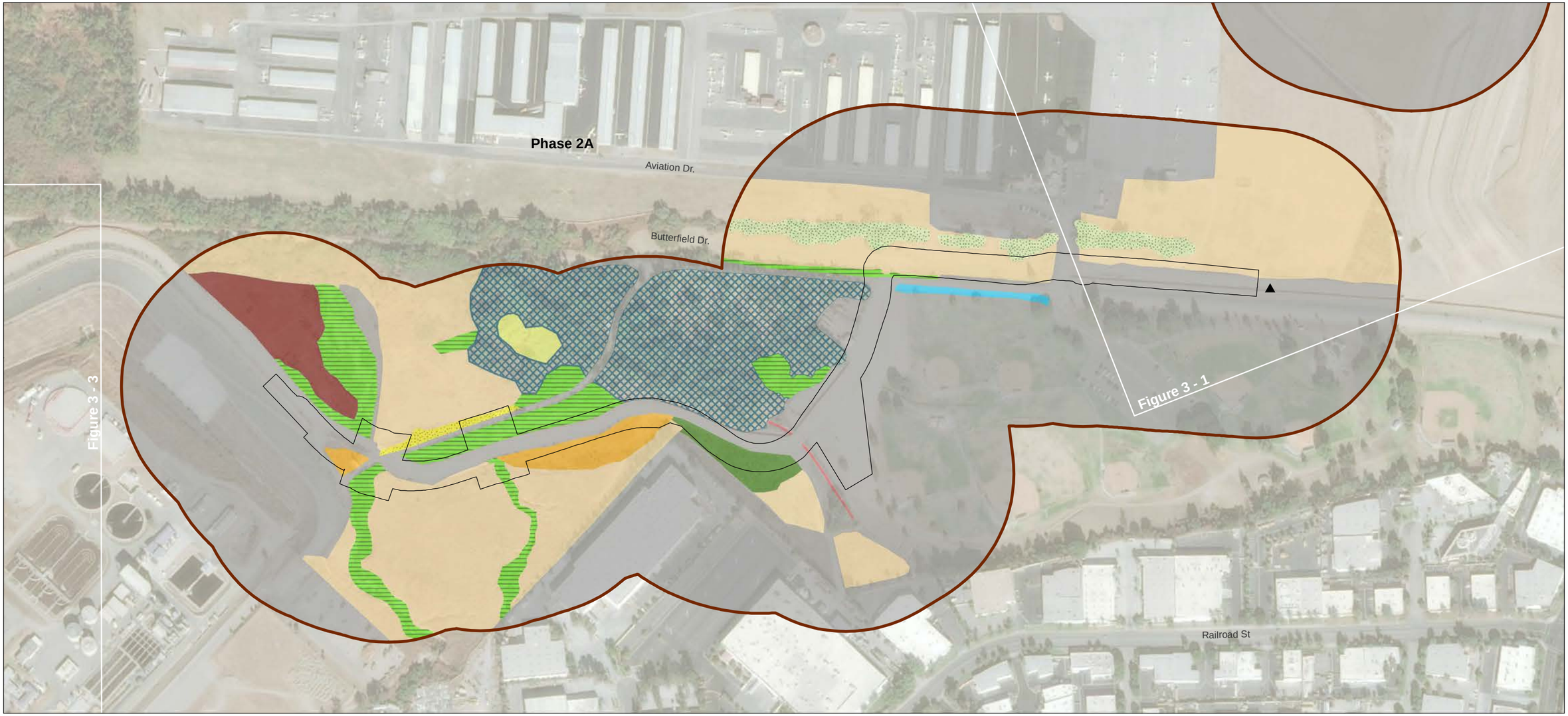

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0 350 700 Feet

(At original document size of 11x17)
1:4,200

N

Stantec

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Near Corona
Riverside County, California

Prepared by DL on 2022-01-04
TR by SET on 2022-01-04
IR by JV on 2022-01-04

Client/Project
2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
3 - 2

Title
Biological Resources

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.NRCS 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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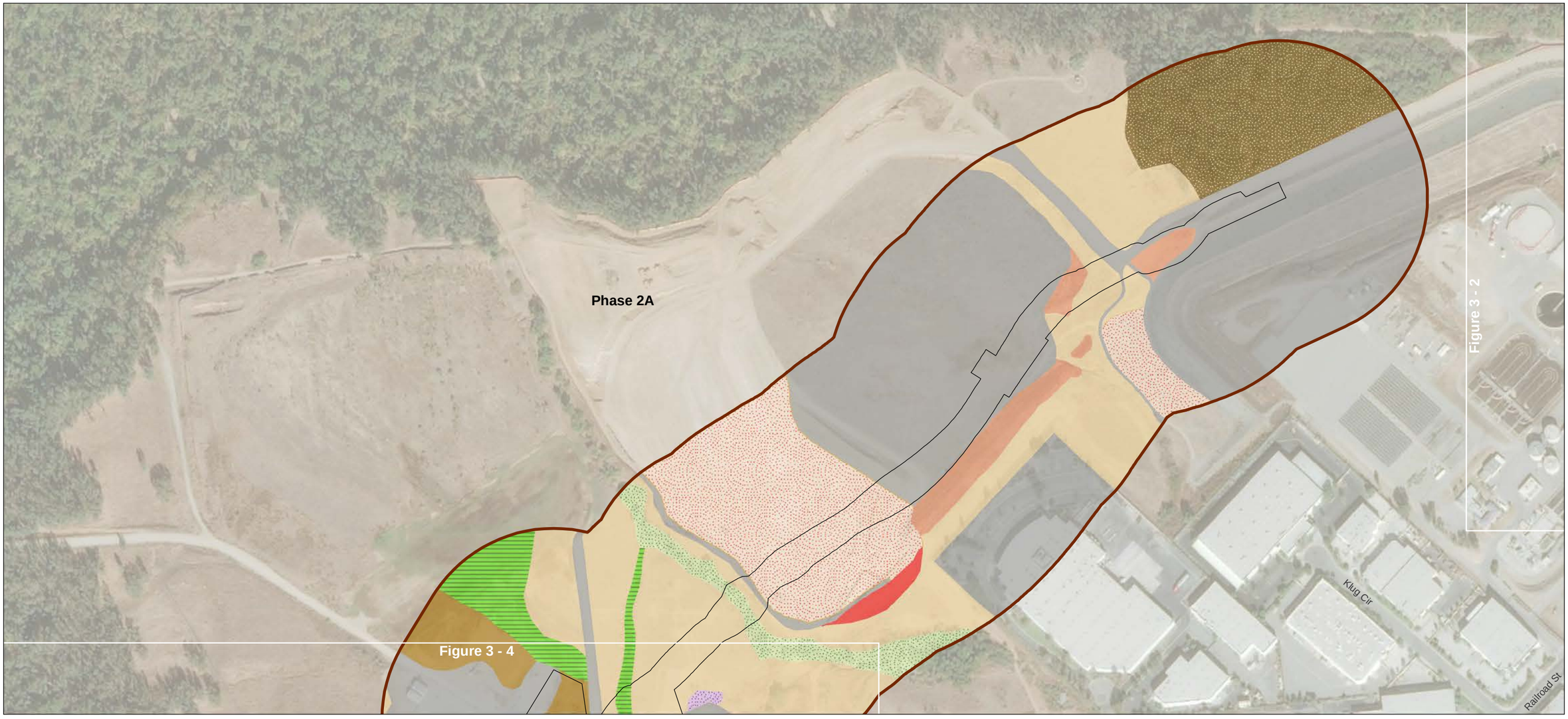

- Burrowing Owl Survey Area (150 Meter)
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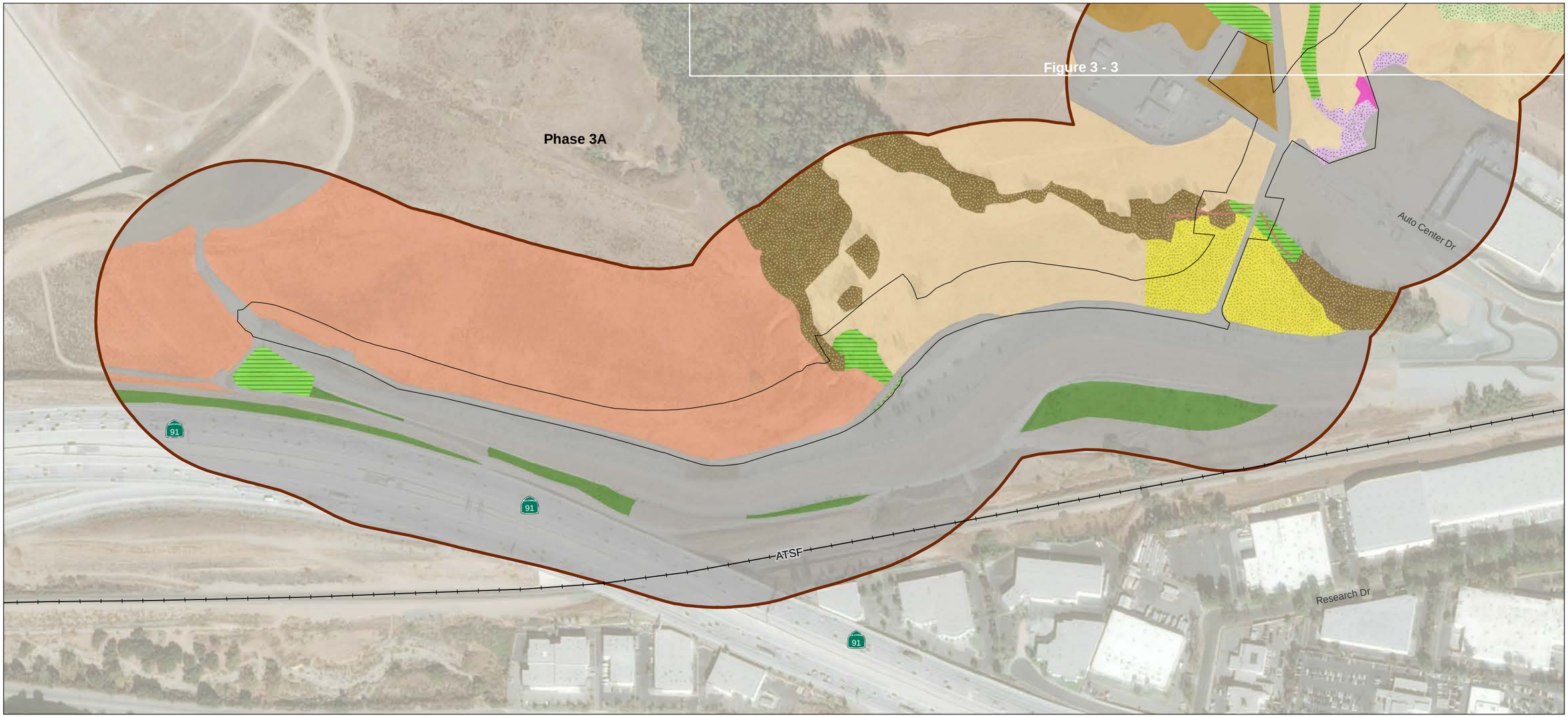
2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
3 - 3

Title
Biological Resources

Figure 3 - 3



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Client/Project 2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
3 - 4

Title
Biological Resources

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APPENDIX B

Biological Resources Technical Report

Biological Resources Technical Report

Santa Ana River Trail Phases 2, 2A, and 3A

July 4, 2022

Prepared for:

Riverside County Regional Park & Open-Space District
4600 Crestmore Road
Jurupa Valley, California 92509

Prepared by:

Stantec Consulting Services Inc.
735 East Carnegie Drive Suite 280
San Bernardino CA 92408-3588

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Prepared by Hannah Hart
(signature)
Hannah Hart, Project Biologist

Reviewed by
(signature)
Melissa Tu, Senior Biologist

Reviewed by
(signature)
Geoff Hoetker, Senior Biologist

Prepared and Approved by
(signature)
Jared Varonin, Principal Biologist/Ecosystems Practice Leader

Table of Contents

LIST OF TABLES

LIST OF APPENDICES

Abbreviations

ADA	Americans with Disabilities Act
BGEPA	Bald and Golden Eagle Protection Act
BRTR	Biological Resources Technical Report
BSA	Biological Study Area
Caltrans	California Department of Transportation
CCH	Consortium of California Herbaria
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	Riverside County
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DCH	Designated Critical Habitat
FESA	Federal Endangered Species Act
FGC	Fish and Game Code
FR	Federal Register
General Plan	Riverside County General Plan
GPS	Global Positioning System
iPaC	Information for Planning and Consultation
LSAA	Lake or Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MCVII	Manual of California Vegetation, 2nd Edition
MSHCP	Multi Species Habitat Conservation Plan
NEPA	National Environmental Policy Act
NCCP	Natural Community Conservation Plan
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act
OHWM	ordinary high-water mark
Project	Santa Ana River Trail
RHA	River and Harbors Act
RWQCB	Regional Water Quality Control Board
SR-	State Route
SSC	Species of Special Concern
Stantec	Stantec Consulting Services Inc.
SWRCB	State Water Resources Control Board
U.S.	United States

USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey
WOTUS	Waters of the United States
WRC	Western Riverside County
WRCMSHCP	Western Riverside County Multi-Species Habitat Conservation Plan

1.0 INTRODUCTION

This Biological Resources Technical Report (BRTR) is intended to document the biological resources that are associated with the proposed Santa Ana River Trail Phases 2, 2A, and 3A Project (Project) located in unincorporated Riverside County, California (refer to Appendix A Figures 1 and 2). The surveys conducted and discussions presented within this BRTR are intended to support planning and regulatory agency permitting and associated documentation.

Surveys were conducted in 2021 by Stantec Consulting Services Inc. (Stantec) and Leatherman BioConsulting (Leatherman Bio) biologists within accessible portions of the proposed Project site in addition to a surrounding 300-foot buffer zone. This approximately 362-acre area is defined as the Biological Study Area (BSA) (refer to Appendix A Figure 3). The BRTR describes the existing environmental conditions that occur within the BSA and surrounding areas and evaluates the potential for biological resources to occur based on those conditions with an emphasis on special-status plant and wildlife species, wildlife corridors, and special-status/sensitive natural communities.

1.1 PROJECT LOCATION

The proposed Project is located within the Prado Dam Flood Control Basin area of the Santa Ana River in unincorporated Riverside County, California, within the United States (U.S.) Geological Survey (USGS) Riverside West 7.5-minute topographic quadrangle. The Prado Dam Flood Control Basin area is located within Riverside County, approximately 26 miles east of the Pacific Ocean and 35 miles southeast of downtown Los Angeles. The proposed Project site is located within the northwestern portion of Riverside County (County) at the juncture of the administrative boundaries of Riverside, San Bernardino, and Orange counties and south and southeast of the City of Corona's jurisdictional boundaries (Appendix A Figure 1 Regional Location).

The east and west improvement limits of the proposed Project extend from approximately Rincon Street to the east to Auto Center Drive to the west and are shown in Appendix A Figure 2, Site Plan. As shown in Figure 2, the proposed Project intersects with the following roadways, including Rincon Street, Butterfield Drive, and Auto Center Drive. The proposed Project limits are the Prado Dam Flood Control Basin area to the north, State Route (SR-) 91 to the south, West Rincon Street to the east, and State Route (SR)-71 to the west. Access to the proposed Project site is via regional freeways (SR-91 and SR-71) and local roads (West Rincon Street, Butterfield Drive, Auto Center Drive, and Corydon Street).

The proposed Project occurs within an approximately 46-acre area. In general, the proposed Project site is characterized as open space. Land uses to the north are comprised of natural lands, open space, and residential, while uses to the south include residential, light industrial, and the freeway (SR-91). To the east, land uses include light industrial and natural lands, while to the west, uses include natural lands and SR-91. The Santa Ana River Trail is also located within the Temescal Canyon Area Plan, Santa Ana River Policy Area, Western Riverside County (WRC) Multi-Species Habitat Conservation Plan (MSHCP) Areas, and Public/Quasi Public Lands.

1.2 PROJECT DESCRIPTION

The proposed Project consists of trail construction that would complete a portion of the larger 110-mile regional Santa Ana River Trail system. Specifically, the proposed Project includes a 2.79-mile dual-track Class I multi-use path/natural surface trail that would be constructed within the Prado Dam Flood Control Basin. The Project includes the construction of three new trail segments, Phase 2 will be 0.65-mile long, Phase 2A will be 1.37-mile long, and Phase 3A will be 0.77-mile long. The three trail segments are shown in Appendix A Figures 2-1 to 2-4.

Once constructed, the trail would be Americans with Disabilities Act (ADA) compliant and follow the California Department of Transportation (Caltrans) Highway Design Manual guidance for bicycle paths.

The following construction is proposed:

- Class I bicycle path with adjacent pedestrian and equestrian path separated by a split rail fence with a general design, as follows:
    - Eight-to-ten-foot-wide bicycle path travel way with two-foot shoulders
    - Ten-foot wide decomposed granite trail (pedestrian and equestrian path)
    - Five percent max longitudinal slope
    - Two percent max crossfall path and shoulder slopes
    - Minimum 2 to 1 foot slope ratio for cut / fill slopes
- Signage and striping along the trail
- Implementation of drainage improvements
- Application of native hydroseed mix along slope areas of the new trail phases

At constrained locations such as bridge crossings, the Class I multi-use path and natural surface trail would merge into a combined paved trail and be shared by all users. The combined paved trail would accommodate bicyclists, equestrians, hikers, and pedestrians and would be approximately 11 feet wide on the bridges and at the Temescal Wash crossing would be 20 feet wide. A combined paved trail will also be required for a portion of the trail along West Rincon Street and Corydon Street within Phase 2 due to right-of-way constraints and existing Southern California Edison overhead powerlines.

1.2.1 Drainage Crossings

To protect the trail as it crosses drainages, riprap would be installed along the alignment (Appendix A Figure 2). Table 1: Preliminary Riprap Quantities shows the estimated square feet of riprap in each trail phase.

Table 1. Preliminary Riprap Quantities

Phase	Riprap Location	Riprap Quantity (square feet)
3A	1	28,134
	2	1,418
2A (west)	3	5,577
2A (east)	4	805
	5	801
	6	803
	7	842
2	8	21,378
	Total	**59,758**

Source: Stantec 2022

In Phase 2, a box culvert extending across Temescal Wash is proposed. Clear-span bridges ranging in length from approximately 100-feet to 180-feet would be used to cross two un-named drainages located in Phase 2A.

1.2.2 Trail Access

Trail access to each of the Phases would be achieved as follows:

- Phase 2: Stagecoach Road/Corydon Street (Stagecoach Park area) and West Rincon Street/Smith Avenue (Corona Airport area)
- Phase 2A: Auto Center Drive (western portion of trail) and Butterfield Drive (eastern portion of trail)
- Phase 3A: Auto Center Drive/Railroad Street (United States Army Corps of Engineers [USACE] office)

2.0 METHODS

This biological resources assessment of the BSA included but was not limited to a literature review, reconnaissance-level surveys, a habitat assessment, vegetation mapping, rare plant surveys, focused surveys for burrowing owl (*Athene cunicularia*); and protocol surveys for southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*) (vireo), and western yellow-billed cuckoo (*Coccyzus americanus*). Prior to the survey, a preliminary literature review of readily available resources was performed. The surveys were conducted on foot throughout the BSA.

2.1 LITERATURE REVIEW

A focused literature search of the BSA was conducted prior to the field survey. The BSA is located within the USGS Corona North, California, 7.5-minute topographic quadrangle. A search of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) was conducted for the BSA and a surrounding ten-mile buffer area to determine special-status plants, wildlife, and vegetation communities that have been documented within this area (CDFW 2021a). The database included portions of the following quadrangles surrounding the BSA:

- Guasti
- Fontana
- Black Star Canyon
- Ontario
- Prado Dam
- Lake Mathews
- Corona South
- Riverside West

Additional data regarding the potential occurrence of special-status species and policies relating to these special-status natural resources were gathered from the following sources:

- State and Federally Listed Endangered and Threatened Animals of California (CDFW 2021b)
- Special Animals List (CDFW 2021c)
- State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW 2021d)
- California's Wildlife – Life History and Range (CDFW 2021e)
- California Sensitive Natural Communities (CDFW 2021f)
- United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (iPaC) (USFWS 2021)
- Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society [CNPS] 2021)
- Consortium of California Herbaria (CCH) (CCH 2021)
- WRCMSHCP (2015)

2.2 BIOLOGICAL SURVEYS AND HABITAT ASSESSMENT

The methods for the general and focused wildlife surveys, rare plant surveys, and vegetation mapping are described in the following sections.

2.2.1 Site Reconnaissance and Wildlife Surveys

Stantec initially conducted a habitat assessment and reconnaissance-level survey to document the environmental conditions present within the BSA, this assessment did not include focused, protocol-level surveys for rare plants or wildlife or other special-status resources. The primary goal of the initial survey was to identify and assess habitat that may be capable of supporting special-status plant or wildlife species and determine the potential need for additional focused surveys for special-status resources. Biologists recorded all incidental plant and wildlife observations.

The survey was conducted during a season and time of day when resident and migratory birds would be expected to be present and exhibiting normal activity, small mammals would be active and detectable visually or by sign, and above-ground amphibian and reptile movement would generally be detectable. However, it should be noted that some wildlife species and individuals may have been difficult to detect due to their elusive nature, cryptic morphology, or nocturnal behavior. The survey was conducted during daylight hours when temperatures were such that reptiles and other wildlife would be active (i.e., between 65-95 degrees Fahrenheit). The site reconnaissance survey was conducted on May 6, 2021. Additional focused surveys were conducted and described in the following sections.

The BSA was investigated on foot (where accessible) by experienced field biologists walking throughout publicly accessible areas at an average pace of approximately 1.5 kilometers per hour while visually scanning for wildlife and their sign and listening to wildlife songs and calls. Biologists paused as necessary to listen for wildlife or to identify, record, or enumerate any observed species. Species present were identified and recorded through direct visual observation, sound, or their sign (e.g., scat, tracks, etc.). Species identifications conform to the most up-to-date online databases and technical literature.

In addition to the general reconnaissance wildlife survey, protocol bird surveys and rare plant surveys were conducted and are described in the following sections.

2.2.1.1 Burrowing Owl Surveys

A habitat assessment and focused burrowing owl surveys were conducted by Stantec Senior Biologist Melissa Tu and Principal Biologist Jared Varonin following the WRCMSHCP Burrowing Owl Survey Instructions (RCA 2006). On May 6, 2021, biologists from Stantec conducted the burrowing owl habitat assessment and the first focused burrow survey. The other three burrow surveys were conducted on June 30, August 12, and September 3, 2021.

Qualified biologists walked through suitable habitat within the Survey Area to identify burrows or other potential signs of burrowing owl, per the WRCMSCHP Burrowing Owl Survey Instructions. During the burrowing owl habitat assessment, the entire Survey Area was surveyed on foot. Unsuitable habitat was documented and was not surveyed during the focused burrow surveys.

For the focused burrowing owl surveys, only suitable burrowing owl habitat including open grassland and other open habitat was surveyed. Suitable habitat included large California ground squirrels (*Otospermophilus beecheyi*) burrows .

2.2.1.2 Riparian Bird Surveys

Protocol surveys were conducted for southwestern willow flycatcher (flycatcher), least Bell's vireo (vireo), and western yellow-billed cuckoo by Brian Leatherman (USFWS permit No. TE827493-9) of Leatherman Bio. Survey methods followed the guidelines endorsed by the USFWS for each species as described below. In general, surveys were conducted in riparian habitat by walking slowly and methodically within and along the margins of all suitable riparian habitat for each species. The focus of the surveys was on the detection and identification of the target species. Nest surveys were not conducted.

The presence/absence surveys for the vireo followed the 2001 survey guidelines developed by the USFWS, which requires that eight surveys be conducted 10 days apart between April 10 and July 31 (USFWS 2001).

The surveys for the flycatcher followed the 2010 protocol. Five surveys at least five days apart were conducted between May 15 and July 17 from dawn to 1030 under suitable weather conditions (Sogge et al 2010). Recorded vocalizations were played as described in the survey protocol in an attempt to elicit a response from individuals potentially present. The recording was played for roughly 15 seconds, stopped for one or two minutes to listen for a response, and then played again. The surveys for the cuckoo followed the protocol developed by Halterman et al. (2015). The protocol requires that four surveys be conducted within three certain periods between June 15 and August 15. Halterman et al. (2015) recommend that surveys be conducted from 12 to 15 days apart between dawn and 1100 under suitable weather conditions. Recorded vocalizations were played as described in the survey protocol in an attempt to elicit a response from individuals potentially present. The prescribed 6-minute broadcast with five vocalizations spaced one minute apart was played every 100 meters (328 feet).

2.2.2 Floristic Surveys

Floristic surveys for rare plant species were performed according to the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018) and *California Native Plant Society Botanical Survey Guidelines* (CNPS 2001). Two surveys were conducted on May 6 and June 30, 2021, by Stantec biologists. Jared Varonin, Melissa Tu, and Ashleigh Townsend conducted the survey on May 6, and Jared Varonin conducted the survey on June 30. The surveys were conducted during the documented blooming periods of most of the vascular rare plant known to occur within 10 miles of BSA. The species that bloom later in the year are shrubs that can be identified any time of year.

2.2.3 Vegetation Mapping

Vegetation descriptions and nomenclature are based on the second edition of *A Manual of California Vegetation* (MCVII) (Sawyer et al. 2009), where applicable, and have been defined to the alliance level. Vegetation maps were prepared by recording tentative vegetation type boundaries over recent aerial photograph base maps using the ESRI Collector for ArcGIS app on an Apple iPad coupled with a Bad Elf GNSS Surveyor sub-meter external global positioning system (GPS) unit. Mapping was further refined in the office using ESRI ArcGIS (version 10.7) with aerial photograph base maps with an accuracy of one foot. Most boundaries shown on the maps are accurate within approximately three feet; however, boundaries between some vegetation types are less precise due to difficulties in interpreting aerial imagery and accessing stands of vegetation.

To support the vegetation mapping presented in this BRTR, Stantec conducted a reconnaissance-level field survey. Stantec used this data in conjunction with vegetation mapping data collected/provided by the MSHCP from 2012 (WRCMSHCP 2015) to produce a vegetation community and land cover map for the BSA (refer to Appendix A Figure 3).

Vegetation communities can overlap in many characteristics and over time may shift from one community type to another. All vegetation maps and descriptions are subject to variability for the following reasons:

- In some cases, vegetation boundaries result from distinct events, such as wildfire or flooding, but vegetation types usually tend to intergrade on the landscape, without precise boundaries between them. Even distinct boundaries caused by fire or flood can be disguised after years of post-disturbance succession. Mapped boundaries represent best professional judgment, but usually should not be interpreted as literal delineations between sharply defined vegetation types.
- Natural vegetation tends to exist in generally recognizable types, but also may vary over time and geographic region. Written descriptions cannot reflect all local or regional variation. Many (perhaps most) stands of natural vegetation do not strictly fit into any named type. Therefore, a mapped unit is given the best name available in the classification system being used, but this name does not imply that the vegetation unambiguously matches written descriptions.
- Vegetation tends to be patchy. Small patches of one named type are often included within larger stands mapped as units of another type.

3.0 REGULATORY ENVIRONMENT

3.1 FEDERAL REGULATIONS

3.1.1 Federal Endangered Species Act

Federal Endangered Species Act (FESA) provisions protect federally listed threatened and endangered species and their habitats from unlawful "take" and ensure that federal actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of Designated Critical Habitat (DCH). Under FESA, take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The USFWS regulations define harm to mean "an act which actually kills or injures wildlife." Such an act "may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 Code of Federal Regulations [CFR] Section 17.3).

DCH is defined in FESA Section 3(5)(A) as "(i) the specific areas within the geographical area occupied by the species on which are found those physical or biological features: (I) essential to the conservation of the species; (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species upon a determination by the Secretary of Commerce or the Secretary of the Interior that such areas are essential for the conservation of the species." The effects analyses for DCH must consider the role of the critical habitat in both the continued survival and the eventual recovery (i.e., the conservation) of the species in question, consistent with the recent Ninth Circuit judicial opinion, Gifford Pinchot Task Force v. USFWS.

Activities that may result in "take" of individuals are regulated by USFWS. USFWS produced an updated list of candidate species December 6, 2007 (72 Federal Register [FR] 69034). Candidate species are not afforded any legal protection under FESA; however, candidate species typically receive special attention from federal and state agencies during the environmental review process.

3.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code [USC] 703-711) makes it unlawful to possess, buy, sell, purchase, barter or take any migratory bird listed in Title 50 of CFR Part 10. "Take" is defined as possession or destruction of migratory birds, their nests, and eggs. Disturbances that cause nest abandonment or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the MBTA. The MBTA prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. The MBTA encompasses whole birds, parts of birds, bird nests, and eggs.

3.1.3 Bald and Golden Eagle Protection Act of 1940 (16 USC 668)

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 USC 668, enacted by 54 Stat. 250) protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this Act. Take of bald and golden eagles is defined as follows: "disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior'' (72 FR 31132; 50 CFR 22.3).

USFWS is the primary federal authority charged with the management of golden eagles in the U.S. A permit for take of golden eagles, including take from disturbance such as loss of foraging habitat, may be required for this Project. USFWS guidance on the applicability of current BGEPA statutes and mitigation is currently under review. On November 10, 2009, the USFWS implemented new rules (74 FR 46835) governing the take of golden and bald eagles. The new rules were released under the existing BGEPA, which has been the primary regulatory protection for unlisted eagle populations since 1940.

All activities that may disturb or incidentally take an eagle or its nest as a result of an otherwise legal activity must be permitted by the USFWS under this act. The definition of disturb (72 FR 31132) includes interfering with normal breeding, feeding, or sheltering behavior to the degree that it causes or is likely to cause decreased productivity or nest abandonment. If a permit is required, due to the current uncertainty on the status of golden eagle populations in the western U.S., it is expected that permits would only be issued for safety emergencies or if conservation measures implemented in accordance with a permit would result in a reduction of ongoing take or a net take of zero.

3.1.4 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act, as amended in 1964, requires that all federal agencies consult with National Marine Fisheries Service (NMFS), USFWS, and state wildlife agencies (i.e., CDFW) when proposed actions might result in modification of a natural stream or body of water. Federal agencies must consider effects that these projects would have on fish and wildlife development and provide for improvement of these resources. The Fish and Wildlife Coordination Act allows NMFS, USFWS, and CDFW to provide comments to USACE during review of projects under Section 404 of the Clean Water Act (concerning the discharge of dredged materials into navigable waters of the U.S. [WOTUS]) and Section 10 of the Rivers and Harbors Act (RHA) regarding obstructions in navigable waterways. NMFS comments provided under the Fish and Wildlife Coordination Act are intended to reduce environmental impacts to migratory, estuarine, and marine fisheries and their habitats. Since the proposed Project involves impacts to WOTUS, the USACE will be the lead federal agency and will initiate consultation with the USFWS and CDFW per the requirements of this act.

3.1.5 Federally Regulated Habitats

Areas that meet the regulatory definition of "WOTUS" are subject to the jurisdiction of the USACE under provisions of Section 404 of the Clean Water Act (CWA) (1972) and Section 10 of the River and Harbors Act (RHA) (1899). WOTUS may include all waters used or potentially used for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (e.g., intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as WOTUS, tributaries of waters otherwise defined as WOTUS, territorial seas, and wetlands (i.e., "Special Aquatic Sites") adjacent to WOTUS (33 CFR Part 328, Section 328.3). The proposed Project area is within the South Pacific Division of the USACE and is under the jurisdiction of the Los Angeles District.

Construction activities within WOTUS are regulated by USACE. The placement of fill into such waters must comply with permit requirements of USACE. No USACE permit would be effective in the absence of State Water Quality Certification pursuant to Section 401 of the CWA. As a part of the permit process, the USACE works directly with the USFWS to assess potential project impacts on biological resources. The jurisdictional extent of USACE regulation changed with the 2001 Solid Waste Agency of Northern Cook County ruling. The U.S. Supreme Court held that the USACE could not apply Section 404 of the CWA to extend their jurisdiction over an isolated quarry pit. The Court ruled that the CWA does not extend Federal regulatory jurisdiction over non-navigable, isolated, intra-state waters. However, the Court made it clear that non-navigable wetlands adjacent to navigable waters are still subject to USACE jurisdiction.

The U.S. Environmental Protection Agency and USACE announced on October 21, 2021, that they will cease implementation of the Navigable Water Protection Rule and are instead interpreting WOTUS consistent with pre-2015 regulatory regime (i.e., the 2015 Clean Water Rule). This proposed rule was published on December 7, 2021 (86 FR 232).

3.1.6 National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969 requires all federal agencies to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA into other planning requirements and prepare appropriate NEPA documents to facilitate better environmental decision-making. NEPA requires Federal agencies to review and comment on Federal agency environmental plans and documents when the agency has jurisdiction by law or special expertise with respect to any environmental impacts involved (42 USC 4321- 4327; 40 CFR 1500-1508). These guidelines establish an overall federal process for the environmental evaluation of projects.

3.1.7 Rivers and Harbors Act of 1899

3.1.7.1 Section 14

Section 14 of the RHA (1899 and codified in 33 USC 408) is required if a project would modify, alter, and/or occupy an existing USACE-constructed public works project (e.g., a levee). For the USACE Lead District to approve any proposed alterations requests, the alterations must meet USACE standards, and must not be injurious to the public interest or affect the USACE project's ability to meet its authorized purpose.

3.1.7.2 Section 10

Section 10 of the RHA (33 USC Section 403) requires authorization from the USACE for work or structures in or affecting navigable WOTUS.

The term "navigable WOTUS" generally includes those waters that are subject to the ebb and flow of the tide or are presently used, have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events that impede or destroy navigable capacity (33 CFR Section 329.4).

The term "structure" includes, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other obstacle or obstruction (33 CFR Section 322.2).

The term "work" includes, without limitation, any dredging or disposal of dredged material, excavation, filling, or other modification of a navigable WOTUS (33 CFR Section 322.2).

The geographic and jurisdictional limits of the USACE's Section 10 jurisdiction in rivers and lakes:

(a) *Jurisdiction over entire bed. Federal regulatory jurisdiction, and powers of improvement for navigation, extend laterally to the entire water surface and bed of a navigable waterbody, which includes all the land and waters below the ordinary high-water mark (OHWM). Jurisdiction thus extends to the edge (as determined above) of all such waterbodies, even though portions of the waterbody may be extremely shallow, or obstructed by shoals, vegetation or other barriers. Marshlands and similar areas are thus considered navigable in law, but only so far as the area is subject to inundation by the ordinary high waters.*

(1) *The OHWM of non-tidal rivers is the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas.*

(2) Ownership of a river or lakebed or of the lands between high and low water marks will vary according to state law; however, private ownership of the underlying lands has no bearing on the existence or extent of the dominant Federal jurisdiction over a navigable waterbody.

(b) Upper limit of navigability. The character of a river will, at some point along its length, change from navigable to non-navigable. Very often that point will be at a major fall or rapids, or other place where there is a marked decrease in the navigable capacity of the river. The upper limit will therefore often be the same point traditionally recognized as the head of navigation, but may, under some of the tests described above, be at some point yet farther upstream.

The geographic and jurisdictional limits of Corps jurisdiction in oceanic and tidal WOTUS:

(a) Ocean and coastal waters. The navigable WOTUS over which Corps regulatory jurisdiction extends include all ocean and coastal waters within a zone three geographic (nautical) miles seaward from the baseline (The Territorial Seas). Wider zones are recognized for special regulatory powers exercised over the outer continental shelf. 33 C.F.R. § 322.3(b).

(1) Baseline defined. Generally, where the shore directly contacts the open sea, the line on the shore reached by the ordinary low tides comprises the baseline from which the distance of three geographic miles is measured. The baseline has significance for both domestic and international law and is subject to precise definitions. Special problems arise when offshore rocks, islands, or other bodies exist, and the baseline may have to be drawn seaward of such bodies.

(2) Shoreward limit of jurisdiction. Corps regulatory jurisdiction in coastal areas extends to the line on the shore reached by the plane of the mean (average) high water. Where precise determination of the actual location of the line becomes necessary, it must be established by survey with reference to the available tidal datum, preferably averaged over a period of 18.6 years. Less precise methods, such as observation of the "apparent shoreline" which is determined by reference to physical markings, lines of vegetation, or changes in type of vegetation, may be used only where an estimate is needed of the line reached by the mean high water.

(b) Bays and estuaries. Corps regulatory jurisdiction extends to the entire surface and bed of all waterbodies subject to tidal action. Jurisdiction thus extends to the edge (as determined by paragraph (a)(2) above) of all such waterbodies, even though portions of the waterbody may be extremely shallow, or obstructed by shoals, vegetation, or other barriers. Marshlands and similar areas are thus considered "navigable in law," but only so far as the area is subject to inundation by the mean high waters. The relevant test is therefore the presence of the mean high tidal waters, and not the general test described above, which generally applies to inland rivers and lakes.

Structures or work outside the limits defined above for navigable WOTUS require a Department of the Army permit pursuant to Section 10 of the RHA if the structure or work affects the course, location, or condition of the water body in such a manner as to impact on its navigable capacity (33 CFR Section 322.3).Section 14 of the RHA of 1899 (33 USC Section 408), commonly referred to as "Section 408," authorizes the USACE to grant permission to alter, occupy, or use a USACE civil works project if the Secretary of Commerce determines that the activity would not be injurious to the public interest and would not impair the usefulness of the project.

3.2 STATE REGULATIONS

3.2.1 California Environmental Quality Act

The California Environmental Quality Act (CEQA) establishes state policy to prevent significant and avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. CEQA applies to actions directly undertaken, financed, or permitted by state lead agencies. Regulations for implementation are found in the CEQA Guidelines published by the California Natural Resources Agency. These guidelines establish an overall state of California process for the environmental evaluation of projects.

3.2.2 California Endangered Species Act

Provisions of the California Endangered Species Act protect state-listed threatened and endangered species. The CDFW regulates activities that may result in take of individuals (i.e., take is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of take under the California Fish and Game Code (FGC). Additionally, the FGC contains lists of vertebrate species designated as "fully protected" (FGC Sections 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], and 5515 [fish]). Such species may not be taken or possessed.

In addition to federal and State-listed species, the CDFW also has produced a list of Species of Special Concern (SSC) to serve as a "watch list." Species on this list are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. SSC may receive special attention during environmental review, but they do not have statutory protection.

Birds of prey are protected in California under the FGC. FGC Section 3503.5 states that it is "unlawful to 'take', possess, or destroy any birds of prey (in the order Falconiformes or Strigiformes) or to 'take', possess, or destroy the nest or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered take by the CDFW. Under Sections 3503 and 3503.5 of the FGC, activities that would result in the taking, possessing, or destroying of any birds-of-prey, taking or possessing of any migratory nongame bird as designated in the MBTA, or

the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or non-game birds protected by the MBTA, or the taking of any non-game bird pursuant to FGC Section 3800 are prohibited.

3.2.3 Section 1602 of the California Fish and Game Code

Section 1602 of the FGC requires any person, state or local governmental agency, or public utility which proposes a project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake, or use materials from a streambed, or result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake, to first notify the CDFW of the proposed project. Notification is generally required for any project that would take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. Based on the notification materials submitted, the CDFW would determine whether the proposed project may impact fish or wildlife resources.

If the CDFW determines that a proposed project may substantially adversely affect existing fish or wildlife resources, a Lake or Streambed Alteration Agreement (LSAA) would be required. A completed CEQA document must be submitted to CDFW before an LSAA would be issued. The Project area falls within the South Coast Region of the CDFW.

3.2.4 Porter-Cologne Water Quality Control Act

California Regional Water Quality Control Boards (RWQCBs) regulate the “discharge of waste” to “waters of the State”. All projects proposing to discharge waste that could affect waters of the State must file a Waste Discharge Report with the appropriate RWQCB. The board responds to the report by issuing Waste Discharge Requirements or by waiving them for that project discharge. Both terms “discharge of waste” and waters of the State are broadly defined such that discharges of waste include fill, any material resulting from human activity, or any other “discharge.” Isolated wetlands within California, which are no longer considered waters of the State, as defined by Section 404 of the CWA, are addressed under the Porter Cologne Water Quality Control Act. The proposed Project area is under the jurisdiction of the Region 8 – Santa Ana RWQCB.

3.2.5 State-Regulated Habitats

The State Water Resources Control Board (SWRCB) is the state agency (together with the RWQCBs) charged with implementing water quality certification in California.

The CDFW extends the definition of stream to include “intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams (USGS-defined), and watercourses with subsurface flows. Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered

streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife" (CDFW 1994).

Activities that result in the diversion or obstruction of the natural flow of a stream; that substantially change its bed, channel, or bank; or that use any materials (including vegetation) from the streambed may require that the project applicant enter into an LSAA with the CDFW.

3.2.6 Native Plant Protection Act

Under FGC Sections 1900 to 1913, the Native Plant Protection Act (NPPA) requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of NPPA prohibit the taking of listed plants from the wild and require notification of the 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. a Project applicant is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of the NPPA and sections of CEQA that apply to rare or endangered plants.

3.3 LOCAL REGULATIONS

3.3.1 Riverside County General Plan – Multipurpose Open Space Element

The Multipurpose Open Space Element of the Riverside County General Plan (General Plan) contains policies and programs that are designed to protect and conserve environmental resources in the County while encouraging economic development and growth and setting the direction for the framework of its transportation system. Resources covered under the Multipurpose Open Space Element consist of the protection and preservation of natural resources including following key resources: water, biological, forest, vegetation, agriculture and soils, open space- parks and recreation and regional aesthetics, cultural and paleontological, and renewable and non-renewable resources.

The Multipurpose Open Space Element discusses the enactment of policies to protect natural resources within the County for future generations as detailed in the following sections.

3.3.1.1 Water Resources

The General Plan establishes policies that prioritize water conservation by addressing the County's water supply issue through balancing consideration of water supply requirements between urban, agricultural, and environmental needs, promotion of the use of recycled water for landscape irrigation, minimization of pollutant discharge, retention of stormwater for groundwater percolation, development of a repository for the collection of county water resource information, discouragement of development within watercourses, and the provision of active leadership in the regional coordination of water resource management and sustainability efforts. The policies propose efforts to limit the modification of floodways and watercourses, and to preserve and enhance riparian, upland, and wetland habitats.

3.3.1.2 Multi Species Habitat Conservation Plans (MSHCP)

To address the issues of wildlife health and sustainability, the County has directed the development of two Multi-Species Habitat Conservation Plans (MSHCPs), the WRCMSHCP and the Coachella Valley Association of Governments' MSHCP. These MSHCPs are stakeholder driven, comprehensive, and multi-jurisdictional, and focus on the conservation of both species and associated habitats, in order to address biological and ecological diversity conservation needs and provide mitigation for the impacts of development in Riverside County. They seek to preserve natural resources that are sensitive, rare, threatened, endangered, and irreplaceable. They allow the County and other local jurisdictions the ability to manage local land use decisions and maintain economic development flexibility, while providing a coordinated reserve system and implementation program that will facilitate the preservation of biological diversity as well as maintain the region's quality of life. The General Plan aims to enforce the provisions of applicable MSHCPs and implement related County policies when conducting review of possible legislative actions such as general plan amendments, zoning ordinance amendments, etc. The WRCMSHCP is discussed in further detail below.

3.3.1.3 Vegetation

The General Plan prioritizes the management of native vegetation in order to maintain the ecological diversity of the County and prevent drastic changes in wildlife habitats, microclimates, water absorption and purification, soil erosion, fires, and aesthetic quality. It aims to do this through the update and expansion of vegetation mapping, and the preservation of oak tree resources, native trees, natural vegetation, and established tree stands for ecosystem, aesthetic, and water conservation purposes. The conservation of important traditional Native American plant gathering resource areas, and the encouragement of research and education of pollution on human health and natural vegetation are also key elements to this directive.

3.3.1.4 Open Space, Parks, and Recreation

Open space preservation can serve many purposes, including the preservation and enhancement of environmental resources for both ecological and recreational purposes, as well as the proper management of environmental hazards. The County includes Joshua Tree National Park and major state parks such as Anza-Borrego, the Salton Sea State Recreation Area, and Chino Hills State Park. The open space policies set to protect and preserve open space areas from urbanization, develop a comprehensive system consisting of passive open space areas, and maintain or develop parks and recreation areas that have recreational, ecological, and scenic value. A key element is also to identify and conserve the skylines, scenic corridors, and outstanding scenic vistas within the County to protect their aesthetic value and the quality of life of County residents.

3.3.2 Western Riverside County MSHCP/Natural Community Conservation Plan

The WRCMSHCP is a comprehensive, multi-jurisdictional plan that involves the assembly and management of a Conservation Area intended to preserve biological diversity, as well as maintain the

quality of life within WRC by conserving over 100 listed and unlisted plant and wildlife species and their associated habitats, and coordinating, streamlining, and planning Development. The WRCMSHCP establishes a framework for complying with State and federal endangered species regulations in addition to accommodating future growth within the Cities and unincorporated portions of WRC including both unincorporated and incorporated areas. The WRCMSCHP was approved in 2003 and the permits issued on June 22, 2004, by the USFWS and California Department of Fish and Game (CDFG) (since renamed California Department of Fish and Wildlife). The WRCMSHCP Planning Area encompasses approximately 1.26 million acres in WRC and the Plan calls for the conservation and management of approximately 500,000 acres within the Plan Area.

The goals and objectives relative to natural resources that apply to the proposed Project are as follows:

A. The WRCMSHCP Conservation Area contains approximately 500,000 acres comprised of the following:

    1. Conservation of existing publicly owned lands,
    2. Voluntary acquisition of privately held lands by the Cities, the County, or other Permittees,
    3. Voluntary acquisition of privately held lands by state and/or federal agencies, and
    4. Contributions from public and private development.

B. The overarching goal of the WRCMSHCP is to allow for maintenance of biological diversity and ecosystem processes while allowing future economic growth:

    1. In the Plan Area, conserve Covered Species and their habitats.
    2. Improve the future economic development in the County by providing an efficient, streamlined regulatory process through which development can proceed in an efficient way. The MSHCP and the General Plan provide the County with a clearly articulated blueprint describing where future development should and should not occur.
    3. Provide for permanent open space, community edges, and recreational opportunities, which contribute to maintaining the community character of WRC.

The Natural Community Conservation Plan (NCCP) General Process Guidelines and NCCP Act, incorporates general principles of conservation biology that are captured in the Conservation Area design tenets described therein. These Conservation Area design tenets, which are summarized below, provided a framework for the conservation planning process:

- Conserve focus species and their habitats throughout the Plan Area
- Conserve large habitat blocks
- Conserve habitat diversity
- Keep conservation areas contiguous and connected
- Protect conservation areas from encroachment and invasion by non-native species

The WRCMSHCP is prepared pursuant to the provisions of the FESA, as well as a NCCP under the California NCCP Act of 1991. The WRCMSHCP allows participating jurisdictions (Riverside County and

each of the 14 Cities in the western portion of the County) to "take" (permit the loss of) the plant and animal species identified in the WRCMSHCP through the agencies' local land use planning and development review processes.

The WRCMSHCP created a conservation system to protect and manage 153,000 acres of habitat (Additional Conservation Area Lands) for Covered Species, consisting of 97,000 acres conserved as the local mitigation component and 6,000 acres conserved as mitigation for State Permittee projects (Caltrans and State Parks).

The WRCMSHCP conservation areas consist of the following: continued conservation of lands already within public ownership; public acquisition of private lands from willing sellers; private actions to conserve habitat within proposed development projects; implementation of off-site mitigation for the impacts or proposed development projects; and public actions to conserve habitats or otherwise mitigate the direct habitat impacts of public work projects.

The WRCMSHCP allows the issuance of Take Authorizations t. Issuance of Take Authorization to the local jurisdictions allows WRCMSHCP participants to implement land use decisions consistent with the MSHCP without project-by-project review and permitting by the Wildlife Agencies. This local, streamlined approach to planning for endangered and sensitive species results in greater economic development certainty and provides for and maintains biological diversity by creating an interconnected WRCMSHCP Conservation Area. In addition to the preservation of species and associated habitats, the WRCMSHCP Conservation Area provides open space and recreational opportunities that enhance the quality of life in WRC.

3.3.3 California Native Plant Society Rare Plant Program

The mission of the CNPS Rare Plant Program is to develop current, accurate information on the distribution, ecology, and conservation status of California's rare and endangered plants and to use this information to promote science-based plant conservation in California. Once a species has been identified as being of potential conservation concern, it is put through an extensive review process. Once a species has gone through the review process, information on all aspects of the species (e.g., listing status, habitat, distribution, threats, etc.) is entered into the online CNPS Rare Plant Inventory and given a California Rare Plant Rank (CRPR). The Rare Plant Program currently recognizes more than 1,600 plant taxa (species, subspecies, and varieties) as rare or endangered in California (CNPS 2021).

Vascular plants listed as rare or endangered by the CNPS, but which might not have a designated status under state endangered species legislation, are defined by the following CRPRs:

- CRPR 1A: Plants considered by the CNPS to be extinct in California
- CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
- CRPR 2: Plants rare, threatened, or endangered in California, but more numerous elsewhere
- CRPR 3: Plants about which we need more information – a review list

- CRPR 4: Plants of limited distribution – a watch list

In addition to the CRPR designations above, the CNPS adds a Threat Rank as an extension added onto the CRPR and designates the level of endangerment by a 0.1 to 0.3 ranking, with 0.1 being the most endangered and 0.3 being the least endangered and are described as follows:

- 0.1: Seriously threatened in California (high degree/immediacy of threat)
- 0.2: Fairly threatened in California (moderate degree/immediacy of threat)
- 0.3: Not very threatened in California (low degree or immediacy of threats or no current threats known)

4.0 EXISTING CONDITIONS

4.1 SETTING

The BSA is located adjacent to the Santa Ana River, the Prado Basin, and the Corona Municipal Airport within the Jurupa Valley area of Riverside County. Elevations within the BSA range from approximately 500 to 600 feet above mean sea level from west to east. Photographs of the BSA are included in Appendix B Photographic Log.

4.2 VEGETATION COMMUNITIES AND LANDS COVER TYPES

As defined in MCVII (Sawyer et al. 2009), a vegetation alliance is “a category of vegetation classification which describes repeating patterns of plants across a landscape. Each alliance is defined by plant species composition and reflects the effects of local climate, soil, water, disturbance, and other environmental factors.” Generally, Stantec’s mapping and description of plant communities follows the classification system described in MCVII. The MCVII is generally limited to communities that are native to or naturalized within California; however, generally disturbed habitat occurs within the BSA that is not defined in MCVII. Therefore, land cover types assigned to these types of habitats are descriptive in nature and are not specifically referenced in the MCVII. A list of vegetation communities and acreages in the BSA are included in Table 2. The proposed Project area temporary and permanent impact acreages are included in Appendix C. The botanical nomenclature within this report follows the Jepson Herbarium online database, eFlora (Jepson Flora Project 2022). Plant species documented during the reconnaissance survey are provided in Section 4.2.3.

Table 2 Vegetation Communities and Land Cover Types in the BSA

Vegetation Communities and Land Cover Types	BSA[1] *(Acres)*
Vegetation Communities	
Arroyo willow thickets	30.36
California buckwheat scrub	12.47
California sagebrush scrub	37.73
Cheeseweed flats	0.48
Common and giant reed marshes	0.88
Coyote brush scrub	2.43
Elderberry stands	0.68
Eucalyptus groves	5.44
Menzie's goldenbush scrub	1.28
Mulefat thickets	31.85
Perennial pepperweed patches	0.63
Poison hemlock or fennel patches	0.10
Shining willow groves	8.76
Smartweed-cocklebur patches	0.02
Tamarisk thickets	0.21
Upland mustards or star-thistle fields	8.62
Western ragweed meadow	2.24
Wild oats and annual bromes grassland	56.08
Subtotal	*200.26*
Land Cover Types	
Disturbed/Developed	141.44
Non-vegetated channel	0.27
Open water	2.24
Partially vegetated channel	2.13
Restoration	10.54
Ruderal	5.58
Subtotal	*162.20*
Total[1]	**362.46**

Note: [1] = the BSA total acreage does not add up due to rounding.

4.2.1 Vegetation Communities

4.2.1.1 Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance)

This vegetation classification generally consists of arroyo willow (*Salix lasiolepis*) as the dominant in the tall shrub or low tree canopy with bigleaf maple (*Acer macrophyllum*), coyote brush (*Baccharis pilularis*), mulefat (*Baccharis salicifolia*), common buttonbush (*Cephalanthus occidentalis*), American dogwood

(*Cornus sericea*), California wax myrtle (*Morella californica*), California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), black cottonwood (*Populus trichocarpa*), other willows (*Salix* sp.), and black elderberry (*Sambucus nigra*) as co-dominants. Emergent trees may be present at a low cover. The plants are usually less than 10 meters in height, canopy is open to continuous, and the herbaceous layer is variable.

Within the BSA, this vegetation community is dominated by arroyo willow with smaller amounts of mulefat shrubs and scattered black willows. Most of the arroyo willow thickets occur in the BSA surrounding Phase 2. Approximately 30 acres of this community occurs in the BSA.

4.2.1.2 California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)

This vegetation classification generally consists of California buckwheat (*Eriogonum fasciculatum*) as a dominant in the shrub canopy in cismontane stands with California sagebrush (*Artemisia californica*), coyote brush, sticky monkeyflower (*Diplacus aurantiacus*), bush sunflower (*Encelia californica*), brittlebush (*Encelia farinosa*), Menzies' goldenbush (*Isocoma menziesii*), common deerweed (*Acmispon glaber*), chaparral mallow (*Malacothamnus fasciculatus*), white sage (*Salvia apiana*), or black sage (*Salvia mellifera*) as co-dominant species. Emergent trees may be present at low cover. Shrubs are usually less than two meters in height, canopy is continuous or intermittent, and the herbaceous layer is variable and may be grassy.

Within the BSA, this vegetation is dominated by California buckwheat with smaller amounts of California sagebrush, deerweed, and California brittlebush. California buckwheat scrub occurs in small patches in the BSA surrounding Phases 2A and 3A. Approximately 12.5 acres of this community occur in the BSA.

4.2.1.3 Coastal Sagebrush Scrub (*Artemisia californica* Shrubland Alliance)

This vegetation classification generally consists of California sagebrush as the dominant in the shrub canopy with chamise (*Adenostoma fasciculatum*), coyote brush, bladderpod (*Cleome isomeris*), sticky monkeyflower, bush sunflower, brittlebush, desert tea (*Ephedra californica*), interior goldenbush (*Ericameria linearifolia*), coastal buckwheat (*Eriogonum cinereum*), California buckwheat, yellow yarrow (*Eriophyllum confertiflorum*), chaparral yucca (*Hesperoyucca whipplei*), Menzie's goldenbush, heart leaved keckella (*Keckiella cordifolia*), southern honeysuckle (*Lonicera subspicata*), deerweed, laurel sumac (*Malosma laurina*), chaparral prickly pear (*Opuntia littoralis*), evergreen buckthorn (*Rhamnus ilicifolia*), lemonade berry (*Rhus integrifolia*), sugar bush (*Rhus ovata*), white sage, black sage, and poison oak (*Toxicodendron diversilobum*). Emergent trees or tall shrubs may be present at low cover, including southern California black walnut (*Juglans californica*), coast live oak (*Quercus agrifolia*), or black elderberry. Shrubs are less than two meters in height or in two tiers with a second less than five meters tall. The canopy is intermittent to continuous, and the herbaceous layer is variable.

Within the BSA, this vegetation is dominated by California sagebrush with smaller amounts of California buckwheat and coyote brush. California sagebrush scrub occurs in large patches in the BSA in Phases 2A, 3, and 3A. Approximately 38 acres of this community occur in the BSA.

4.2.1.4 Cheeseweed Flats (*Malva parviflora*)

This non MCVII vegetation classification generally consists of a monoculture of cheeseweed (*Malva parviflora*).

Within the BSA, this vegetation is dominated by monoculture of dense cheeseweed with other non-native annual species such as short-pod mustard (*Hirschfeldia incana)* occasionally observed. Cheeseweed flats occur in one patch in the BSA southeast of Phase 2A and the area appears to have been previously disturbed and may have been used as an access road in the past. Approximately 0.5 acre of this community occurs in the BSA.

4.2.1.5 Common and Giant Reed Marshes (*Phragmites australis Arundo donax* Herbaceous Semi-Natural Alliance)

This vegetation classification is dominated by common reed (*Phragmites australis*) or giant reed (*Arundo donax*).

Within the BSA, this vegetation is dominated by giant reed. One reed marsh occurs in the BSA north of Phase 2A in an area surrounded by native riparian vegetation. Approximately an acre of this community occurs in the BSA.

4.2.1.6 Coyote Brush Scrub (*Baccharis* pilularis Shrubland Alliance)

This vegetation classification generally consists of coyote brush, California coffeeberry (*Frangula californica*) and/or coast silk tassel (*Garrya elliptica*) is dominant to co-dominant in the shrub canopy with coastal sagebrush, sticky monkeyflower, California buckwheat, deerweed, California blackberry (*Rubus ursinus*), white sage*,* purple sage (*Salvia leucophylla*) and poison oak. Emergent trees may be present at low cover.

Within the BSA, this vegetation is dominated by coyote brush with smaller amounts of deerweed, bush sunflower, mulefat, and Menzie's goldenbush. Coyote brush scrub occurs in small patches in the Phase 2A BSA and in the BSA west of Phase 3A. Approximately two acres of this community occur in the BSA.

4.2.1.7 Elderberry Stands (*Sambucus nigra)*

This non MCVII vegetation classification generally consists of elderberry tress with occasional shrubs and an understory of native and non-native grasses and annual herb

Within the BSA, this vegetation is dominated by elderberry trees. One elderberry stand occurs in the BSA west of Phase 3A. Approximately 0.7 acre of this community occurs in the BSA.

4.2.1.8 Eucalyptus Groves (*Eucalyptus* spp. Woodland Semi-Natural Alliance)

This non MCVII vegetation classification generally consists of eucalyptus species/gum trees (*Eucalyptus* sp.) as the dominant in the tree canopy. The trees are less than 60 meters in height, canopy is open to continuous, shrub layer is generally sparse, and the herbaceous layer is sparse to intermittent.

Within the BSA, this vegetation is dominated by large eucalyptus trees with bare ground along low drainage areas. Eucalyptus groves occur in the BSA in Phases 2A and 3A. Approximately five acres of this community occur in the BSA.

4.2.1.9 Menzie's Goldenbush Scrub (*Isocoma menziesii* Shrubland Alliance)

This vegetation classification generally consists of Menzie's goldenbush as dominant or co-dominant in the shrub canopy with coastal sagebrush, coyote brush, broom baccharis (*Baccharis sarothroides*), giant coreopsis (*Coreopsis gigantea*), matchweed (*Gutierrezia californica*), island broom (*Acmispon dendroideus)*, silver bush lupine (*Lupinus albifrons),* and Virginia glasswort (*Salicornia depressa*). Herbs commonly present include San Miguel Island milkvetch (*Astragalus miguelensis*), California orach (*Etriplex californica*), ripgut brome (*Bromus diandrus*), coast morning glory (*Calystegia macrostegia*), saltgrass (*Distichlis spicata*), and purple needlegrass (*Stipa pulchra*).

Within the BSA, this vegetation is dominated by Menzie's goldenbush with smaller amounts of coyote brush. California buckwheat, and quailbush (*Atriplex lentiformis*). This community occurs in one patch in the BSA north of Phase 2A. Approximately an acre of this community occurs in the BSA.

4.2.1.10 Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance)

This vegetation classification generally consists of mulefat (*Baccharis salicifolia*) as the dominant in the shrub canopy with coastal sagebrush, willow baccharis (*Baccharis emoryi*), coyote brush, laurel sumac, tree tobacco (*Nicotiana glauca*), arrow weed (*Pluchea sericea*), blackberry species (*Rubus* spp.), narrow leaved willow (*Salix exigua*), arroyo willow, black elderberry, and tamarisk species (*Tamarix* spp.) as co-dominants. Emergent trees may be present at low cover, including grey pine (*Pinus sabiniana*), California sycamore, Fremont cottonwood, oak species (*Quercus* spp.), or willow species (*Salix* spp.). Shrubs are less than five meters in height, the canopy is continuous with tie tiers at less than two meters and at less than five meters, and the herbaceous layer is sparse.

Within the BSA, this vegetation is dominated by mulefat with smaller amounts of arroyo willow and coyote brush. This community occurs in the BSA of all three phases and most of this vegetation in the Phase 2 BSA. Approximately 32 acres of this community occur in the BSA.

4.2.1.11 Perennial Pepperweed Patches (*Lepidium latifolium* Herbaceous Semi-Natural Alliance)

This vegetation classification is dominated by perennial pepperweed (*Lepidium latifolium*). Emergent trees and shrubs may be present at low cover.

Within the BSA, this vegetation is dominated by perennial pepperweed. This community occurs in one patch in the BSA at the edge of Phases 2A and 3A. Approximately 0.6 acre of this community occurs in the BSA.

4.2.1.12 Poison hemlock or fennel patches (*Conium maculatum- Foeniculum vulgare* Herbaceous Semi-Natural Alliance)

This vegetation classification generally consists of thoroughwort (*Ageratina adenophora*), poison hemlock (*Conium maculatum*), wild teasel (*Dipsacus fullonum*), Indian teasel (*Dipsacus sativus*) and/or sweet fennel (*Foeniculum vulgare*). Emergent trees and shrubs may be present at low cover, including oak trees and coyote brush.

Within the BSA, this vegetation is dominated by poison hemlock. This community occurs in one patch in the BSA at the edge of Phases 2A and 3A. Approximately 0.1 acre of this community occurs in the BSA.

4.2.1.13 Shining Willow Groves (*Salix lucida* ssp. *lasiandra* Forest and Woodland Alliance)

This vegetation classification generally consists of shining willow (*Salix lucida*) as dominant or co-dominant in the tree canopy with bigleaf maple, white alder (*Alnus rhombifolia*), American dogwood, California sycamore, Freemont cottonwood, black cottonwood, coast live oak, willows, and blue elderberry.

Within the BSA, this vegetation is dominated by shining willow with smaller amounts of mulefat, other willow species, and castor bean. This community occurs in one large patch in the BSA in Phase 2A west of Butterfield Park. Approximately 9 acres of this community occurs in the BSA.

4.2.1.14 Smartweed and Cocklebur Patches (*Polygonum lapathifolium - Xanthium strumarium* Herbaceous Alliance)

This vegetation classification generally consists of sunflower (*Helianthus annuus*), curlytop knotweed (*Polygonum lapathifolium*), and/or cocklebur (*Xanthium strumarium*) or other knotweed or smartweed species as dominant or co-dominant in the herbaceous layer with five-angled dodder (*Cuscuta pentagona*), tall flatsedge (*Cyperus eragrostis*), barnyard grass (*Echinochloa* sp.), pale spikerush (*Eleocharis macrostachya*), western goldentop (*Euthamia occidentalis*), rushes (*Juncus* spp.) and docks (*Rumex* spp.).

Within the BSA, this vegetation consists of cocklebur, sunflower, and perennial pepperweed. One 0.02-acre patch occurs in the BSA in Temescal Wash in Phase 2.

4.2.1.15 Tamarisk Thicket (*Tamarix* spp. Shrubland Semi-Natural Alliance)

This vegetation classification generally consists of salt cedar (*Tamarix ramosissima*) or another *Tamarix* species dominant in the shrub canopy. Emergent trees may be present at low cover, including Freemont's cottonwoods or willow trees.

Within the BSA, this vegetation is dominated by salt cedar. This community occurs in one linear patch along West Rincon Street in the BSA east of Phase 2. Approximately 0.2 acre of this community occurs in the BSA.

4.2.1.16 Upland mustards or star-thistle fields (*Brassica nigra* – Centaurea [*solstitialis, melitensis*] Herbaceous Semi-Natural Alliance)

This vegetation classification generally consists of black mustard (*Brassica nigra*), common mustard (*Brassica rapa*), Italian thistle (*Carduus pycnocephalus*), Maltese star thistle (*Centaurea melitensis*), yellow starthistle (*Centaurea solstitialis*), cardoon artichoke thistle (*Cynara cardunculus*), Geraldton carnation weed (*Euphorbia terracina*), short-pod mustard, Dyer's woad (*Isatis tinctoria*), or wild radish (*Raphanus sativus*), or similar ruderal forb is dominant in the herbaceous layer. Emergent trees and shrubs may be present at low cover.

Within the BSA, this vegetation is dominated by short-pod mustard and Maltese star-thistle with smaller amounts of other non-native annual grasses, mostly bromes, and non-native annual herbs. This community occurs along West Rincon Street in Phase 2 and in the eastern portion of Phase 3A. Approximately 8.6 acres of this community occurs in the BSA.

4.2.1.17 Western Ragweed Meadow (*Ambrosia psilostachya* Provisional Herbaceous Alliance)

This vegetation classification generally consists of western ragweed as dominant or co-dominant in the herbaceous layer with ripgut brome, soft chess (*Bromus hordeaceus*), Bermuda grass (*Cynodon dactylon*), filarees (*Erodium* spp.), gumplants (*Grindelia* spp.), barely (*Hordeum murinum*), checkerbloom (*Sidalcea malviflora*), and blue-eyed grass (*Sisyrinchium bellum*).

Within the BSA, this vegetation is dominated by western ragweed. Other non-native annuals occur in the flat area at the base of the Prado Basin spillway; approximately two acres of this community occur in one patch west of Phase 3A at the base of the Prado Basin spillway within the BSA.

4.2.1.18 Wild Oats and Annual Brome Grasslands (*Avena* spp.-*Bromus* spp. Herbaceous Semi-Natural Alliance)

This vegetation classification generally consists of slim oat (*Avena barbata*), wild oats (*Avena fatua*), purple false brome (*Brachypodium distachyon*), rattlesnake grass (*Briza maxima*), ripgut brome, soft chess, and foxtail barley (*Hordeum murinum*) as dominant or co-dominant in the herbaceous layer with other non-natives such as Australian saltbush (*Atriplex semibaccata*) and barley species (*Hordeum* sp.).

Emergent trees and shrubs may be present at low cover. Herbs are less than four feet in height and cover is open to continuous.

Within the BSA, this vegetation is dominated by bromes and other non-native annual grasses. Wild oats and annual brome grasslands occur in large patches in the BSA surrounding Phases 2A and 3A. Approximately 56 acres of this community occur in the BSA.

4.2.2 Land Cover Types

4.2.2.1 Disturbed/Developed

This land cover type includes areas that have been graded or paved and are developed with urban infrastructure. These areas are generally periodically maintained for weed control, precluding any significant growth of non-ornamental species, but may be sparsely interspersed with ruderal pioneer plant species that readily colonize open disturbed soil such as along disturbed areas or roadsides. The Phase 2 BSA includes Corydon Street, West Rincon Street, and disturbed areas between West Rincon Street and the Corona Airport. The Phase 2A BSA includes dirt access roads, a large borrow pit, portions of the Corona Airport and Butterfield Park, and buildings south and west of Phase 2A. The Phase 3A BSA includes portions of SR-91. Approximately 141 acres of this land cover type occurs in the BSA.

4.2.2.2 Non-vegetated Channel

Non-vegetated channel is not a MCVII classification. In this land cover type, the area is unvegetated on a relatively permanent basis. The area is usually dominated by sand, gravel, or rock and usually exhibits an ordinary-high water mark. Variable water lines inhibit the growth of vegetation; although, some grasses or other weedy species may grow along the outer edges of the channel. Vegetation may exist here but is usually less than 10 percent total cover (Holland 1986).

A drainage ditch occurs along the south side of Butterfield Drive in the Phase 2A BSA. Approximately 0.3 acre of this land cover type occurs within the BSA.

4.2.2.3 Open Water

This land cover type was used to map the approximate limits of the open water habitat within the Santa Ana River in the western portion of the BSA west of Phase 3A. Approximately two acres of this land cover type occurs within the BSA.

4.2.2.4 Partially Vegetated Channel

This land cover type is a non-vegetated channel but has more than 10 percent vegetative cover. Partially vegetated channel is not a MCVII classification. The lack of vegetation is due to flowing water during the rainy season. The area is usually dominated by sand, gravel, or rock and usually exhibits an ordinary-high water mark. Variable water lines inhibit the growth of vegetation; although, some grasses or other weedy species may grow along the outer edges of the channel.

This land cover type includes Temescal Wash east and west of West Rincon Street in Phase 2. Some large willow trees have been established on the edges of the wash. Approximately two acres of this land cover type occur within the BSA.

4.2.2.5 Restoration Areas

Areas mapped as restoration were either observed to be undergoing active habitat restoration activities or were areas that have been previously restored and are being monitored or have been completed.

Two restoration areas occur within Phase 2A, and two restoration areas occur in the western portion of the BSA west of Phase 3A. Approximately 10.5 acres of this land cover type occur within the BSA.

4.2.2.6 Ruderal Areas

Ruderal vegetation is not a MCVII classification. This land cover type is usually sparsely vegetated with pioneer plant species that readily colonize open disturbed soil. In the BSA these include non-native annual grasses, bromes, redstem filaree, and Maltese star-thistle.

Ruderal patches occur in the Phase 2A Survey Area near Auto Center Drive and the western portion of the BSA west of Phase 3A. Approximately 5.5 acres of this land cover type occur within the BSA.

4.2.3 Plant Species Observed

Table 3 includes a list of 119 vascular plant species that were observed in the BSA.

Table 3 Vascular Plant Species Observed in the BSA

Scientific Name	Common Name
Acmispon glaber	deerweed
Acmispon strigosus	strigose lotus
*Ailanthus altissima**	tree of heaven
Ambrosia psilostachya	western ragweed
Amsinckia intermedia	fiddleneck
*Anagallis arvensis**	scarlet pimpernel
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Artemisia dracunculus	tarragon
*Arundo donax**	giant reed
Asclepias fascicularis	narrow leaf milkweed
Atriplex canescens	hoary saltbush
Atriplex lentiformis	quailbush
*Atriplex semibacatta**	Australian saltbush

Scientific Name	Common Name
*Avena fatua**	wild oats
Baccharis pilularis	coyote bush
Baccharis salicifolia	mulefat
Baccharis sarothroides	Broom baccharis
*Bromus diandrus**	ripgut brome
*Bromus madritensis**	foxtail brome
*Bromus rubens**	red brome
Calystegia macrostegia	coast morning glory
Camissoniopsis micrantha	Spencer primrose
*Carduus pycnocephalus**	Italian thistle
*Carya illinoinensis**	pecan
*Centaurea melitensis**	Maltese star-thistle
Chenopodium californicum	California goosefoot
*Chrysanthemum coronarium**	garland daisy
*Cirsium vulgare**	bull thistle
*Conium maculatum**	poison hemlock
Corethrogyne filaginifolia	common sandaster
Croton californicus	California croton
Croton setigerus	turkey mullen
Cryptantha intermedia	common cryptantha
Cucurbita foetidissima	coyote gourd
Cuscuta californica	California dodder
Datura wrightii	jimsonweed
Deinandra fasciculata	clustered tarweed
Deinandra paniculata+	paniculate tarplant
Diplacus aurantiacus	sticky monkeyflower
*Dysphania ambrosioides**	Mexican tea
Eleocharis macrostachya	spike rush
Elymus condensatus	giant wildrye
Encelia californica	bush sunflower
Encelia farinosa	brittlebush
Ericameria palmeri	Palmer goldenweed
Erigeron canadensis	Canada horseweed
Eriogonum fasciculatum	California buckwheat
*Erodium cicutarium**	redstem filaree
Eucalyptus sp.*	gum tree

Scientific Name	Common Name
Euphorbia polycarpa	smallseed sandmat
*Festuca perenniis**	Italian ryegrass
*Foeniculum vulgare**	sweet fennel
Helianthus annuus	hairy-leaved sunflower
*Helminthotheca echioides**	bristly ox-tongue
Heteromeles arbutifolia	toyon
Heterotheca grandiflora	telegraph weed
*Hirschfeldia incana**	shortpod mustard
*Hordeum marinum**	barley
*Koelreuteria bipinnata**	goldenrain tree
*Lactuca serriola **	prickly lettuce
Lasthenia californica	goldenfields
*Lepidium latifolium**	perennial pepperweed
Lupinus bicolor	lupine
Malosma laurina	laurel sumac
*Malva parviflora**	cheeseweed
Marah macrocarpa	Chilicothe
*Marrubium vulgare**	horehound
*Medicago polymorpha**	California burclover
*Melilotus indicus**	annual yellow sweetclover
*Nicotiana glauca**	tree tobacco
Nicotiana quadrivalvis	Indian tobacco
*Oncosiphon pilulifer**	stinknet
Opuntia oricola	chaparral pricklypear
*Parkinsonia aculeata**	Jerusalem thorn
Phacelia ramosissima	branching phacelia
Plantago erecta	dot-seed plantain
Platanus racemosa	California sycamore
Pluchea sericea	arrow weed
*Polypogon monspeliensis**	rabbit's foot grass
Populus fremontii	Fremont cottonwood
Pseudognaphalium californicum	California cudweed
*Pseudognaphalium luteoalbum**	cudweed
Quercus agrifolia	coat live oak
*Raphanus sativus**	wild radish
*Ricinus communis**	castor bean

Scientific Name	Common Name
Rosa californica	California wild rose
Rubus ursinus	pacific blackberry
*Rumex pulcher**	fiddledock
Salix gooddingii	black willow
Salix laevigata	red willow
Salix lasiandra	shining willow
Salix lasiolepis	arroyo willow
*Salsola tragus**	Russian thistle
Salvia apiana	white sage
Salvia mellifera	black sage
Sambucus nigra ssp. *caerulea*	blue elderberry
*Schinus molle**	Peruvian peppertree
*Schinus terebinthifolius**	Brazilian peppertree
*Schismus barbatus**	old han schismus
Schoenoplectus californicus	California bulrush
*Silybum marianum**	milk thistle
*Sisymbrium irio**	London rocket
Solanum douglasii	Douglas' nightshade
*Sonchus arvensis**	perennial sow thistle
*Sonchus asper**	spiny sow thistle
*Sorghum halepense**	Johnsongrass
*Stipa miliacea**	smilo grass
Stipa pulchra	purple needlegrass
Trifolium willdenovii	tomcat clover
Toxicodendron diversilobum	poison oak
*Typha angustifolia**	narrowleaf cattail
Typha domingensis	southern cattail
Urtica dioica	stinging nettle
*Urtica urens**	dwarf nettle
*Veronica anagallis-aquatica**	water speedwell
Vitis girdiana	California wild grape
Washingtonia robusta*	Mexican fan palm
Xanthium strumarium	cocklebur
Notes: * = Non-native species, + = California Rare Plant Rank 4.2	

4.3 COMMON WILDLIFE

4.3.1 Terrestrial Invertebrates

While a focused survey for insects was not conducted within the BSA during the 2021 surveys; randomly selected areas within the appropriate micro habitats (e.g., leaf litter, woody debris piles, etc.) were visually inspected to determine the presence/absence of invertebrates and gastropods, as a variety of common insects are known to occur in the area. Conditions in the BSA provide a suite of microhabitat variations for a variety of terrestrial insects and other invertebrates. As in all ecological systems, invertebrates in the BSA play a crucial role in biological processes. They serve as the primary or secondary food source for amphibian, bird, reptile, and mammal predators; they provide important pollination vectors for numerous plant species; they act as efficient components in controlling pest populations; and they support the naturally occurring maintenance of an area by consuming detritus and contributing to necessary soil nutrients. The visually inspected areas of the BSA detected a wide variety of common and non-native invertebrates. Some of the orders identified in the BSA included beetles (*Coleoptera* spp.), flies (*Diptera* spp.), grasshoppers (*Orthoptera* spp.), crickets (*Gryllidae* spp.), isopods (*Isopoda* spp.), snails (*Gastropoda* spp.), spiders (*Araneae* spp.), moths and butterflies (*Lepidoptera* spp.), bees (*Apis* spp.), and ants (*Hymenoptera* spp.).

4.3.2 Fish

Temescal Wash flows under West Rincon Street in Phase 2 in the eastern portion of the BSA. The ephemeral wash is usually dry except during the rainy season, when species of small non-native fish including mosquito fish (*Gambusia affinis*) are likely to occur in the wash and flow downstream.

4.3.3 Amphibians

Amphibians often require a source of standing or flowing water to complete their life cycle. However, some terrestrial species can survive in drier areas by remaining in moist environments or by burrowing into the soil. Downed logs, bark, and other woody material in various stages of decay (often referred to as coarse woody debris), likely provide shelter and feeding sites for a variety of wildlife, including amphibians and reptiles (Maser and Trappe, 1984; Aubry et al., 1988). These species are highly cryptic and often difficult to detect. Amphibians require aquatic habitat for all or part of their life cycle, which is present within the BSA. Baja California treefrog (*Pseudacris hypochondriaca*) was heard during 2021 surveys. Other common species known to occur in the region include the western toad (*Anaxyrus boreas*) and the non-native American bullfrog (*Lithobates catesbeianus*).

4.3.4 Reptiles

The number and type of reptile species that may occur at a given site is related to biotic and abiotic features present in the BSA. These include the diversity of plant communities, substrate, soil type, and

presence of refugia such as rock piles, boulders, and native debris. Weather conditions were favorable during the survey for reptile activity.

Many reptile species, even if present, are difficult to detect because they are cryptic and their life history characteristics (e.g., foraging, thermoregulatory behavior, fossorial nature, camouflage etc.) limit their ability to be observed during most surveys. Further, many species are only active within relatively narrow thermal limits, avoiding both cold and hot conditions, and most take refuge in microhabitats that are not directly visible to the casual observer, such as rodent burrows, in crevices, under rocks and boards, and in dense vegetation where they are protected from unsuitable environmental conditions and predators (USACE and CDFG 2010). In some cases, they are only observed when flushed from their refugia. Two common reptile species were observed during 2021 surveys, the common side-blotched lizard (*Uta stansburiana*) and the western fence lizard (*Sceloporus occidentalis*). The BSA also includes suitable habitat for other common reptile species.

4.3.5 Birds

Focused surveys for burrowing owl and listed riparian birds were conducted. A list of common and special-status bird species and other wildlife species observed during 2021 surveys is included in Table 4. The BSA provides high quality nesting and foraging habitat for many bird species.

4.3.6 Mammals

Generally, the distribution of mammals on a given site is associated with the presence of factors such as access to perennial water, topographical and structural components (e.g., rock piles, vegetation) that provide cover and support prey base, and the presence of suitable soils for fossorial mammals (e.g., sandy areas). Multiple desert cottontails (*Sylvilagus audubonii*) and a few California ground squirrels were observed during the 2021 surveys. Signs of other mammal species (tracks, scat, etc.) were detected, but no live individuals were observed during the 2021 surveys. Sign observed included a wood rat midden, Botta's pocket gopher (*Thomomys bottae*) mounds, and mule deer (*Odocoileus hemionus*) tracks. Other common mammals are expected to occur within the BSA given the habitat conditions and species that are known to occur in the region. These may include coyote (*Canis latrans*), kangaroo rats (*Dipodomys* sp.), striped skunk (*Mephitis mephitis*), and raccoon (*Procyon lotor*). No special-status mammal species were observed in the BSA.

Although bats were not detected in the BSA, they likely forage and roost in the region, particularly along Temescal Wash and the riparian corridors. Many bats tend to concentrate foraging activities in riparian habitats similar to those occurring within and adjacent to the BSA where insect abundance is high (CDFW 2000).

Table 4 Wildlife Species Observed in the BSA

Scientific Name	Common Name
Birds	

Scientific Name	Common Name
Aeronautes saxatalis	white-throated swift
Anthus rubescens	American pipit
Bombycilla cedrorum	cedar waxwing
Buteo jamaicensis	red-tailed hawk
Buteo lineatus	red-shouldered hawk
Calypte anna	Anna's hummingbird
Cathartes aura[1]	turkey vulture (fly over)
Charadrius vociferus	killdeer
Colaptes auratus	northern flicker
Corvus brachyrhynchos	American crow
Dendroica coronate	yellow-rumped warbler
Dryobates pubescens	downy woodpecker
Eremophila alpestris actia[1]	California horned lark
Geococcyx californianus	greater roadrunner
Geothlypis trichas	common yellowthroat
Haemorhous mexicanus	house finch
Icteria virens[1]	yellow-breasted chat
Melospiza melodia	song sparrow
Melozone crissalis	California towhee
Mimus polyglottos	northern mockingbird
Passerina caerulea	blue grosbeak
Petrochelidon pyrrhonota	American cliff swallow
Picoides nuttallii	Nuttall's woodpecker
Pipilo maculatus	spotted towhee
Piranga ludoviciana	western tanager
Polioptila californica californica[1]	coastal California gnatcatcher
Polioptila caerulea	blue-gray gnatcatcher
Psaltriparus minimus	Bushtit
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Setophaga petechia[1]	yellow warbler
Spinus lawrencei[1]	Lawrence's goldfinch
Spinus psaltria	lesser goldfinch
Sturnus vulgaris	European starling
Tyrannus verticalis	western kingbird
Vireo bellii pusillus[1]	least Bell's vireo

Scientific Name	Common Name
Zenaida macroura	mourning dove
Invertebrates	
Anthocharis cardamines	orange tip butterfly
Apis mellifera	European honeybee
Coccinellidae sp.	lady bird beetle
Nymphalis antiopa	mourning cloak butterfly
Pogonomyrmex barbatus	red harvester ant
Mammals	
Thomomys bottae[2]	Bottas's pocket gopher (burrows)
Neotoma sp.[2]	woodrat (midden)
Odocoileus hemionus[2]	mule deer (tracks)
Ostospermophilus beecheyi	California ground squirrel
Sylvilagus audubonii	desert cottontail
Reptiles	
Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard

Notes: [1] = Special-status Species including WRCMSHCP covered, [2] = Species observed by sign

4.4 AQUATIC RESOURCES

Aquatic resources within 100 feet of the proposed Project area (Aquatic Resources Survey Area) were delineated on May 6, December 8, 2021, and June 9, and June 16, 2022; details of the results are included in Appendix D - Aquatic Resources Survey Report and Preliminary Jurisdictional Assessment. Drainages with an OHWM, three-parameter wetlands, and sensitive riparian vegetation were mapped in the Aquatic Resources Survey Area (Appendix A Figures 5-1 to 5-4). The mapped waters and wetlands are under the jurisdiction of the USACE, SWRCB/Santa Ana RWQCB, and/or CDFW.

Determinations of jurisdictional waters, wetlands, and riparian habitat in this report were based on current conditions, (i.e., normal circumstances) and were made in accordance with relevant USACE, SWRCB and CDFW guidance. Determinations are subject to verification by the USACE, Santa Ana RWQCB and CDFW. Stantec advises all interested parties to treat the information contained herein as preliminary pending verification of jurisdictional boundaries by the regulatory agencies.

4.5 SOILS

Prior to conducting the field reconnaissance, historic soils data from the Natural Resources Conservation Service was used to determine potential soil types that may occur within the BSA (refer to Appendix A Figure 4). Characteristics of soils present on the site are summarized in Table 5; there are no hydric soils present in the proposed Project area.

Table 5 Historic Soil Units Occurring within the BSA

Map Unit Symbol	Map Unit Name	Description	Area within BSA (acres)
AkC	Arbuckle loam, 2 to 8 percent slopes	A well-drained non-hydric soil associated with alluvial fans at elevations between 100 and 1,600 feet, high runoff; loam, gravelly loam, and stratified sandy loam to vert gravelly sandy clay loam; parent material consists of alluvium derived from metasedimentary rock; minor components include Cortina, Garretson, and Perkins.	32.57
AkD	Arbuckle loam, 8 to 15 percent slopes	A well-drained non-hydric soil associated with alluvial fans at elevations between 100 and 1,600 feet, high runoff; loam, gravelly loam, and stratified sandy loam to very gravelly sandy clay loam; parent material consists of alluvium derived from metasedimentary rock; minor components include Perkins, Garretson, and Cortina.	17.81
AlC	Arbuckle gravelly loam, 2 to 9 percent slopes, dry, MLRA 19	A well-drained non-hydric soil associated with fan remnants at elevations between 690 and 1,470 feet, medium runoff; gravely loam, gravelly very fine sandy loam, gravelly loam, gravelly clay loam, and very gravelly sandy loam; parent material is derived from alluvium derived from igneous, metamorphic, and sedimentary rock; minor components include Perkins, Garretson, and Cortina.	5.26
AlE3	Arbuckle gravelly loam, 2 to 25 percent slopes, severely eroded	A well-drained non-hydric soil associated with alluvial fans at elevations between 100 and 1,600 feet, high runoff; gravelly loam, gravelly clay loam, and stratified very gravelly sandy loam to very gravelly sandy clay loam; parent material is derived from alluvium derived from metasedimentary rock; minor components include Garretson, Cortina, and Unnamed.	22.27
BP	Borrow pit	A hole, pit, or excavated area that was dug for the purposes of removing soils for a construction project.	32.20
DAM	Dams	Impounded waterbody.	2.16
GaC	Garretson very fine sandy loam, 2 to 8 percent slopes	A well-drained non-hydric soil associated with alluvial fans at elevations between 430 and 1,740 feet, medium runoff; very fine sandy loam and loam; parent material is derived from alluvium derived from metasedimentary rock; minor components include Arbuckle, Perkins, and Cortina.	11.05
GfF2	Gaviota very fine sandy loam, 15 to 50 percent slopes, eroded	A well-drained non-hydric soil associated with hills at elevations between 100 and 4,000 feet, medium runoff; very fine sandy loam and unweathered; parent material is derived from residuum weathered from sandstone; minor components include Altamont, Vallecitos, and Gaviota.	9.17
GrB	Grangeville sandy loam, sandy substratum, drained, 0 to 5 percent slopes	A moderately well-drained non-hydric soil associated with alluvial fans at elevations between 600 and 1,800 feet, very low runoff; sandy loam; parent material is derived from alluvium derived from granite; minor components include Dello and Traver.	3.59

Map Unit Symbol	Map Unit Name	Description	Area within BSA (acres)
GvB	Grangeville fine sandy loam, saline-alkali, 0 to 5 percent slopes	A somewhat poorly drained non-hydric soil associated with alluvial fans at elevations between 10 and 1,800 feet, low runoff; fine sandy loam and sandy loam; parent material is derived from alluvium derived from granite; minor components include Dello and Traver.	29.23
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes	A well-drained non-hydric soil associated with alluvial fans at elevations between 150 to 900 feet, low runoff; coarse sandy loam, fine sandy loam, and stratified loamy sand to coarse sandy loam; parent material is derived from alluvium derived from granite; minor components include Greenfield, Ramona, Tujunga, and two unnamed soils.	3.48
MdC	Metz loamy sand, 2 to 8 percent slopes	A somewhat excessively drained non-hydric soil associated with alluvial fans at elevations between 30 and 1,200 feet, low runoff; loamy sand and stratified sand to loamy sand; parent material is derived from alluvium derived from sedimentary rock; minor components include San emigdio and two unnamed soils.	16.17
MgB	Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes	A somewhat excessively drained non-hydric soil associated with alluvial fans at elevations between 30 and 1,200 feet, very low runoff; loamy sand, stratified sand to silt loam, and stratified gravelly coarse sand to gravelly sand; parent material is derived from alluvium derived from sedimentary rock; minor components include San emigdio and an unnamed soil.	57.04
MhB	Metz loamy fine sand, sandy loam substratum, 0 to 5 percent slopes	A somewhat excessively drained non-hydric soil associated with alluvial fans at elevations between 30 and 1,200 feet, very low runoff; loamy fine sand and stratified sand to silt loam; parent material is derived from alluvium derived from sedimentary rock; minor components include San emigdio and an unnamed soil.	8.01
PeC	Perkins loam, 2 to 8 percent slopes	A well-drained non-hydric soil associated with alluvial fans at elevations between 60 and 1,700 feet, high runoff; loam and stratified very gravely sandy loam to very gravelly clay loam; parent material is derived from alluvium derived from metasedimentary rock; minor components include Arbuckle and Garretson.	48.97
PgD2	Perkins gravelly loam, 8 to 15 percent slopes, eroded	A well-drained non-hydric soil associated with alluvial fans at elevations between 60 and 1,700 feet, high runoff; gravelly loam and stratified vert gravelly sandy loam to very gravelly clay loam; parent material is derived from alluvium derived from metasedimentary rock; minor components include Arbuckle and Garretson.	18.78
RaD2	Ramona sandy loam, 8 to 15 percent slopes, eroded	A well-drained non-hydric soil associated with alluvial fans and terraces at elevations between 250 and 3,500 feet, medium runoff; sandy loam, fine sandy loam, sandy clay loam, and gravelly sandy loam; parent material is derived from alluvium derived from granite; minor components include Greenfield, Tujunga, and Hanford.	1.93

Map Unit Symbol	Map Unit Name	Description	Area within BSA (acres)
RaD3	Ramona sandy loam, 8 to 15 percent slopes, severely eroded	A well-drianed non-hydric soil associated with alluvial fans and terraces at elevations between 250 and 3,500 feet, high runoff; sandy loam, fine sandy loam, sandy clay loam, and gravelly sandy loam; parent material is derived from alluvium derived from granite; minor components include Tujunga, Hanford, and Greenfield.	1.62
SeC2	San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded	A well-drained non-hydric soil associated with alluvial fans at elevations between 600 and 1,800 feet, low runoff; fine sandy loam and stratified sandy loam to silt loam; parent material is derived from residuum weathered from sedimentary rock; minor components include Metz and San timoteo.	2.24
SgA	San Emigdio loam, 0 to 2 percent slopes	A well-drained non-hydric soil associated with alluvial fans at elevations between 430 and 2,340 feet, very low runoff; loam, fine sandy loam, and stratified sandy loam to silt loam; parent material is derived from alluvium derived from sedimentary rock; minor components include Metz and san timoteo.	20.93
TeG	Terrace escarpments	A steep slope pf 15 percent or greater made up of various layers of soil; parent material is derived from alluvium derived from mixed sources.	17.97
		Total	**362.45**

5.0 SPECIAL-STATUS BIOLOGICAL RESOURCES

The background information presented above combined with habitat assessments performed during the surveys was used to evaluate special-status natural communities and special-status plant and animal taxa that either occur or may have the potential to occur within the BSA and adjacent habitats. For the purposes of this BRTR, special-status taxa are defined as plants or animals that:

- Have been designated as either rare, threatened, or endangered by CDFW or the USFWS, and are protected under either the California Endangered Species Act or FESA,
- Are candidate species being considered or proposed for listing under these same acts,
- Are recognized as SSC by the CDFW,
- Are ranked by CNPS as CRPR 1, 2, 3, or 4 plant species,
- Are fully protected by the FGC, Sections 3511, 4700, 5050, or 5515,
- Included in the CDFW Special Animals List (CDFW 2021c),
- Are of expressed concern to resource/regulatory agencies, or local jurisdictions, or
- Are covered species under the WRCMSHCP.

5.1 SPECIAL-STATUS NATURAL COMMUNITIES

Special-status natural communities are defined by CDFW (2009) as, "...communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects." All vegetation within the state is ranked with an "S" rank, however only those that are of special concern (S1-S3 rank) are generally evaluated under CEQA. Shining willow grove occurs within the BSA; and is a CDFW natural community with a sensitivity ranking of S3 (vulnerable).

The BSA also occurs within the region covered by the WRMSHCP. Three riparian communities (mulefat thickets, arroyo willow thickets, and shining willow groves) and five native upland scrub habitats (California buckwheat scrub, California sagebrush scrub, coyote brush scrub, elderberry stands, and Menzie's goldenbush scrub) occur within the BSA and are WRC sensitive vegetation communities.

5.2 DESIGNATED CRITICAL HABITAT

The BSA occurs within and adjacent to DCH for the following federally listed species: Santa Ana sucker (*Catostomus santaanae*), coastal California gnatcatcher (*Polioptila californica californica*), southwestern willow flycatcher, and least Bell's vireo. DCH for these species occupies the Santa Ana River floodplain

extending from the San Bernardino Mountains in the northeast to the Chino Hills in the southwest. The coastal California gnatcatcher and the least Bell's vireo occur within the BSA.

5.3 SPECIAL-STATUS PLANTS

One special-status plant species, paniculate tarplant (*Deinandra paniculata*), a CNPS CRPR 4.2 species, was observed in coastal sage scrub in the Phase 3A during the spring 2021 rare plant survey (Appendix A Figure 3-4).

Table 6 presents a list of special-status plants, including federally- and state-listed species and CRPR 1-4 species and species protected by the WRCMSHCP that are known to occur in the region surrounding the BSA (within ten miles) (Appendix A Figure 6s and 6A).

Records searches of the USFWS iPaC CNDDB, the CNPS Online Inventory, and the CCH were performed for special-status plant taxa. Each of the taxa identified in the record searches was assessed for their potential to occur within the BSA based on the following criteria:

- **Present**: Taxa were observed within the BSA during recent botanical surveys or population has been acknowledged by CDFW, USFWS, or local experts.
- **High**: Both a documented recent record (within 10 years) exists of the taxa within the BSA, or immediate vicinity (approximately 5 miles) and the environmental conditions (including soil type) associated with taxa presence occur within the BSA.
- **Moderate**: Both a documented recent record (within 10 years) exists of the taxa within the BSA, or the immediate vicinity (approximately 5 miles) and the environmental conditions associated with taxa presence are marginal and/or limited within the BSA; the BSA is located within the known current distribution of the taxa and the environmental conditions (including soil type) associated with taxa presence occur within the BSA.
- **Low**: A historical record (over 10 years) exists of the taxa within the BSA, or general vicinity (approximately 10 miles) and the environmental conditions (including soil type) associated with taxa presence are marginal and/or limited within the BSA.
- **Not Likely to Occur:** The environmental conditions associated with taxa presence do not occur within the BSA.

Table 6 Known and Potential Occurrences of Special-Status Plant Taxa within the BSA

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Abronia villosa var. *aurita* chaparral sand-verbena	1B.1	Chaparral, coastal scrub, desert dunes; sandy substrates; 75-1600 meters (m).	(Jan) Mar-Sep	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 1.14 miles southeast of the BSA; this occurrence was recorded in 1934.
Allium marvinii Yucaipa onion	1B.2, WRCMSHCP	Clay openings in chaparral, 760-1,065 m.	Apr-May	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 3.24 miles south, southwest of the BSA; this occurrence was recorded in 1992.
Ambrosia pumila San Diego ambrosia	1B.1, FE, WRCMSHCP	Chaparral, coastal scrub, valley and foothill grassland, and vernal pools; sandy loam or clay substrates (sometimes alkaline); often found in disturbed areas; 20-415 m.	Apr-Oct	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 8.06 miles to the east, northeast of the BSA; this occurrence was recorded in 2006.
Astragalus brauntonii Braunton's milk-vetch	1B.1	Chaparral, coastal scrub, and valley and foothill grasslands. Occurs in recent burns or disturbed areas, usually sandstone with carbonate layers; 4-640 m.	Jan-Aug	**Moderate** Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 2.59 miles to the southwest of the BSA; this occurrence was recorded in 2020.
Atriplex coulteri Coulter's saltbush	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland, ocean bluffs, ridgetops, as well as alkaline low places; alkaline, dry, or clay soils; 2-460 m.	Mar-Oct	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 5.38 miles to the north, northwest of the BSA; this occurrence was recorded in 1917.

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Baccharis malibuensis Malibu baccharis	1B.1	Chaparral, cismontane woodland, coastal scrub, and riparian woodland; 150-305 meters.	Aug	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 6.10 miles to the south, southwest of the BSA; this occurrence was recorded in 2008.
Calochortus plummerae Plummer's mariposa-lily	4.2, WRCMSHCP	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grasslands; granitic and rocky substrates; 100-1700m.	May-Jul	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 4.69 miles south of the BSA; this occurrence was recorded in 1992.
Calochortus weedii var. *intermedius* intermediate mariposa-lily	1B.2, WRCMSHCP	Chaparral, coastal scrub, and valley and foothill grasslands; rocky, calcareous; 105 to 855 m.	May-Jun	**Moderate** Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 2.20 miles south, southeast of the BSA; this occurrence was recorded in 2017.
Calystegia felix lucky morning-glory	1B.1	Historically associated with wetland and marshy places, but possibly found in drier habitats as well; meadows, seeps, and riparian scrub (alluvial); sometimes found in silty loam and alkaline substrates; 30-215 m.	Mar-Sep	**Moderate** Suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 2.17 miles north the BSA; this occurrence was recorded in 1917.

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Centromadia pungens ssp. *laevis* smooth tarplant	1B.1, WRCMSHCP	Chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland; alkaline substrate; 0-640 m.	Apr-Sep	**Moderate** Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 6.37 miles northeast of the BSA; this occurrence was recorded in 2010.
Chorizanthe parryi var. fernandina San Fernando Valley spineflower	SE, 1B.1	Coastal scrub (sandy) and valley and foothill grasslands; 150-1,220 m.	Apr-Jul	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 7.05 miles southwest of the BSA; this occurrence was recorded in 1902.
Chorizanthe parryi var. *parryi* Parry's spineflower	1B.1, WRCMSHCP	Chaparral, cismontane woodland, coastal scrub, and valley and foothill grasslands; sandy or rocky substrates; open habitat; 275-1220 m.	Apr-Jun	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 8.45 miles southeast of the BSA; this occurrence was recorded in 2009.
Chorizanthe polygonoides var. *longispina* long-spined spineflower	1B.2, WRCMSHCP	Chaparral, coastal scrub, meadows and seeps, valley and foothill grasslands, and vernal pools; often clay substrates; 30-1530 m.	Apr-Jul	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 3.38 miles west, southwest of the BSA; this occurrence was recorded in 2001.
Clinopodium chandleri San Miguel savory	1B.2, WRCMSHCP	Chaparral, coastal scrub, riparian woodlands, and valley and foothill grasslands; rocky and Gabboric substrates; 120-1075 m.	Mar-Jul	**Low** No recent occurrences within 10 miles.
Deinandra paniculata paniculate tarplant	4.2	Coastal scrub; valley and foothill grasslands; and vernal pools; 25-940 m.	Mar-Nov	**Present** Documented in coastal scrub in Phase 3A

Special-Status Biological Resources

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Dudleya multicaulis many-stemmed dudleya	1B.2, WRCMSHCP	Chaparral, coastal scrub, and valley and foothill grasslands; often clay substrates; 15-790 m.	Apr-Jul	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 0.91 mile south of the BSA; this occurrence was recorded in 1985.
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woollystar	1B.1, FE, SE, WRCMSHCP	Chaparral and coastal scrub (alluvial fan); sandy or gravelly substrate; 91-610 m.	Apr-Sep	**Moderate** Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 4.77 miles northeast of the BSA; this occurrence was recorded in 2006.
Hesperocyparis forbesii Tecate cypress	1B.1	Closed-cone coniferous forest and chaparral; clay, gabbroic or metavolcanic; 80 to 1,500 m.	N/A	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 2.53 miles south, southwest of the BSA; this occurrence was recorded in 2011.
Horkelia cuneata var. *puberula* mesa horkelia	1B.1	Chaparral (maritime), cismontane woodland, and coastal scrub; sandy or gravelly substrate; 70-810 m.	Feb-Jul (Sep)	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 6.05 miles southwest of the BSA; this occurrence was recorded in 2008.
Lepechinia cardiophylla heart-leaved pitcher sage	1B.2, WRCMSHCP	Closed-cone coniferous forest, chaparral, and cismontane woodland; 520 to 1,370 m.	Apr-Jul	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 4.23 miles northwest of the BSA; this occurrence was recorded in 2016.

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Lepidium virginicum var. *robinsonii* Robinson's peppergrass	4.3	Chaparral and coastal scrub; 1-885 m.	Jan-Jul	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is within BSA; this occurrence was recorded in 2010.
Monardella australis ssp. *jokerstii* Jokerst's monardella	1B.1	Chaparral and lower montane coniferous forest. Occurs on steep scree or talus slopes between breccia, secondary alluvial benches along drainages and washes; 1,350-1,750 m.	Jul-Sep	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 2.15 miles north, northwest of the BSA; this occurrence was recorded in 1952.
Monardella hypoleuca ssp. *intermedia* intermediate monardella	1B.3	Chaparral, cismontane woodland, and lower montane coniferous forest; usually understory; 400 to 1,250 m.	Apr-Sep	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest recorded occurrence is approximately 3.58 miles south of the BSA; this occurrence was recorded in 1986.
Nolina cismontana chaparral nolina	1B.2	Chaparral and coastal scrub. Occurs on sandstone or gabbro; 140-1,275 m.	(Mar) May-Jul	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 2.16 miles south of the BSA; this occurrence was recorded in 1990.
Penstemon californicus California beardtongue	1B.2, WRCMSHCP	Chaparral, lower montane coniferous forest, and pinyon and juniper woodland, often in sandy soils; 1,170-2,300 m.	May-June (Aug)	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest recorded occurrence is approximately 6.83 miles west, southwest of the BSA; this occurrence was recorded in 1981.

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Pentachaeta aurea ssp. *allenii* Allen's pentachaeta	1B.1	Coastal scrub (openings) and valley and foothill grasslands; 75-520 m.	Mar-Jun	**Moderate** Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 4.84 miles southwest of the BSA; this occurrence was recorded in 2000.
Phacelia keckii Santiago Peak phacelia	1B.3	Closed-cone coniferous forest and chaparral; 545-1,600 m.	May-Jun	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 6.01 miles south of the BSA; this occurrence was recorded in 1981.
Pseudognaphalium leucocephalum white rabbit-tobacco	2B.2	Chaparral, cismontane woodland, coastal scrub, and riparian woodland; sandy and gravelly substrates; 0-2,100 m.	(Jul) Aug-Nov (Dec)	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 3.28 miles west of the BSA; this occurrence was recorded in 1928.
Sidalcea neomexicana salt spring checkerbloom	1B.2	Playas, chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub; alkali springs and marshes; 15 to 1,530 m.	Mar-Jun	**Not Likely to Occur** Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 1.79 miles north of the BSA; this occurrence was recorded in 1917.
Symphyotrichum defoliatum San Bernardino aster	1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and valley and foothill grasslands (vernally mesic); often found near ditches, streams, and springs; 2-2040 m.	Jul-Nov (Dec)	**Low** Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 5.63 miles north, northwest of the BSA; this occurrence was recorded in 1928.

Sources: CCH 2021, CDFW 2021a, 2021d; CNPS 2021, WRCMSHCP 2015

Notes: [1] = Months appearing in parenthesis listed under blooming period indicates an additional, but uncommon, blooming periods for that species.

Special-Status Biological Resources

Species	Status	Habitat and Distribution	Blooming Period[1]	Potential to Occur
Status Codes				
FE Federally listed Endangered Species				
SE State-listed Endangered Species				
WRCMSHCP = Western Riverside County MSHCP covered				
California Rare Plant Rank (CRPR)				
1A Plants considered by the CNPS to be extinct in California.				
1B Plants rare, threatened, or endangered in California and elsewhere.				
2B Plants presumed extinct in California but more common elsewhere.				
4 Plants of limited distribution – a watch list.				
.1 Seriously threatened in California (high degree/immediacy of threat).				
.2 Fairly threatened in California (moderate degree/immediacy of threat).				
.3 Not very threatened in California (low degree/ immediacy of threat or no current threats known).				

5.4 SPECIAL-STATUS WILDLIFE

Special-status taxa include those listed as threatened or endangered under the federal or California Endangered Species Acts, taxa proposed for such listing, Species of Special Concern, and other taxa that have been identified by the USFWS, CDFW, or local jurisdictions as unique or rare and which have the potential to occur within the BSA. Species protected by the WRCMSHCP are also included.

Seven special-status bird species, coastal California gnatcatcher, California horned lark (*Eremophila alpestris actia*), least Bell's vireo, Lawrence's goldfinch (*Spinus lawrencei*), turkey vulture (*Cathartes aura*), yellow-breasted chat (*Icteria virens*), and yellow warbler (*Setophaga petechia*) were observed in the BSA during 2021 surveys. Additional details on the least Bell's vireo observations and flycatcher and cuckoo surveys are provided in Appendix E. Focused surveys for burrowing owl were conducted but no owls were observed or are expected to occur in the BSA (Appendix F).

The CNDDB was queried for occurrences of special-status wildlife taxa within the BSA occurs and surrounding ten-mile area, as discussed above in Section 2.0. Table 7 summarizes the special-status wildlife taxa known to occur regionally (within 10 miles) and their potential for occurrence in the BSA (Appendix A Figure 6). Table 7 also includes WRCMSHCP covered species, USFWS iPaC data and Cornell Lab of Ornithology eBird data (Cornell 2021, USFWS 2021, WRCMSHCP 2015). Appendix A Figures 6B and 6C present CNDDB special-status wildlife that have been documented within two miles of the BSA.

Table 8 provides WRCMSHCP covered species that are not included in Table 7 that have high potential to occur in the BSA.

Each of the taxa identified in the database reviews/searches were assessed for its potential to occur within the BSA based on the following criteria:

- **Present:** Taxa (or sign) were observed in the BSA or in the same watershed (aquatic taxa only) during the most recent surveys, or a population has been acknowledged by CDFW, USFWS, or local experts.
- **High:** Habitat (including soils) for the taxa occurs on site and a known occurrence occurs within the BSA or adjacent areas (within 5 miles of the BSA) within the past 20 years; however, these taxa were not detected during the most recent surveys.
- **Moderate:** Habitat (including soils) for the taxa occurs on site and a known regional record occurs within the database search, but not within 5 miles of the BSA or within the past 20 years; or a known occurrence occurs within 5 miles of the BSA and within the past 20 years and marginal or limited amounts of habitat occurs on site; or the taxa's range includes the geographic area and suitable habitat exists.
- **Low:** Limited habitat for the taxa occurs on site and no known occurrences were found within the database search and the taxa's range includes the geographic area.
- **Not Likely to Occur:** The environmental conditions associated with taxa presence do not occur within the BSA.

Table 7 Known and Potential Occurrences of Special-Status Wildlife within the BSA

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
INVERTEBRATES					
Bombus crotchii	Crotch bumble bee	**SA**	Coastal California east to the sierra-cascade crest and south into Mexico. Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*.	Marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 1.14 miles southeast of the BSA from 1933.	**Low**
Branchinecta sandiegonensis	San Diego fairy shrimp	**FE**	Restricted to vernal pools in coastal southern California and northwestern Baja California, Mexico.	Suitable habitat does not occur within the BSA. Suitable habitat may occur west of the BSA. The nearest and most recent recorded occurrence is approximately 7.48 miles southwest of the BSA from 2006.	**Not Likely to Occur**
Danaus plexippus	monarch butterfly	**FC**	Inhabitant of coastal sand dune habitat; erratically distributed from Ten Mile creek in Mendocino County south to Ensenada, Mexico. Inhabits foredunes and sand hummocks; it burrows beneath the sand surface and is most common beneath dune vegetation. Roosts located in wind-protected tree groves (eucalyptus, pine, cypress), with nectar and water sources nearby.	Suitable habitat occurs within the BSA. Narrow leaf milkweed (*Asclepias fascicularis*), a monarch butterfly host plant, occurs in the BSA. The nearest and most recent occurrence is within the BSA from 2021.	**High**
Eugnosta busckana	Busck's gallmoth	**SA**	Beaches, salt marshes, sand dunes & coastal scrub dunes, presumed extirpated.	Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 9.71 miles east, northeast of the BSA from 1906.	**Not Likely to Occur**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Euphydryas editha quino	Quino checkerspot butterfly	**FE, WRCMSHCP**	Native to southern California and northwestern Mexico. Occurs in localized colonies closely associated with the larval food plant, *Plantago erecta*. Adults use several chaparral annual flowers for food. Six known populations in southwestern Riverside and San Diego Counties and at least one population near Tecate, Mexico.	Suitable habitat does not occur within the BSA. The nearest recorded occurrence is approximately 4.68 miles south of the BSA from 1976.	**Not Likely to Occur**
Neolarra alba	white cuckoo bee	**SA**	Parasitic species that lays eggs in the nest of other bees.	Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is approximately 9.71 miles east, northeast of the BSA from 1928.	**Not Likely to Occur**
Rhaphiomidas terminates abdominalis	Delhi Sands flower-loving fly	**FE, WRCMSHCP**	Endemic to sand dune formations of San Bernardino Valley, from Colton to Ontario.	Suitable habitat does not occur within the BSA. The nearest recorded occurrence is approximately 6.50 miles north of the BSA from 2001.	**Not Likely to Occur**
FISH					
Catostomus santaanae	Santa Ana sucker	**FT, WRCMSHCP**	Native to the Los Angeles and Santa Ana basins in southern California. Live in the shallow portions of rivers and streams. Preferred substrates are generally coarse and consist of gravel, rubble, and boulders with growths of algae.	Surface water was present within the BSA during the May 2021 surveys. The nearest recorded occurrence is approximately 0.40 mile west, southwest of the BSA from 2002.	**Low**
Gila orcuttii	arroyo chub	**SSC, WRCMSHCP**	Found in habitats characterized by slow-moving water, mud or sand substrate, and depths greater than 40 cm. Most abundant in low gradient pools that support at least some aquatic vegetation.	Surface water was present within the BSA during the May 2021 surveys. The nearest recorded occurrence is within BSA from 1997.	**Low**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Oncorhynchus mykiss irideus pop. 10	steelhead – southern California Distinct Population Segment (DPS)	**FE**	Inhabits seasonally accessible rivers and streams with gravel for spawning. Requires sufficient flows in their natal streams to be able to return from oceans and lakes to spawn. Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County). Southern steelhead likely have greater physiological tolerance to warmer water and more variable conditions.	Surface water was present within the BSA during the May 2021 surveys. The nearest recorded occurrence is within BSA from 2013.	**Not Likely to Occur**
Rhinichthys osculus	Santa Ana speckled dace	**SSC**	Found mainly in perennial steams fed by cool springs that maintain temperatures below 20°C. In the Los Angeles Basin, they occupy shallow rifles dominated by gravel and cobble. Prefer pools in low-gradient streams with slow-moving waters with overhanging riparian vegetation.	Surface water was present within the BSA during the May 2021 surveys. The nearest and most recent recorded occurrence is approximately 8.19 miles east, northeast of the BSA from 1996.	**Low**
AMPHIBIANS					
Anaxyrus californicus	arroyo toad	**FE, SSC, WRCMSHCP**	Occurs in the central San Joaquin valley and surrounding foothills, primarily in washes, arroyos, sandy riverbanks, and riparian areas.	Suitable habitat is present within the BSA. The nearest and most recent recorded occurrence is approximately 9.26 miles south, southeast of the BSA.	**Low**
Spea hammondii	western spadefoot	**SSC, WRCMSHCP**	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools and other temporary rain pools, cattle tanks, and occasionally pools of intermittent streams are essential for breeding and egg-laying.	Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 0.10 mile south of the BSA from 1964.	**Low**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Taricha torosa	Coast Range newt	**SSC, WRCMSHCP**	Occurs in oak woodlands, chaparral, and grasslands.	Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 0.67 mile south of the BSA from 1997.	**Low**
REPTILES					
Anniella stebbinsi	southern California legless lizard	**SSC**	Generally, south of the transverse range, extending to northwestern Baja California, occurs in sandy or loose loamy soils under sparse vegetation; disjunct populations in the Tehachapi and Piute mountains in Kern County; variety of habitats; generally, in moist, loose soil, they prefer soils with a high moisture content.	Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 4.87 miles east of the BSA from 2016.	**Moderate**
Arizona elegans occidentalis	California glossy snake	**SSC**	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular Ranges, south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils	Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 7.91 miles north, northeast of the BSA from 1946.	**Low**
Aspidoscelis hyperythra	orange-throated whiptail	**WL, WRCMSHCP**	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes and other sandy areas with patches of bush and rocks. Perennial plants necessary for its major food: termites.	Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 2.01 miles south of the BSA from 1990.	**Low**

Special-Status Biological Resources

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Aspidoscelis tigris stejnegeri	coastal whiptail	**SSC, WRCMSHCP**	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 2.43 miles south, southeast of the BSA from 2016.	**Moderate**
Coleonyx variegatus abbotti	San Diego banded gecko	**SSC, WRCMSHCP**	Found in southwestern California from Ventura County into Baja California. Inhabits coastal scrub chaparral and desert scrub habitats, preferring granite or rocky outcrops.	Limited marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 4.00 miles east, northeast of the BSA from 2003.	**Moderate**
Crotalus ruber	red-diamond rattlesnake	**SSC, WRCMSHCP**	Chaparral, woodland, grassland, and desert areas from coastal San Diego County to the eastern slope of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	Limited marginally suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 3.64 miles east, northeast of the BSA from 2003.	**Moderate**
Emys marmorata	western pond turtle	**SSC, WRCMSHCP**	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches usually with aquatic vegetation, below 6,000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.3 mile from water for egg-laying.	Marginally suitable habitat occurs within the BSA. No perennial water occurs in the BSA. The nearest recorded occurrence is approximately 2.07 miles west of the BSA from 1992.	**Low**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Phrynosoma blainvillii	coast horned lizard	**SSC, WRCMSHCP**	Primarily in sandy soil in open areas, especially sandy washes and floodplains, in many plant communities. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants or other insects. Main prey item is harvester ants. Occurs west of the deserts from northern Baja California, Mexico north to Shasta County below 2,400 m (8,000 feet) elevation.	Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 2.67 miles south, southeast of the BSA from 2016.	**Moderate**
Salvadora hexalepis virgultea	coast patch-nosed snake	**SSC**	Occurs in semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	Suitable habitat does not occur in the BSA. The nearest and most recent recorded occurrence is approximately 6.32 miles west, southwest of the BSA from 1999.	**Not Likely to Occur**
Thamnophis hammondii	two-striped gartersnake	**SSC**	Coastal California from vicinity of Salinas to northwest Baja California, Mexico. From sea level to about 7000 feet. elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 7.98 miles southwest of the BSA from 2000.	**Low**
BIRDS					
Accipiter cooperii	Cooper's hawk	**WL, WRCMSHCP**	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	Suitable foraging and nesting habitat occur within the BSA. The nearest recorded occurrence is within the BSA from 2010.	**High (foraging)/ Moderate (nesting)**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Agelaius tricolor	tricolored blackbird	**ST, SSC, BCC, WRCMSHCP**	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate and foraging area with insect prey within a few km of the colony.	Suitable foraging and potential nesting habitat occur within the BSA. The nearest recorded occurrence is approximately 1.73 miles northeast of the BSA from 2009.	**Moderate (foraging)/Low (nesting)**
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	**WL, WRCMSHCP**	Resident in southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	Suitable foraging and nesting habitat occur within the BSA. The nearest recorded occurrence is approximately 0.50 mile southwest of the BSA from 2019.	**High**
Ammodramus savannarum	grasshopper sparrow	**SSC, WRCMSHCP**	Occurs in grasslands, hayfields, and prairies with sparse shrub cover. Known to nest in lowlands and foothills west of the Sierra Nevada Mountain range through most of California.	Suitable foraging habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 3 miles west of the BSA from 2020.	**Moderate (foraging)/Low (nesting)**
Aquila chrysaetos	golden eagle	**BGEPA, FP, WL, BCC, WRCMSHCP**	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Suitable foraging habitat occurs within the BSA. The nearest and most recent recorded occurrence is within the BSA from 2007.	**Low (foraging)/ Not Likely (nesting)**
Artemisiospiza belli	Bell's sage sparrow	**WL, BCC, WRCMSHCP**	Prefers semi-open habitats with relatively evenly spaced shrubs; dry chaparral and coastal sage scrub; shrub species include brittlebush, black sage, California buckwheat, California sagebrush, bush mallow, chamise, white sage, valley cholla, and willow.	Limited marginally suitable foraging and nesting habitat occurs within the BSA. The nearest recorded occurrence is approximately 3.7 miles to the east of the BSA from 2020.	**Low**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Asio otus	long-eared owl	**SSC**	Riparian habitat required; also uses live oak thickets and other dense stands of trees. Found in Central Valley and Southern California deserts.	Limited marginally suitable foraging and nesting habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 6.55 miles to the west, southwest of the BSA from 2019.	**Low**
Athene cunicularia	burrowing owl	**SSC, WRCMSHCP**	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Limited marginally suitable foraging and nesting habitat occurs within the BSA. The nearest recorded occurrence is within BSA from 1989. Focused surveys were conducted in 2021 and no sign of this species was observed.	**Low /Not likely**
Buteo swainsoni	Swainson's hawk	**ST, BCC, WRCMSHCP**	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Marginally suitable foraging and nesting habitat occur within the BSA. The nearest recorded occurrence is within the BSA from 2011.	**Low**
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	**SSC, BCC, WRCMSHCP**	Southern California coastal sage scrub. Wrens require tall cactus for nesting and roosting.	No suitable habitat occurs within the BSA. The nearest recorded occurrence is approximately 4.55 miles west, southwest of the BSA from 1989.	**Not Likely to Occur**
Circus hudsonius	northern harrier	**WRCMSHCP**	Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Breeds from sea level to 1700 m in the Central Valley and Sierra Nevada, and up to 800 m in northeastern California.	Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is within the BSA from 2021.	**Moderate (foraging)/Low (nesting)**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Coccyzus americanus occidentalis	western yellow-billed cuckoo	**FT, SE, BCC, WRCMSHCP**	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Suitable foraging and nesting habitat occur within the BSA. The nearest and most recent recorded occurrence is within the BSA from 2011. This species was not observed during 2021 protocol surveys.	**Low**
Coturnicops noveboracensis	yellow rail	**SSC, BCC**	Summer resident in eastern Sierra Nevada in Mono County. Freshwater marshlands.	Suitable habitat does not occur within the BSA. The nearest and most recent recorded occurrence is within the BSA from 1914.	**Not Likely to Occur**
Elanus leucurus	white-tailed kite	**FP, WRCMSHCP**	Occurs in coastal and valley lowlands; rarely found away from agricultural areas. Inhabits herbaceous and open stages of most habitats mostly in cismontane California. Nest placed near top of dense oak, willow, or another tree stand. Nest located near open foraging area.	Suitable foraging and marginally suitable nesting habitat occurs within the BSA. The nearest recorded occurrence is within the BSA from 2020.	**Moderate (foraging)/ Low (nesting)**
Empidonax traillii extimus	southwestern willow flycatcher	**FE, SE, WRCMSHCP**	Riparian woodlands in southern California	Limited marginally suitable foraging and nesting habitat occurs within the BSA. The nearest recorded occurrence is approximately 0.31 mile north, northwest of the BSA from 1990. This species was not observed during 2021 protocol surveys.	**Low**
Eremophila alpestris actia	California horned lark	**WL, WRCMSHCP**	Coastal regions, chiefly from Sonoma County to San Diego County. Also, main part of San Joaquin Valley and east to foothills. Short-grass prairie, “bald” hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	Suitable habitat occurs within the BSA. This species was observed in during riparian bird surveys.	**Present**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Falco peregrinus anatum	American peregrine falcon	**FP, BCC, WRCMSHCP**	Nesting habitats contain cliffs and almost always nest near water. Open habitats are often used for foraging. Non-breeding American peregrine falcons may also occur in open areas without cliffs. Many artificial habitats like towers, bridges and buildings are also utilized.	Suitable foraging habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 1.11 miles north of the BSA from 2021.	**Moderate (foraging)/ Not likely (nesting)**
Haliaeetus leucocephalus	bald eagle	**Delisted, BGEPA, SE, FP, BCC, WRCMSHCP**	Range extends from the Mexico border throughout the United States and Canada. Prefer large lakes for hunting.	Marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is within the BSA from 2021. A nesting bald eagle was reported within the basin in 2020/2021.	**Low (foraging)/ Moderate (nesting)**
Icteria virens	yellow-breasted chat	**SSC, WRCMSHCP**	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests, in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft. of ground.	Suitable foraging and nesting habitat occur within the BSA. This species was observed in riparian habitat in the BSA during protocol bird surveys	**Present**
Laterallus jamaicensis coturniculus	California black rail	**ST, FP**	Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation.	Suitable habitat does not occur within the BSA. The nearest recorded occurrence is approximately 4.23 miles northwest of the BSA form 1931.	**Not Likely to Occur**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Larus californicus	California gull	**WL**	Preferred habitats along the coast are sandy beaches, mudflats, rocky intertidal, and pelagic areas of marine and estuarine habitats, as well as fresh and saline emergent wetlands. Inland, frequents lacustrine, riverine, and cropland habitats, landfill dumps, and open lawns in cities. nests at alkali and freshwater lacustrine habitats east of the Sierra Nevada and Cascades, and an abundant visitor to coastal and interior lowlands in nonbreeding season.	Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is within the BSA from 2021.	**High (foraging)/ Low (nesting)**
Plegadis chihi	white-faced ibis	**WL, WRCMSHCP**	Occurs in freshwater marshes, irrigated lands, and tules. For nesting, they select shallow marshes with scattered areas of taller emergent vegetation such as cattail, bur-reed, or bulrush.	Suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is within the BSA from 2021.	**High(foraging)/ Low (nesting)**
Polioptila californica californica	coastal California gnatcatcher	**FT, SSC, WRCMSHCP**	Obligate, permanent resident of coastal sage scrub below 2500 feet in southern California. Low, coastal sage scrub in arid washes and on mesas and slopes with California sagebrush (*Artemisia californica*) as a dominant or co-dominant species. Not all areas classified as coastal sage scrub are occupied.	Suitable foraging and nesting habitat occur within the BSA. Observed in coastal sage scrub habitat during 2021 surveys.	**Present**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Setophaga petechia	yellow warbler	**SSC, BCC, WRCMSHCP**	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets and in other riparian plants including cottonwoods, sycamores, ash, and alders.	Suitable foraging and nesting habitat occur within the BSA. This species was observed in riparian habitat in the BSA during protocol bird surveys.	**Present**
Spinus lawrencei	Lawrence's goldfinch	**BCC**	Oak, pinyon-juniper woodlands and chaparral habitats. Breed in streamside trees, oak woodland, open pine woods, pinyon-juniper woods, and chaparral. Often found close to water.	Suitable habitat occurs within the BSA. This species was observed in riparian habitat in the BSA during protocol bird surveys Observed during protocol riparian bird surveys.	**Present**
Vireo bellii pusillus	least Bell's vireo	**FE, SE, WRCMSHCP**	Summer resident of southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, *Baccharis*, mesquite.	Suitable foraging and nesting habitat occur within the BSA. Observed during 2021 biological resources field surveys.	**Present**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
MAMMALS					
Chaetodipus fallax	northwestern San Diego pocket mouse	**SSC, WRCMSHCP**	Restricted to the central and northern Baja California Peninsula and southwestern California. Commonly found in sandy herbaceous areas, usually with coarse gravel. Habitats tend to be stony soils above sandy desert fans and rocky areas within shrub communities such as coastal sage scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent scrub, and annual grassland.	Marginally suitable habitat occurs within the BSA; however, substrates are not ideal. The nearest and most recent recorded occurrence is approximately 3.47 miles south, southeast of the BSA from 2001.	**Low**
Dipodomys stephensi	Stephens' kangaroo rat	**FE, ST, WRCMSHCP**	Require annual grasses for feeding. Prefer sparse perennial plant cover and firm soils. Often occupy abandoned pocket gopher burrows.	Limited marginally suitable foraging and nesting habitat occurs within the BSA. The nearest recorded occurrence is approximately 2.61 miles east of the BSA from 1992.	**Low**
Eumops perotis californicus	western mastiff bat	**SSC**	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	Suitable foraging and roosting habitat occur within the BSA. The nearest recorded occurrence is approximately 2.92 miles west, southwest of the BSA from 1992.	**Moderate**
Lasiurus xanthinus	western yellow bat	**SSC**	Prefer riparian woodland habitat, especially with palm trees (for roosting). Also occupy cottonwood-willow riparian woodlands.	Suitable foraging and roosting habitat occur within the BSA. The nearest and most recent recorded occurrence is approximately 1.14 miles southeast of the BSA from 1999.	**Moderate**

Special-Status Biological Resources

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Lepus californicus bennettii	San Diego black-tailed jackrabbit	**SSC, WRCMSHCP**	Occurs primarily in arid regions with short grass. Preferred habitats include open grasslands, agricultural fields, and sparse coastal scrub.	Marginally suitable habitat occurs within the BSA. The nearest and most recent recorded occurrence is approximately 9.24 miles east of the BSA from 2001.	**Moderate**
Myotis yumaensis	Yuma myotis	**SA**	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings, or crevices.	Suitable foraging habitat occurs within the BSA however the preferred habitat for maternity colonies is absent. The nearest recorded occurrence is approximately 7.20 miles east, southeast of the BSA form 1997.	**Low**
Nyctinomops femorosaccus	pocketed free-tailed bat	**SSC**	Variety of arid areas in southern California; pinyon-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. rocky areas with high cliffs.	Suitable habitat does not occur within the BSA. The nearest recorded occurrence is approximately 1.14 miles southeast of the BSA from 1986.	**Not Likely to Occur**

Sources: CDFW 2021a, 2021b, 2021c, 2021e; Cornell 2021, WRCMSHCP 2015

Federal Rankings:
FE = Federally Endangered
FT = Federally Threatened
FC = Federal Candidate for Listing
BCC = USFWS Bird of Conservation Concern
BGEPA = Bald and Golden Eagle Protection Act
Delisted = removed from federal listing

County:
WRCMSHCP = Western Riverside County MSHCP covered

State Rankings:
FP = Fully Protected
SE= State Endangered
ST = State Threatened
SA = CDFW Special Animal
SC = State Candidate for Listing
WL = CDFW Watch List
SSC = Species of Special Concern
Delisted = removed from state listing

Table 8 WRCMSHCP Covered Species likely to Occur in the BSA[1]

Scientific Name	Common Name
BIRDS	
black-crowned night heron	*Picoides pubescens*
downy woodpecker	Tachycineta bicolor
tree swallow	*Tachycineta bicolor*
turkey vulture	*Cathartes aura*
Wilson's warbler	*Wilsonia pusilla*
MAMMALS	
bobcat	*Lynx rufus*
coyote	*Canis latrans*
long-tailed weasel	*Mustela frenata*

Note: [1] = If a WRCMSHCP covered species is listed in Table 7, it is not repeated in this table.

5.5 WILDLIFE CORRIDORS AND SPECIAL LINKAGES

Linkages and corridors facilitate regional animal movement and are generally centered in or around waterways, riparian corridors, flood control channels, contiguous habitat, and upland habitat. Drainages generally serve as movement corridors because wildlife can move easily through these areas, and fresh water is available. Corridors also offer wildlife unobstructed terrain for foraging and for dispersal of young individuals.

As the movements of wildlife species are more intensively studied using radio-tracking devices, there is mounting evidence that some wildlife species do not necessarily restrict their movements to some obvious landscape element, such as a riparian corridor. For example, recent radio-tracking and tagging studies of Coast Range newts (*Taricha torosa*), California red-legged frogs (*Rana draytoni*), western pond turtles (*Emys marmorata*), and two-striped garter snakes (*Thamnophis hammondii*) found that long-distance dispersal involved radial or perpendicular movements away from a water source with little regard to the orientation of the assumed riparian "movement corridor" (Hunt 1993; Rathbun et al., 1992; Bulger et al. 2002; Trentham 2002; Ramirez 2003). Likewise, carnivores do not necessarily use riparian corridors as movement corridors, frequently moving overland in a straight line between two points when traversing large distances (Newmark 1995; Beier 1993, 1995; Noss et al. 1996; Noss et al. no date). In general, the following corridor functions can be utilized when evaluating impacts to wildlife movement corridors:

- Movement corridors are physical connections that allow wildlife to move between patches of suitable habitat. Simberloff et al. (1992) and Beier and Loe (1992) correctly state that, for most species, we do not know what corridor traits (length, width, adjacent land use, etc.) are required for a corridor to be useful. But, as Beier and Loe (1992) also note, the critical features of a movement corridor may not be its physical traits but rather how well a particular piece of land fulfills several functions, including allowing dispersal, plant propagation, genetic interchange, and recolonization following local extirpation.
- Dispersal corridors are relatively narrow, linear landscape features embedded in a dissimilar matrix that links two or more areas of suitable habitat that would otherwise be fragmented and isolated from one another by rugged terrain, changes in vegetation, or human-altered environments. Corridors of

habitat are essential to the local and regional population dynamics of a species because they provide physical links for genetic exchange and allow animals to access alternative territories as dictated by fluctuating population densities.

- Habitat linkages are broader connections between two or more habitat areas. This term is commonly used as a synonym for a wildlife corridor (Meffe and Carroll 1997). Habitat linkages may themselves serve as source areas for food, water, and cover, particularly for small- and medium-size animals.
- Travel routes are usually landscape features, such as ridgelines, drainages, canyons, or riparian corridors within larger natural habitat areas that are used frequently by animals to facilitate movement and provide access to water, food, cover, den sites, or other necessary resources. A travel route is generally preferred by a species because it provides the least amount of topographic resistance in moving from one area to another yet still provides adequate food, water, or cover (Meffe and Carroll 1997).

5.5.1 Wildlife Movement in the BSA

The BSA is located within the Santa Ana River floodplain, which has been identified as an important wildlife movement corridor/riparian linkage (Penrod et al. 2001) and is part of a large area of open space within an otherwise heavily developed region. This corridor joins upland and riparian habitats. It joins the San Bernardino Mountains in the north to the Chino Hills, and by extension the Santa Ana Mountains, to the south, and Orange County to the west. Therefore, the riparian corridor, including the BSA, would be expected to experience substantial wildlife movement as fauna travel between these mountainous regions of southern California. Within the BSA, the lack of structures or other significant development and the presence of relatively intact habitat and features such as ephemeral drainages and unpaved roads all facilitate the unimpeded movement of wildlife throughout the area. The east/west corridor of the Santa Ana River floodplain is also important due to SR-91 and developed area surrounding the BSA impeding wildlife movement, especially movement south of the BSA.

6.0 REFERENCES

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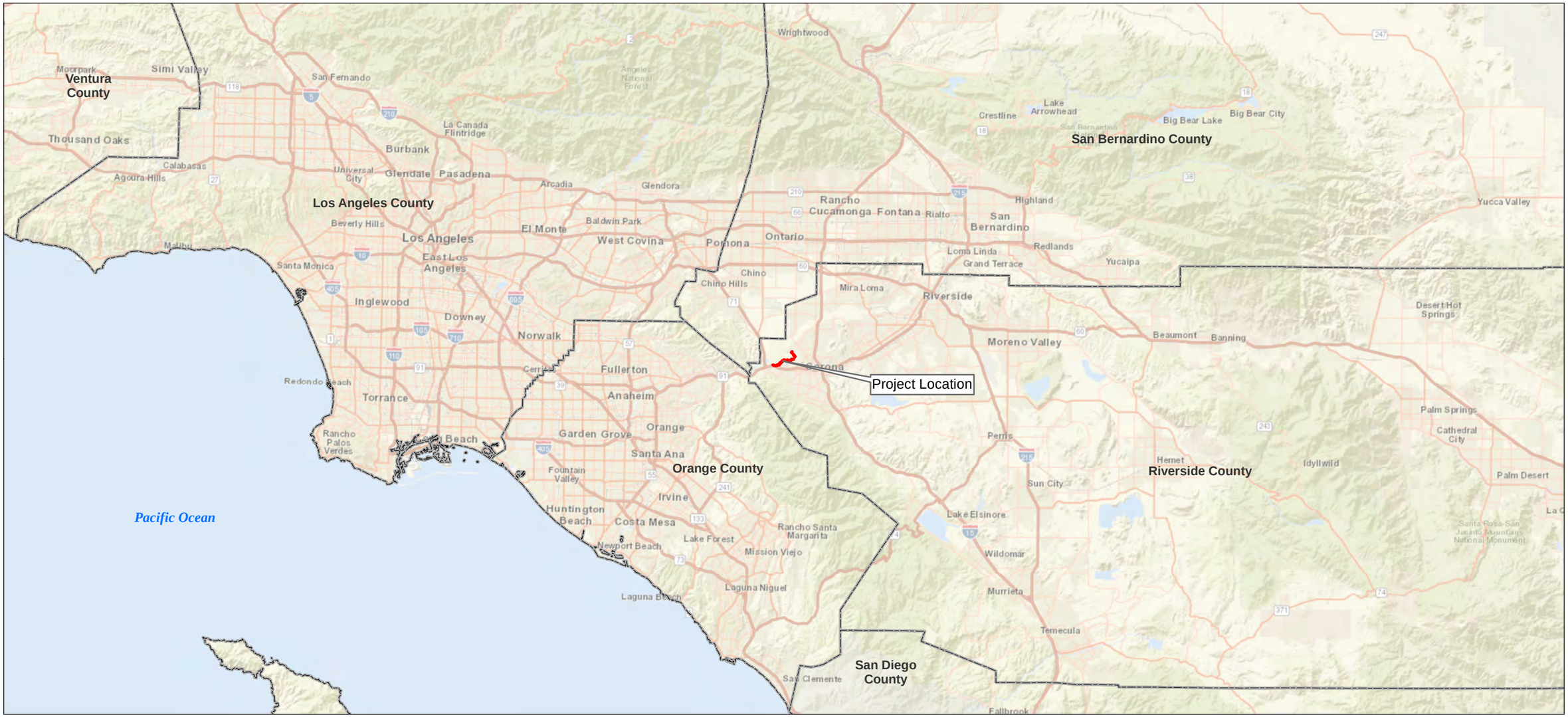
Appendix A FIGURES



Project Location

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Stantec

Project Location	Prepared by DL on 2022-06-29
Near Corona	TR by SET on 2022-06-29
Riverside County, California	IR by JV on 2022-06-29
Client/Project	2042483140
Riverside County Regional Park & Open-Space District	
Santa Ana River Trail Project	
Biolgical Resources Technical Report	
Figure No.	
1	
Title	
Regional Location	

Notes

1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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△ Phase 2A End Location / Phase 3A Start Location

Railroad

Proposed Action (2022 Trail-60% Design)

Temporary Impact (54.00 ac.)

Permanent Impact (11.54 ac.)

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Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
TR by SET on 2022-06-29
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2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biolgical Resources Technical Report

Figure No.
2 - 0

Title
Site Plan

Notes
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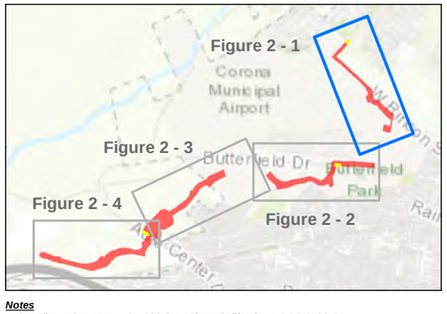
2. Data Sources:Stantec 2021.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Proposed Action (2022 Trail-60% Design)

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- Permanent Impact (11.54 ac.)

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Project Location
Near Corona
Riverside County, California

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Santa Ana River Trail Project
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Figure No.
2 - 1

Title
Plan Sheet 1

Notes
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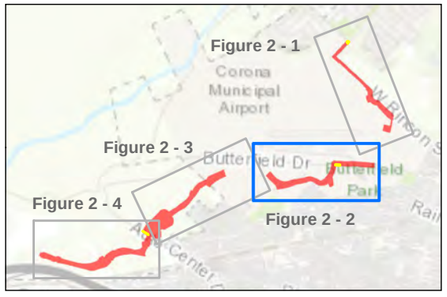

Proposed Action (2022 Trail-60% Design)

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- Permanent Impact (11.54 ac.)

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Project Location	Prepared by DL on 2022-06-29
Near Corona	TR by SET on 2022-06-29
Riverside County, California	IR by JV on 2022-06-29
Client/Project	2042483140
Riverside County Regional Park & Open-Space District	
Santa Ana River Trail Project	
Biological Resources Technical Report	
Figure No.	**2 - 2**
Title	**Plan Sheet 2**

Notes

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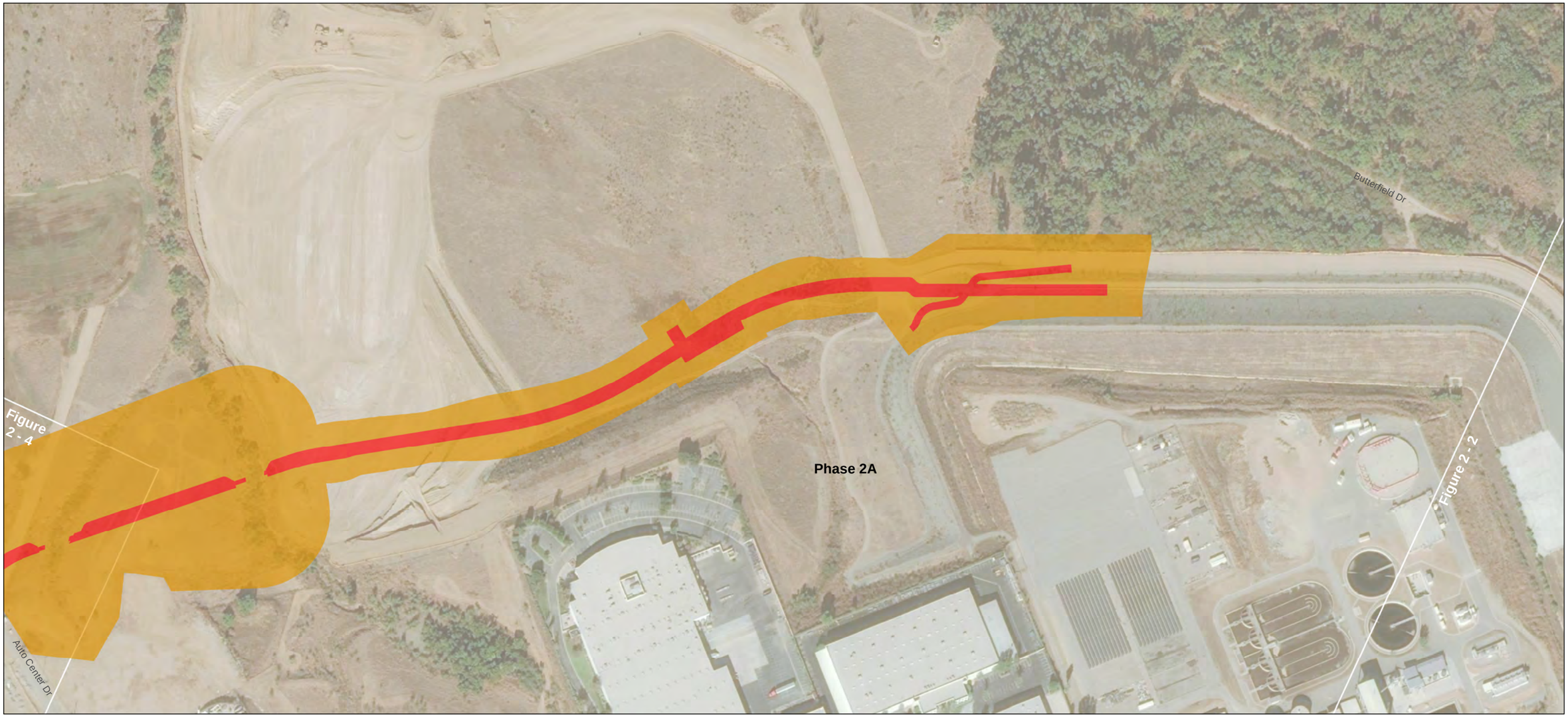

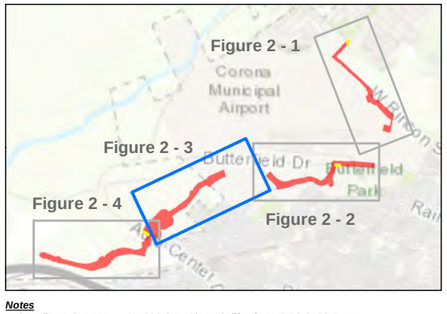

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Figure No.
2 - 3

Title
Plan Sheet 3

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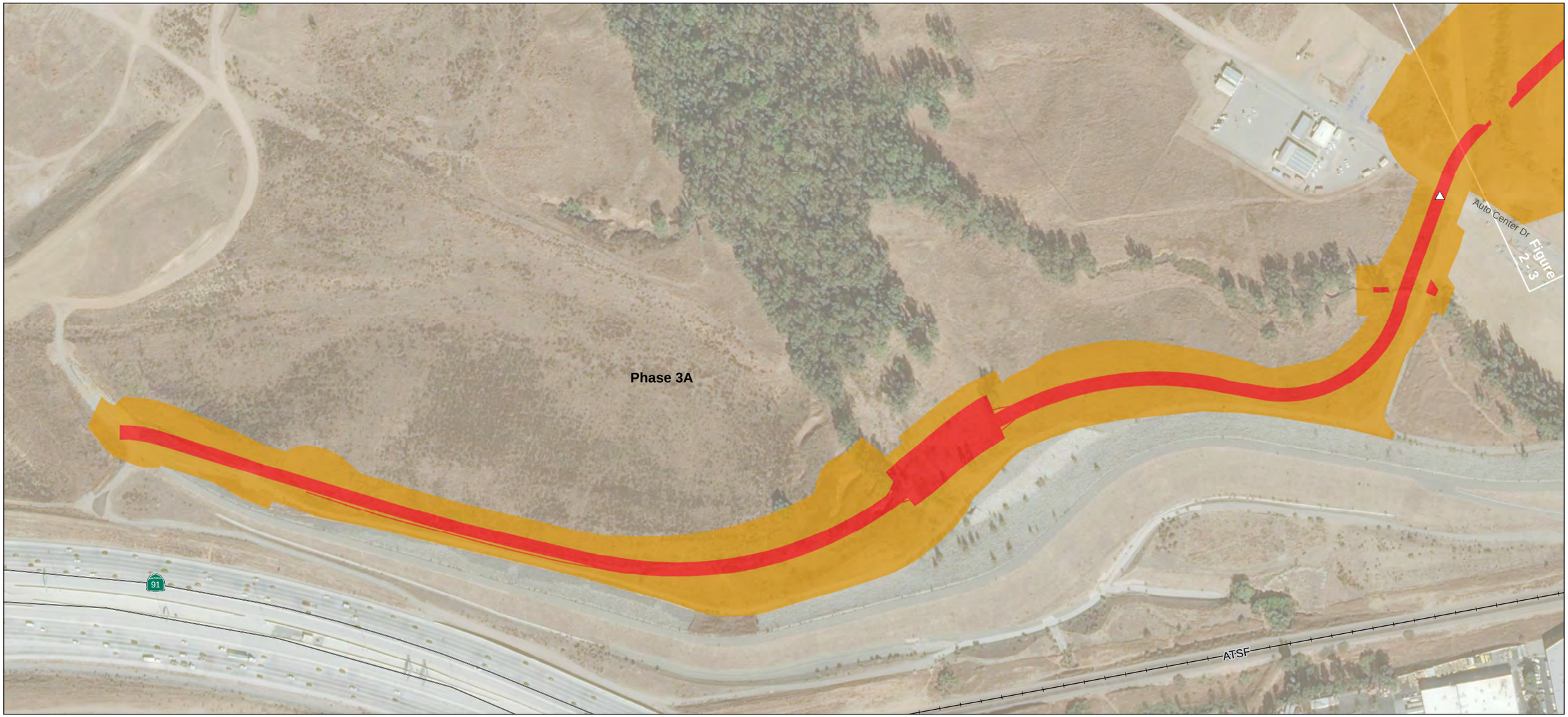

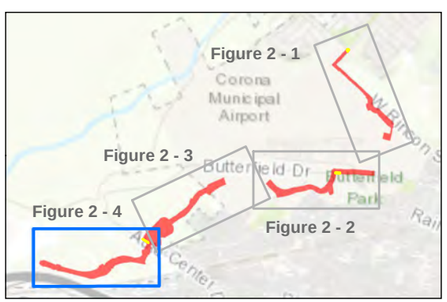

△ Phase 2A End Location / Phase 3A Start Location

Railroad

Proposed Action (2022 Trail-60% Design)

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Permanent Impact (11.54 ac.)

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Project Location
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Riverside County Regional Park & Open-Space District
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Biological Resources Technical Report

Figure No.
2 - 4

Title
Plan Sheet 4

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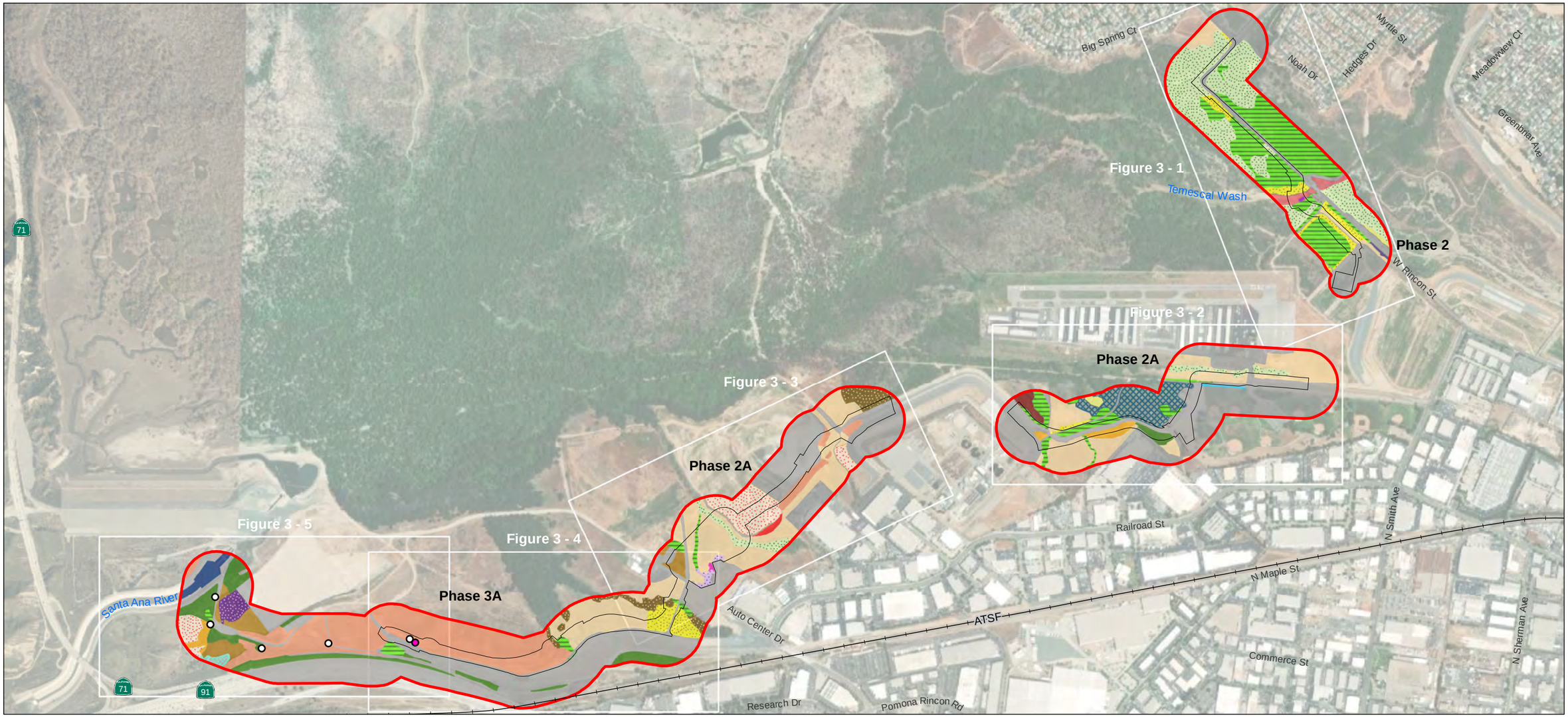

- Biological Survey Area
- Project Footprint

Special-Status Species

- Coastal California Gnatcatcher
- Paniculate Tarplant

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- California buckwheat scrub
- California sagebrush scrub
- Cheeseweed flats
- Coyote brush scrub
- Disturbed/Developed
- Elderberry stands
- Eucalyptus groves
- Giant reed stands
- Menzie's goldenbush scrub
- Mulefat thickets
- Non-vegetated channel
- Open water
- Partially vegetated channel
- Perennial pepperweed patches
- Poison hemlock or fennel patches
- Restoration
- Ruderal
- Shining willow groves
- Smartweed-cocklebur patches
- Tamarisk thickets
- Upland mustards or star-thistle fields
- Western ragweed meadow
- Wild oats and annual brome grasslands

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Notes

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Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
3 - 0

Title
Biological Resources

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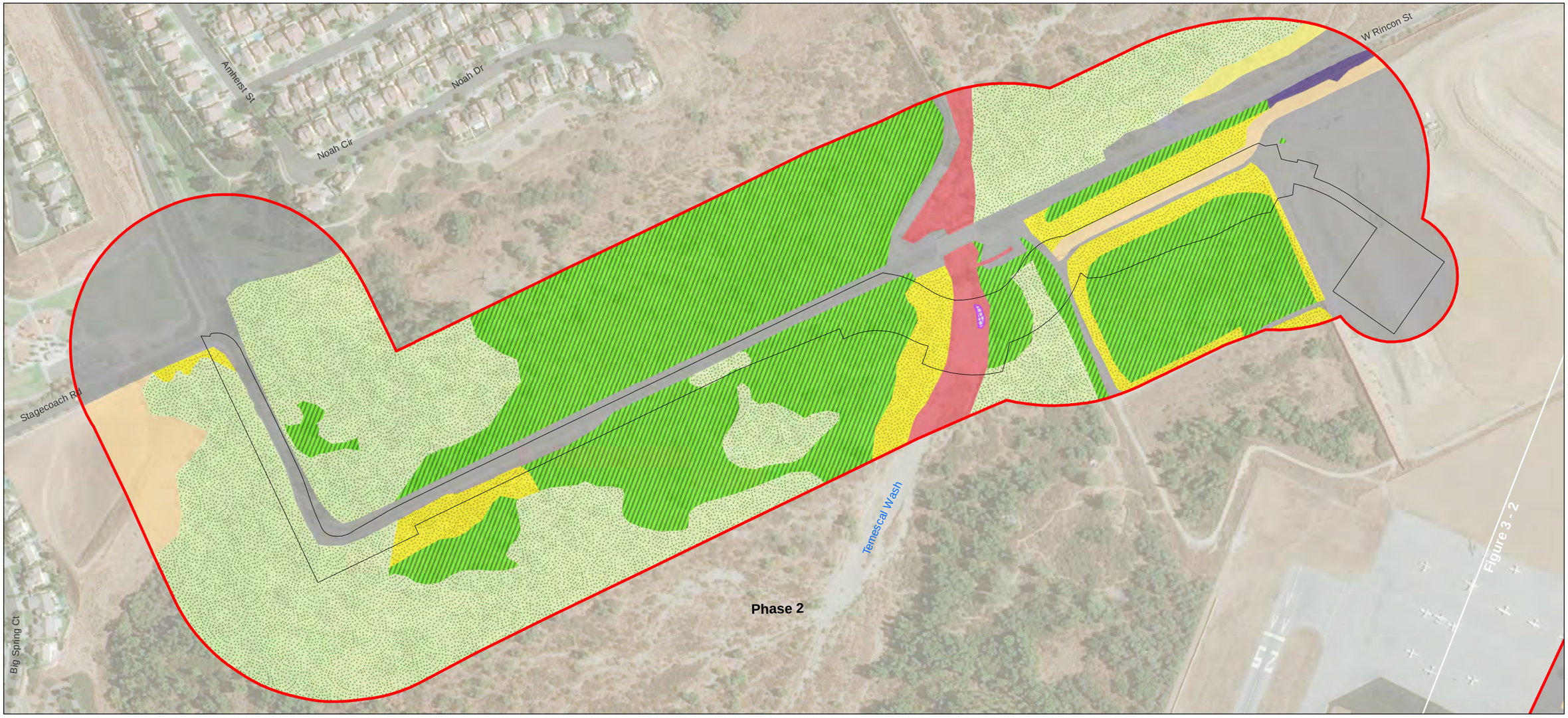

Biological Survey Area
Project Footprint

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- Disturbed/Developed
- Giant reed stands
- Mulefat thickets
- Partially vegetated channel
- Smartweed-cocklebur patches
- Tamarisk thickets
- Upland mustards or star-thistle fields
- Wild oats and annual brome grasslands

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Notes
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2. Data Sources:Stantec 2021.
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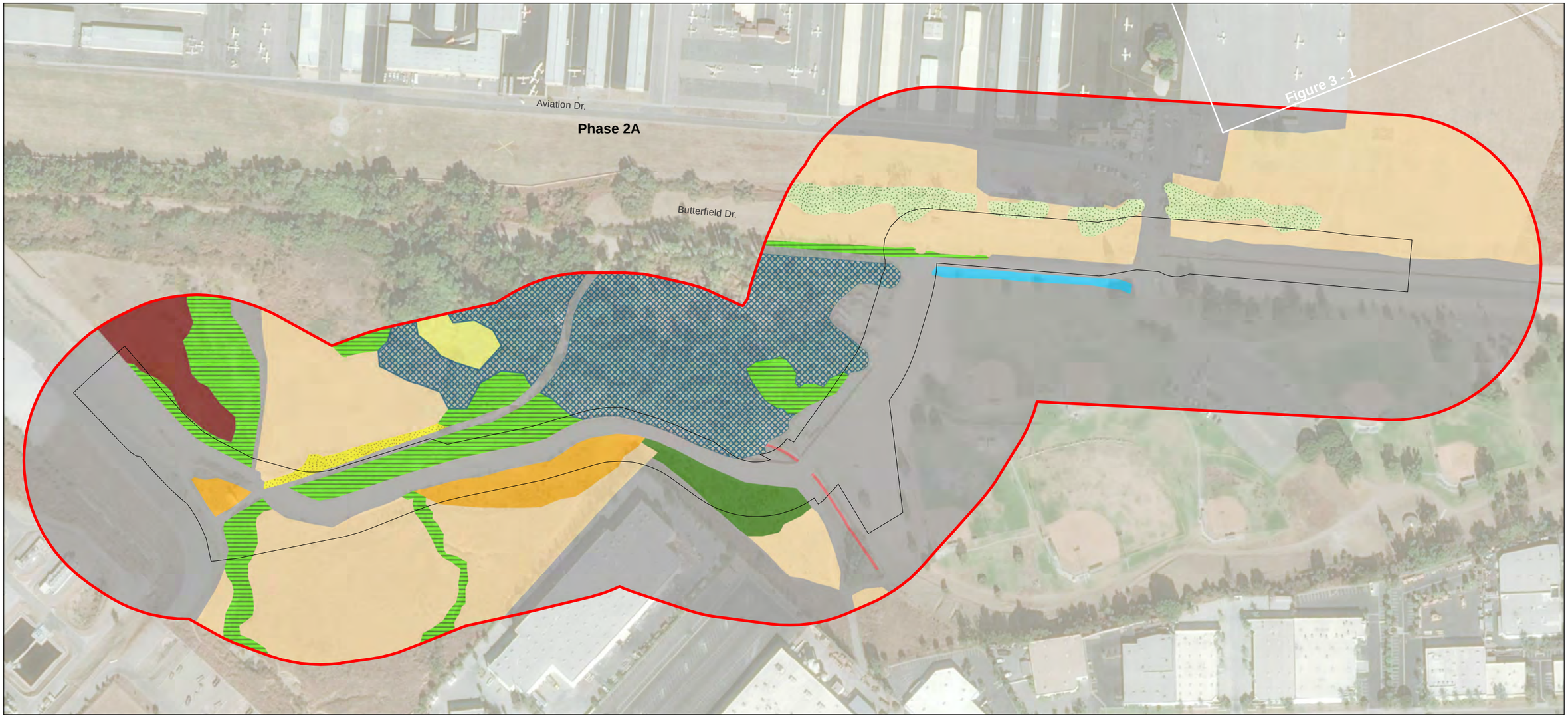
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure
3 - 1

Title
Biological Resources



Biological Survey Area
Project Footprint

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- California buckwheat scrub
- Coyote brush scrub
- Disturbed/Developed
- Giant reed stands
- Menzie's goldenbush scrub
- Mulefat thickets
- Non-vegetated channel
- Partially vegetated channel
- Shining willow groves
- Upland mustards or star-thistle fields
- Wild oats and annual brome grasslands

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Notes

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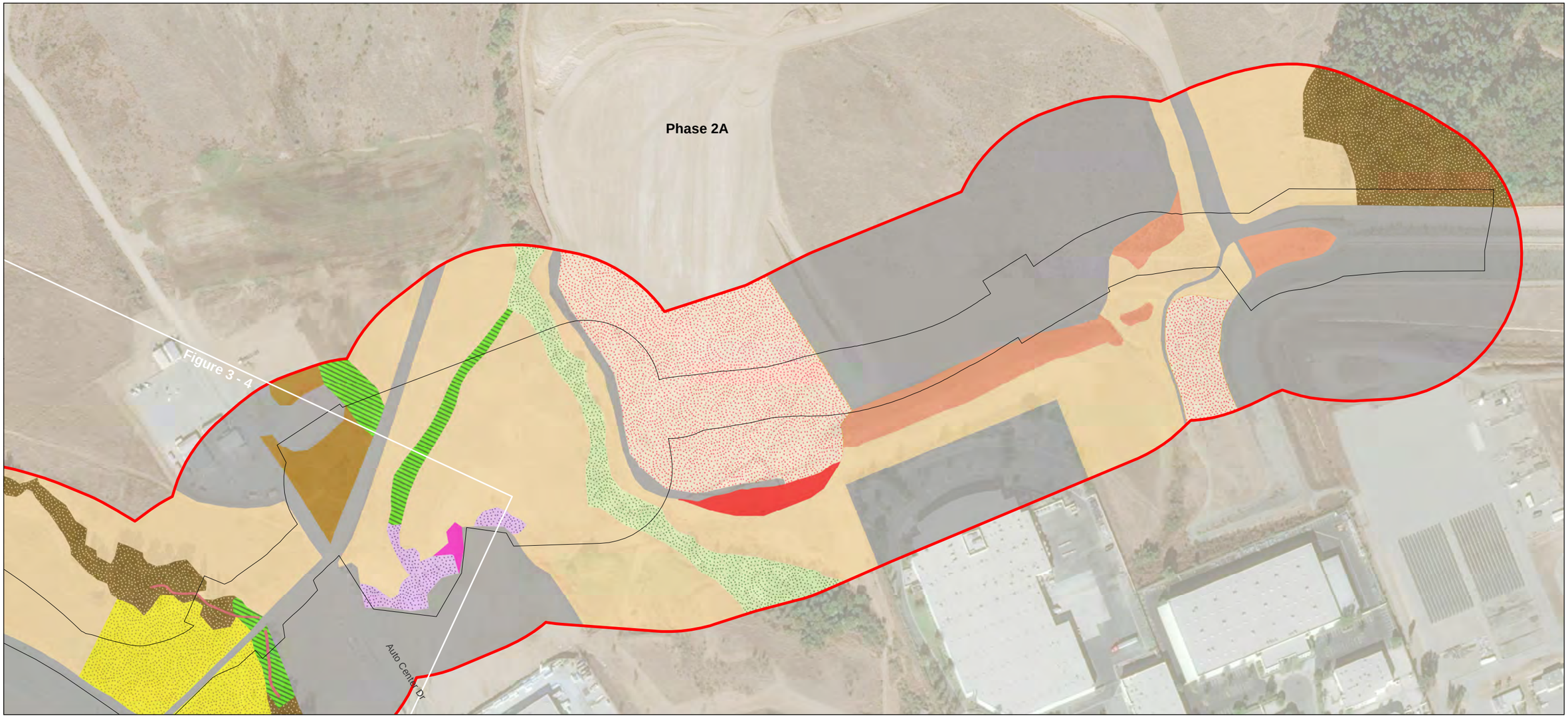
Client/Project 2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure
3 - 2

Title
Biological Resources



Biological Survey Area
Project Footprint

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- California sagebrush scrub
- Cheeseweed flats
- Disturbed/Developed
- Eucalyptus groves
- Mulefat thickets
- Partially vegetated channel
- Perennial pepperweed patches
- Poison hemlock or fennel patches
- Restoration
- Ruderal
- Upland mustards or star-thistle fields
- Wild oats and annual brome grasslands

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Notes
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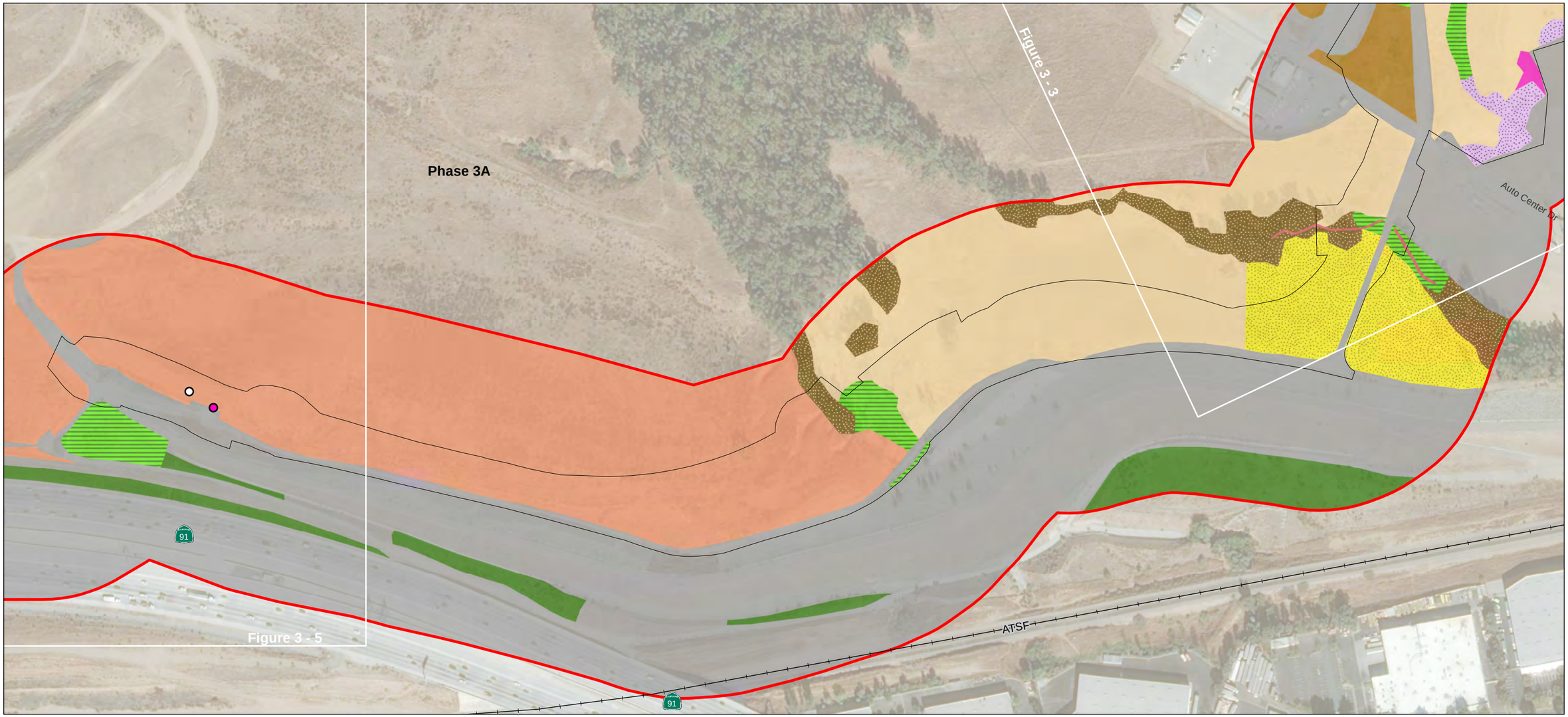
Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure
3 - 3

Title
Biological Resources



- Biological Survey Area
- Project Footprint
- Railroad

Special-Status Species

- Coastal California Gnatcatcher
- Paniculate Tarplant

Vegetation Communities and Land Cover Types

- California buckwheat scrub
- California sagebrush scrub
- Disturbed/Developed
- Eucalyptus groves
- Mulefat thickets
- Partially vegetated channel
- Perennial pepperweed patches
- Poison hemlock or fennel patches
- Ruderal
- Upland mustards or star-thistle fields
- Wild oats and annual brome grasslands

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Notes

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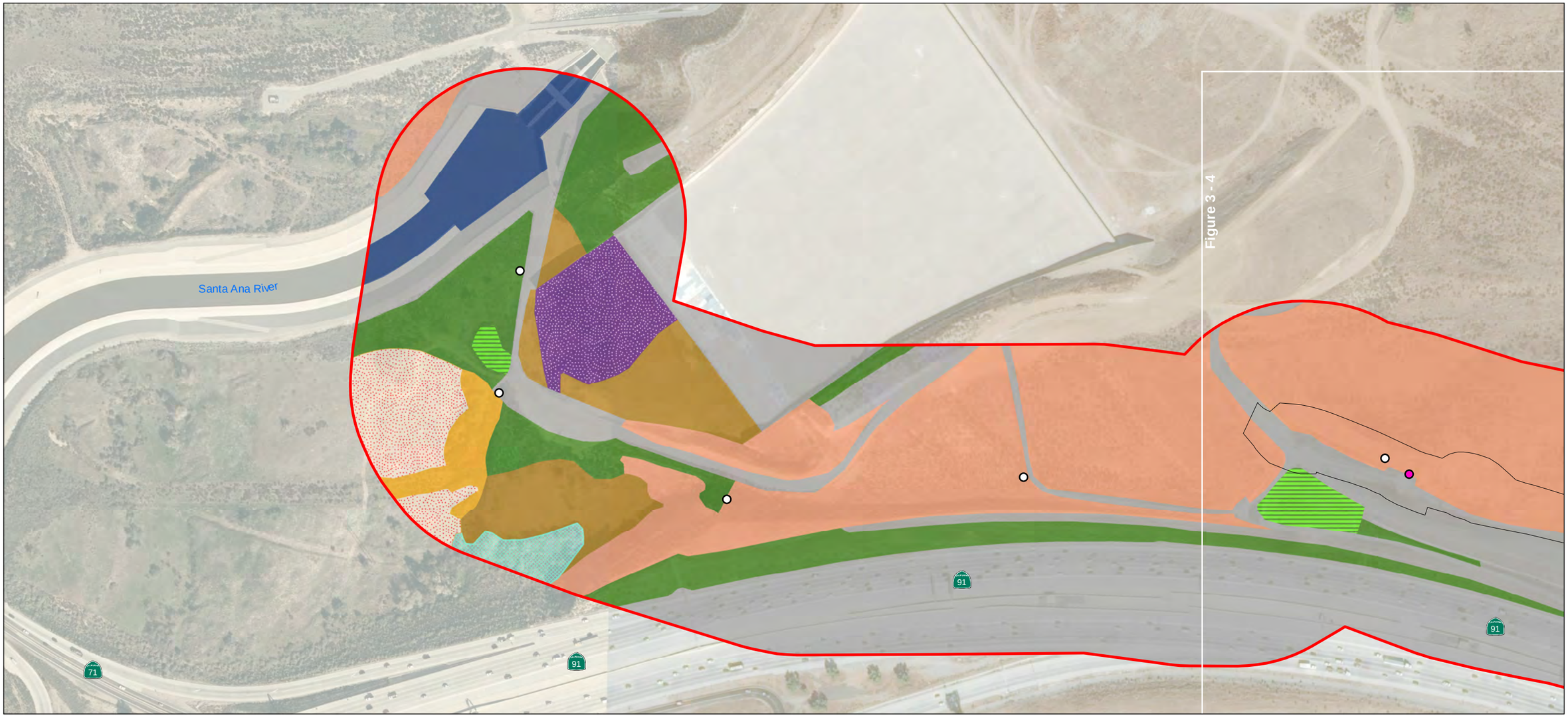
Client/Project
2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure
3 - 4

Title
Biological Resources



Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

- Biological Survey Area
- Project Footprint

Special-Status Species
- Coastal California Gnatcatcher
- Paniculate Tarplant

Vegetation Communities and Land Cover Types
- California buckwheat scrub
- California sagebrush scrub
- Coyote brush scrub
- Disturbed/Developed
- Elderberry stands
- Mulefat thickets
- Open water
- Restoration
- Ruderal
- Western ragweed meadow

0 270 540 Feet

(At original document size of 11x17)
1:3,240

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
TR by SET on 2022-06-29
IR by JV on 2022-06-29

Client/Project 2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure
3 - 5

Title
Biological Resources

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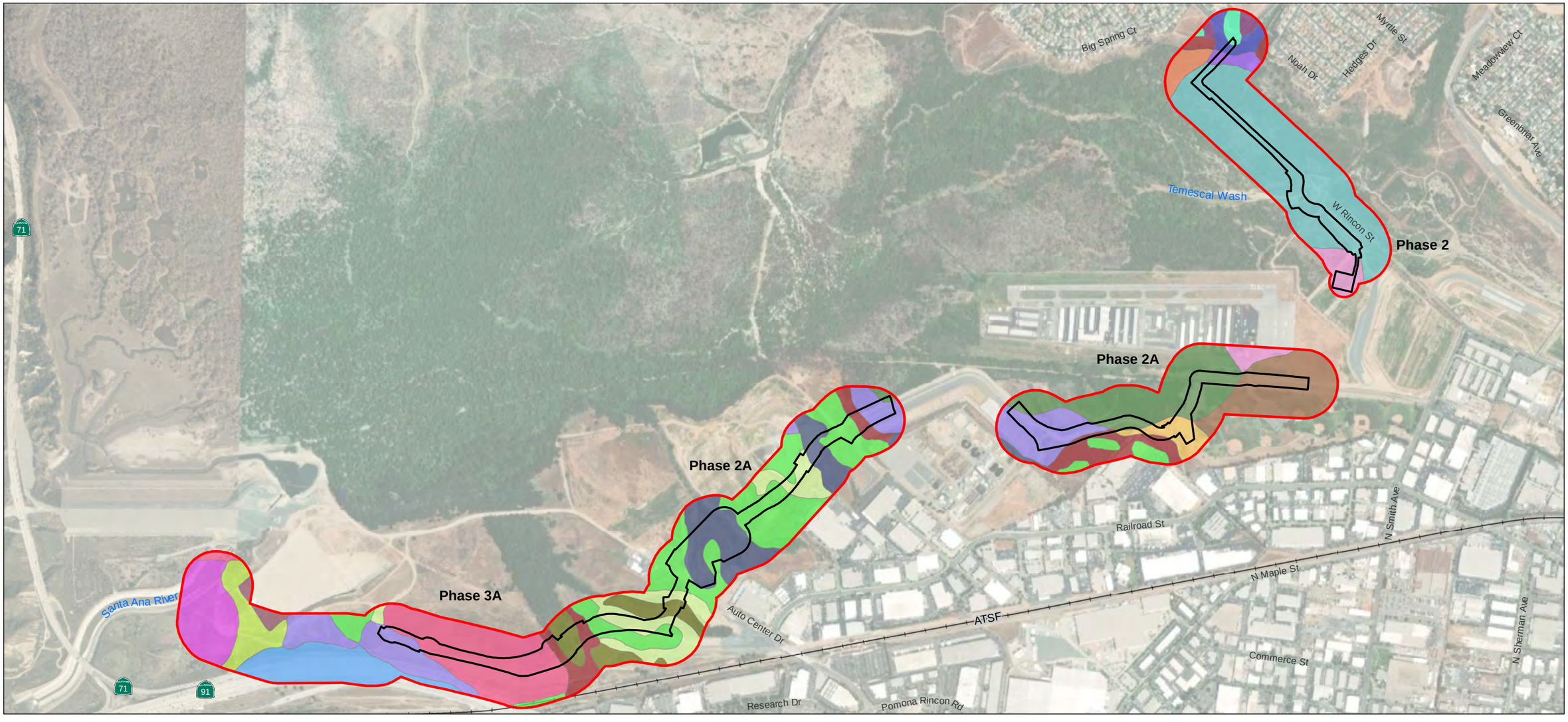

- Biological Survey Area
- Project Footprint
- Railroad

Soils Map Unit Symbol

- AkC; Arbuckle loam, 2 to 8 percent slopes
- AkD; Arbuckle loam, 8 to 15 percent slopes
- AlC; Arbuckle gravelly loam, 2 to 9 percent slopes, dry, MLRA 19
- AlE3; Arbuckle gravelly loam, 2 to 25 percent slopes, severely eroded
- BP; Borrow Pit
- DAM; Dams
- GaC; Garretson very fine sandy loam, 2 to 8 percent slopes
- GfF2; Gaviota very fine sandy loam, 15 to 50 percent slopes, eroded
- GrB; Grangeville sandy loam, sandy substratum, drained, 0 to 5 percent slopes
- GvB; Grangeville fine sandy loam, saline-alkali, 0 to 5 percent slopes
- HcC; Hanford coarse sandy loam, 2 to 8 percent slopes
- MdC; Metz loamy sand, 2 to 8 percent slopes
- MgB; Metz loamy fine sand, gravelly sand substratum, 0 to 5 percent slopes
- MhB; Metz loamy fine sand, sandy loam substratum, 0 to 5 per cent slopes
- PeC; Perkins loam, 2 to 8 percent slopes
- PgD2; Perkins gravelly loam, 8 to 15 percent slopes, eroded
- RaD2; Ramona sandy loam, 8 to 15 percent slopes, eroded
- RaD3; Ramona sandy loam, 8 to 15 percent slopes, severely eroded
- SeC2; San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded
- SgA; San Emigdio loam, 0 to 2 percent slopes
- TeG; Terrace escarpments

Notes

1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.NRCS 2021.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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(At original document size of 11x17)
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N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
TR by SET on 2022-06-29
IR by JV on 2022-06-29

Client/Project 2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
4

Title
Historical Soils

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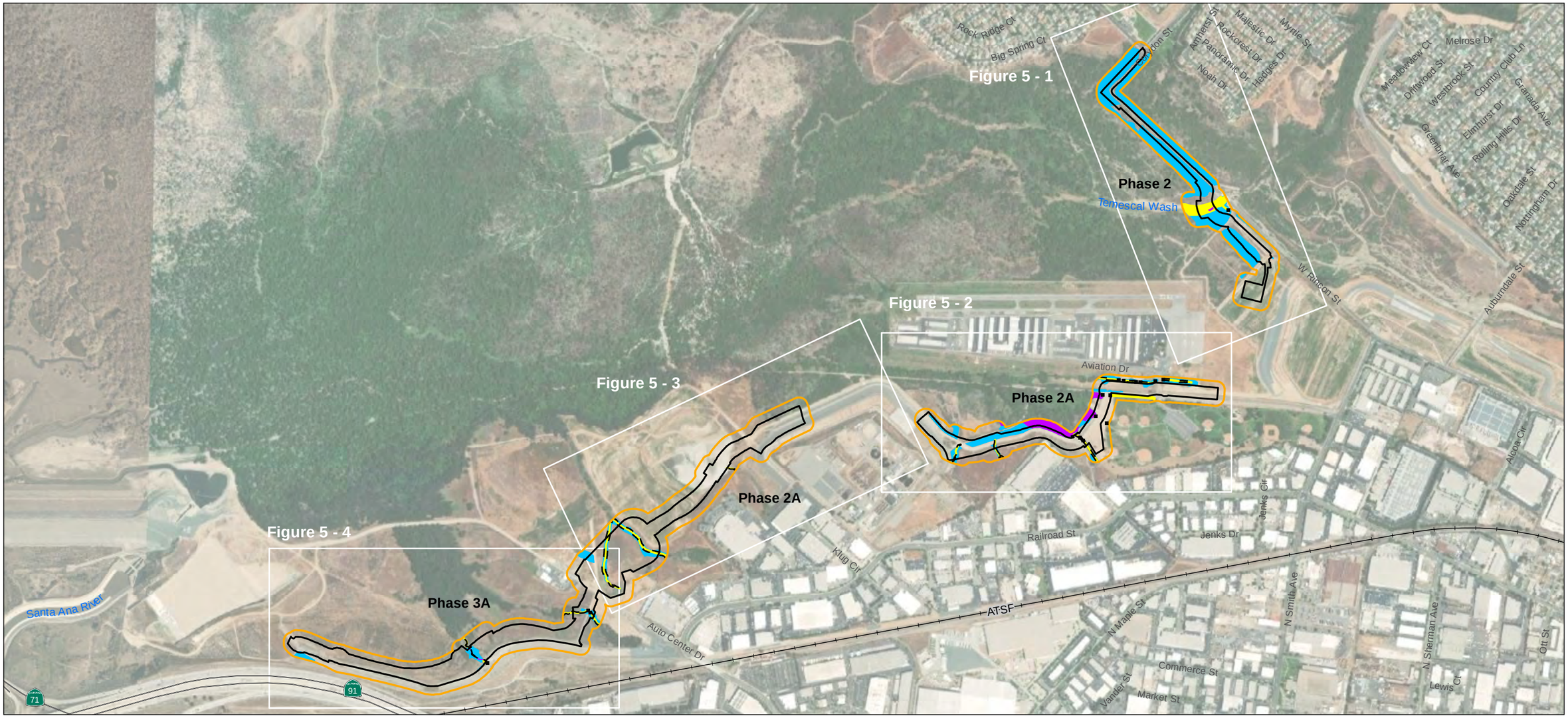

- Aquatic Resources Survey Area (100 ft Buffer)
- Project Footprint
- Railroad

Potential RWQCB Jurisdictional Waters

- Waters of the State

Potential CDFW Jurisdictional Waters

- Concrete Channel
- Riparian Wetlands and Waters

Potential USACE Jurisdictional Areas

- Waters of the U.S.
- Wetlands
- Culvert

Notes

1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
TR by SET on 2022-06-29
IR by JV on 2022-06-29

Client/Project
2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biolgical Resources Technical Report

Figure No.
5 - 0

Title
Aquatic Resources

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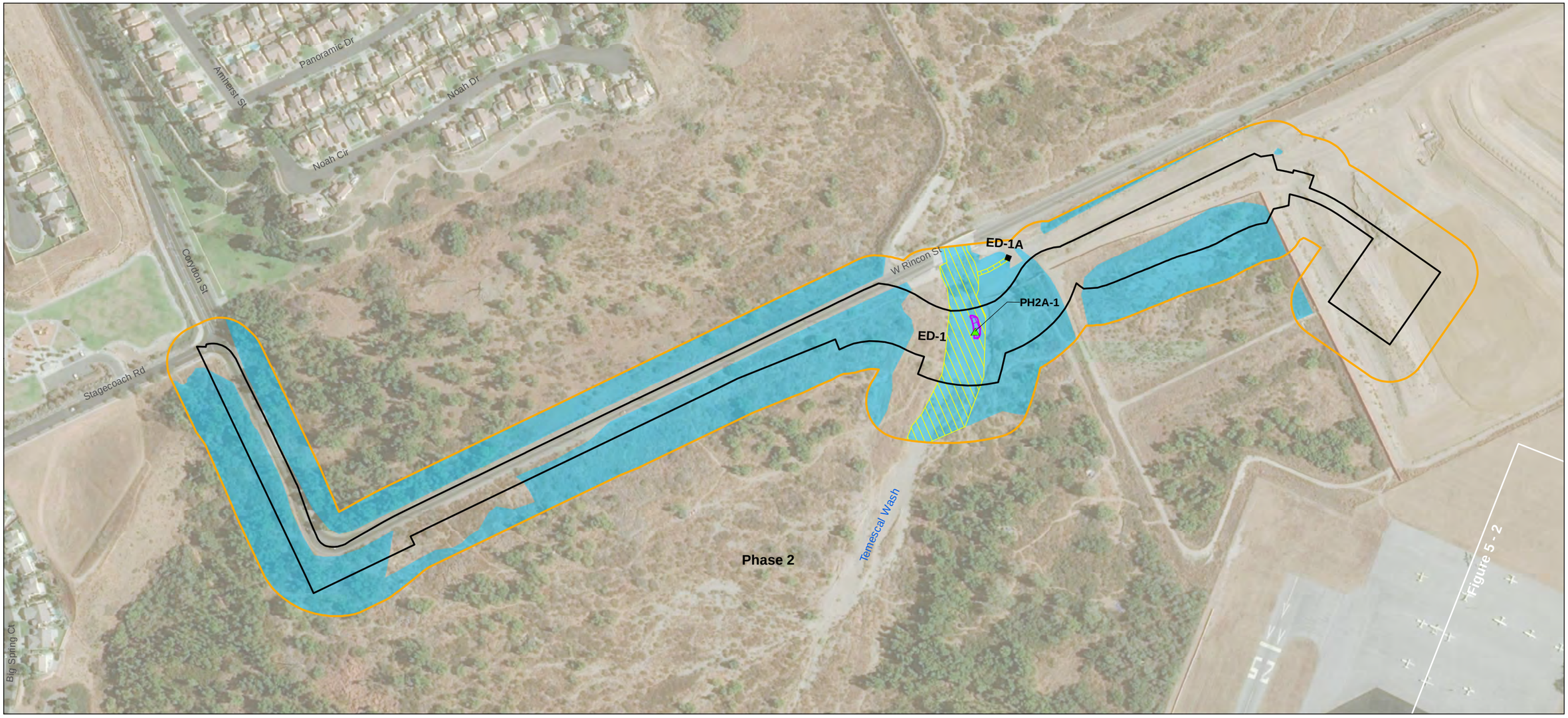

- Aquatic Resources Survey Area (100 ft Buffer)
- Project Footprint

Potential CDFW Jurisdictional Waters

- Riparian Habitat

Potential USACE Jurisdictional Areas

- Waters of the U.S.
- Wetlands
- Culvert

Sample Point

- Wetland

0 270 540 Feet

(At original document size of 11x17)
1:3,240

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
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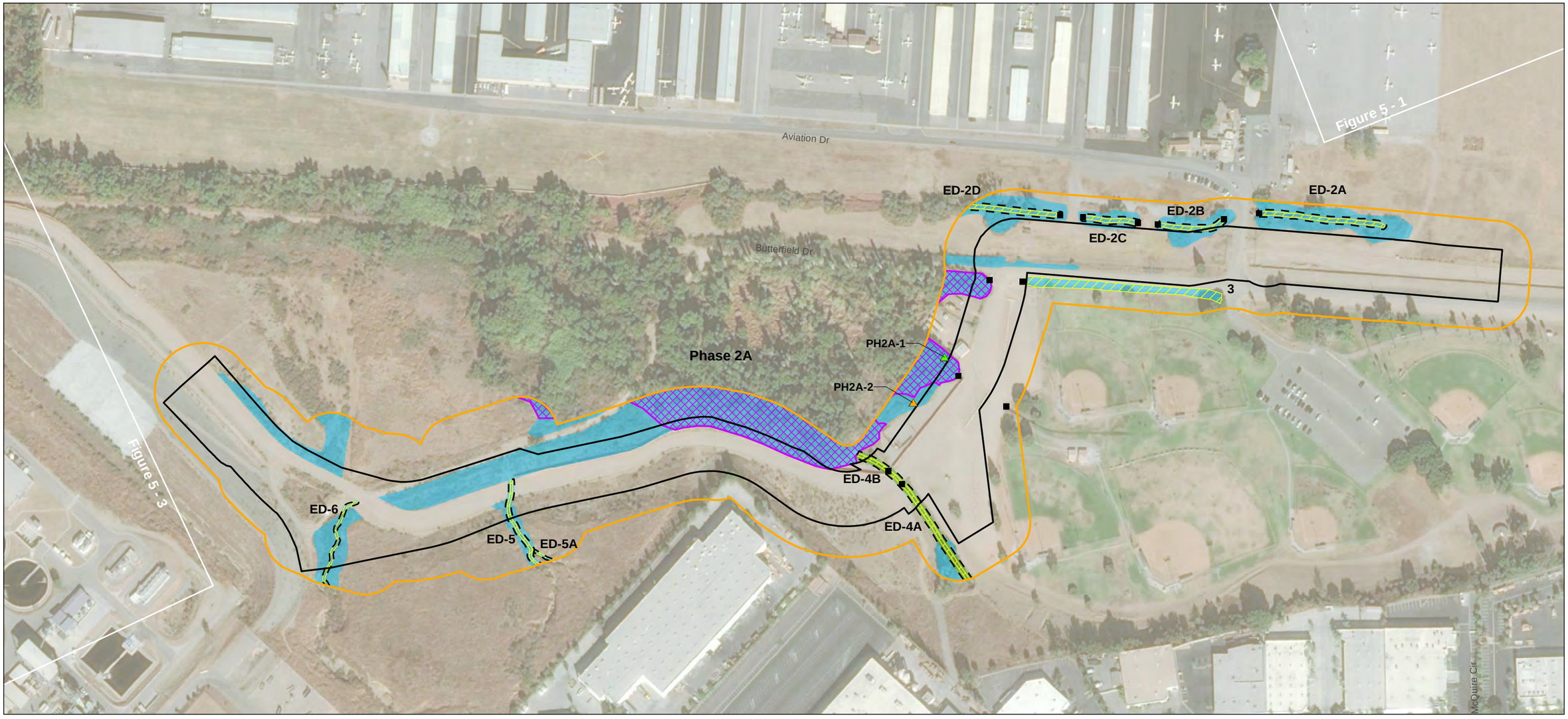
IR by JV on 2022-06-29

Client/Project
2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
5 - 1

Title
Aquatic Resources

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021,2022.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Aquatic Resources Survey Area (100 ft Buffer)
Project Footprint

Potential RWQCB Jurisdictional Waters
Waters of the State

Potential CDFW Jurisdictional Waters
Concrete Channel
Riparian Habitat

Potential USACE Jurisdictional Areas
Waters of the U.S.
Wetlands

Culvert

Sample Point
Non-wetland
Wetland

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021,2022.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
TR by SET on 2022-06-29
IR by JV on 2022-06-29

Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
5 - 2

Title
Aquatic Resources

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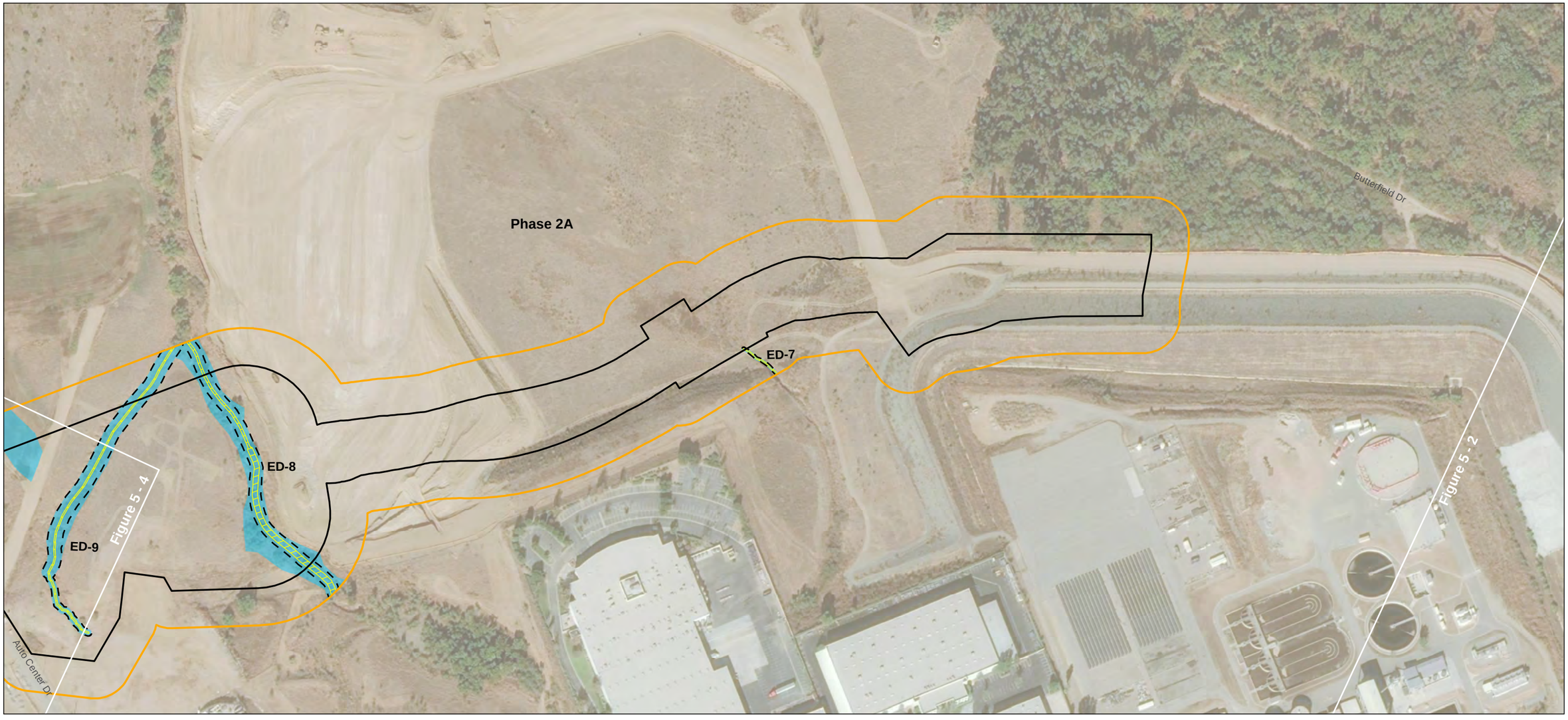

Aquatic Resources Survey Area (100 ft Buffer)

Project Footprint

Potential RWQCB Jurisdictional Waters

Waters of the State

Potential CDFW Jurisdictional Waters

Riparian Habitat

Potential USACE Jurisdictional Areas

Waters of the U.S.

0 270 540 Feet

(At original document size of 11x17)
1:3,240

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
TR by SET on 2022-06-29
IR by JV on 2022-06-29

Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
5 - 3

Title
Aquatic Resources

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021,2022.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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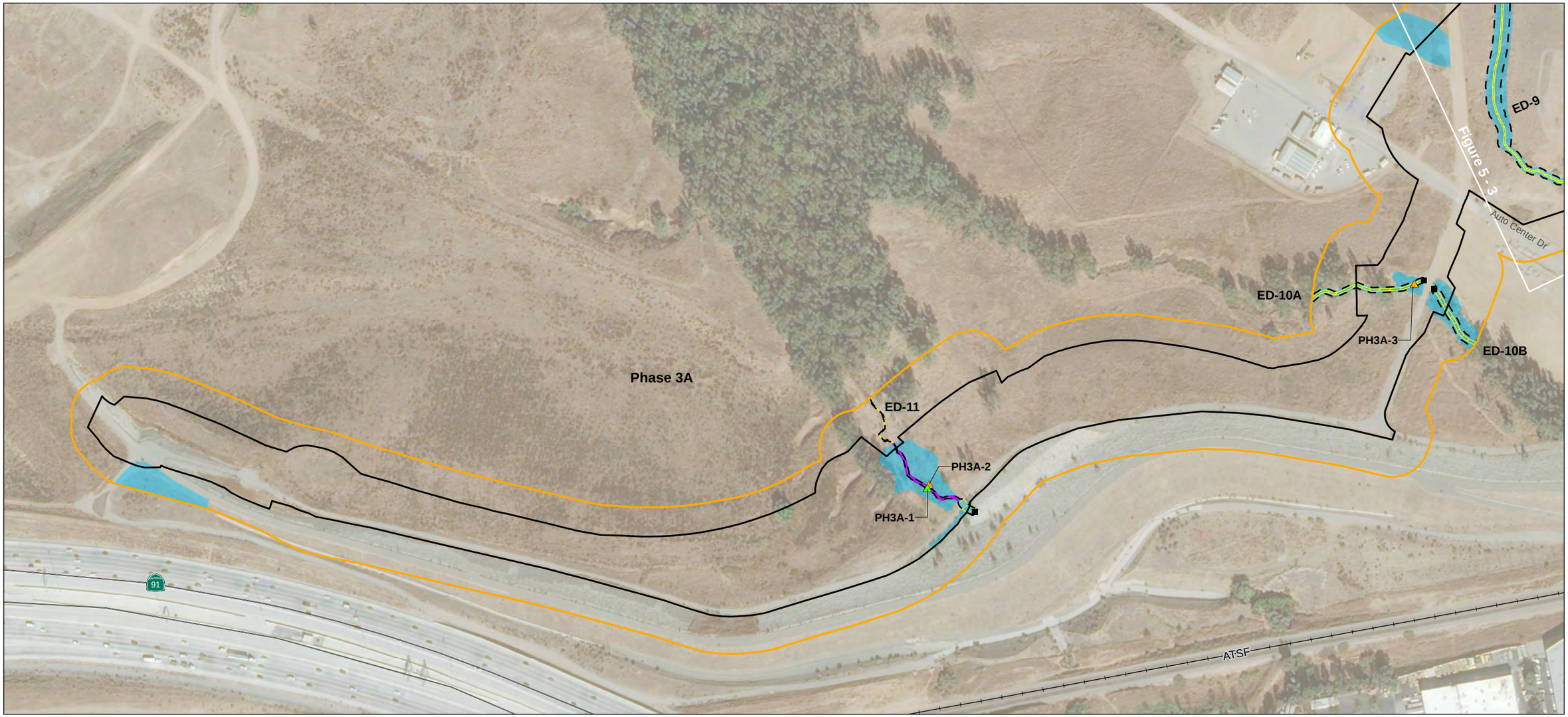

- Aquatic Resources Survey Area (100 ft Buffer)
- Project Footprint
- Railroad

Potential RWQCB Jurisdictional Waters

- Waters of the State

Potential CDFW Jurisdictional Waters

- Riparian Habitat

Potential USACE Jurisdictional Areas

- Waters of the U.S.
- Wetlands
- Culvert

Sample Point

- Non-wetland
- Wetland

0 270 540 Feet

(At original document size of 11x17)
1:3,240

N

Notes

1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021,2022.
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-06-29
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IR by JV on 2022-06-29

Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
5 - 4

Title
Aquatic Resources

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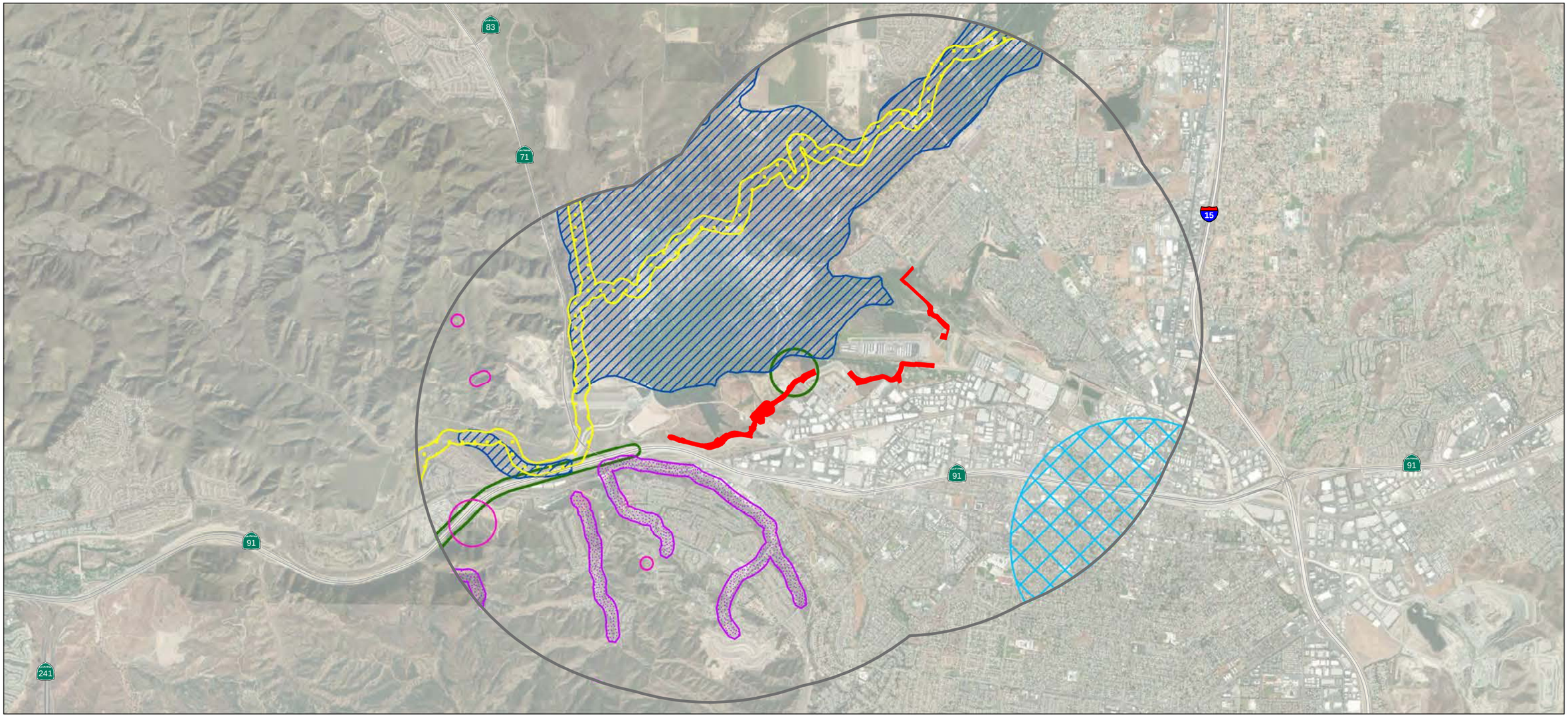

Project Location
2 Mile Search Radius

2 Mile Occurrences

Plants
- Abronia villosa var. aurita
- Dudleya multicaulis
- Lepidium virginicum var. robinsonii
- Sidalcea neomexicana

Terrestrial Communities
- Southern Cottonwood Willow Riparian Forest
- Southern Sycamore Alder Riparian Woodland

Aquatic Community
- Southern California Arroyo Chub/Santa Ana Sucker Stream

0 4,200 8,400 Feet

(At original document size of 11x17)
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Stantec

Project Location
Near Corona
Riverside County, California

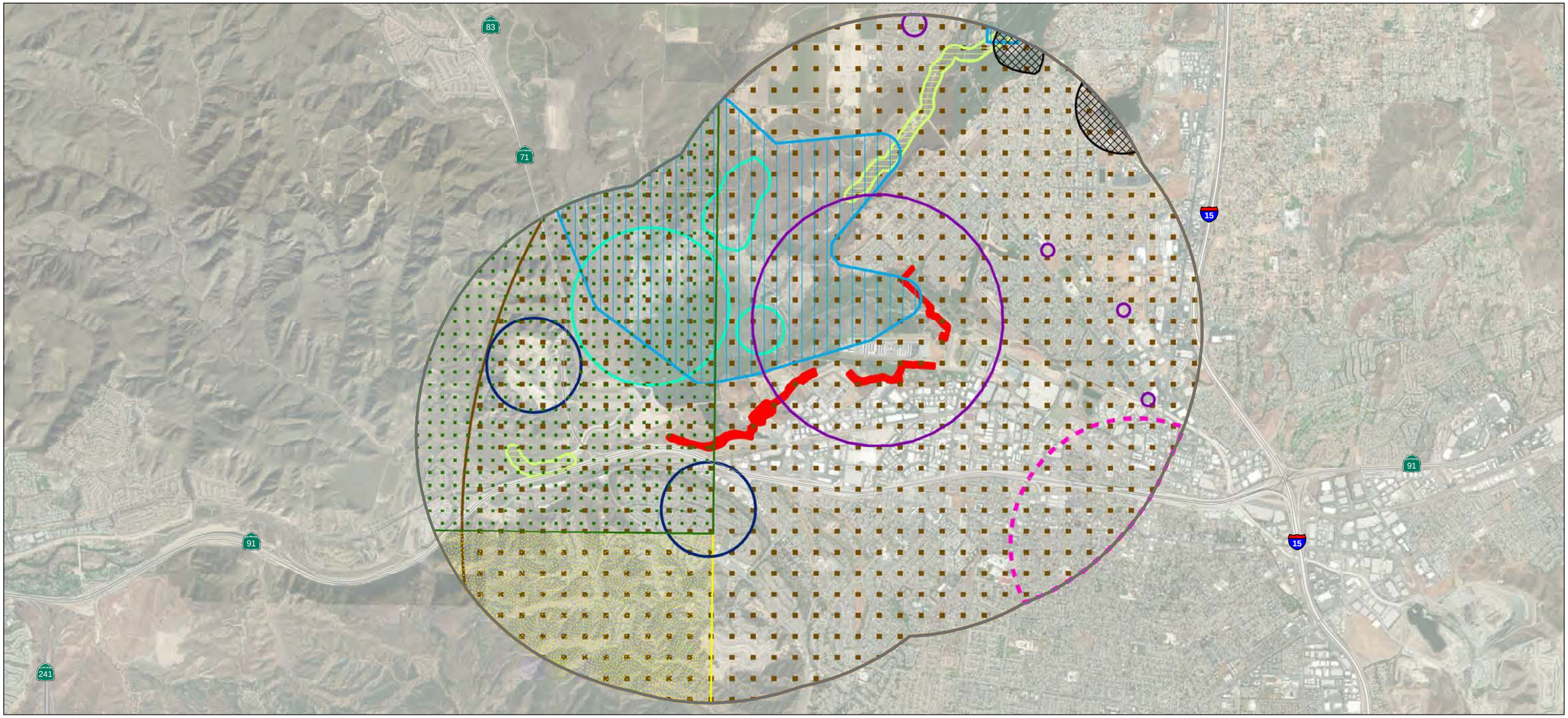
Prepared by DL on 2022-04-21
TR by SET on 2022-04-21
IR by JV on 2022-04-21

Client/Project
2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
6A

Title
2 Mile CNDDB Occurrences - Plants, Terrestrial Community, Aquatic Communities

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.CNDDB 2022.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



Project Location
2 Mile Search Radius

2 Mile Occurrences

Wildlife

- Agelaius tricolor
- Aquila chrysaetos
- Athene cunicularia
- Catostomus santaanae
- Coccyzus americanus occidentalis
- Coturnicops noveboracensis
- Empidonax traillii extimus
- Nyctinomops femorosaccus
- Spea hammondii
- Taricha torosa

0 4,200 8,400 Feet

(At original document size of 11x17)
1:50,400

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-04-21
TR by SET on 2022-04-21
IR by JV on 2022-04-21

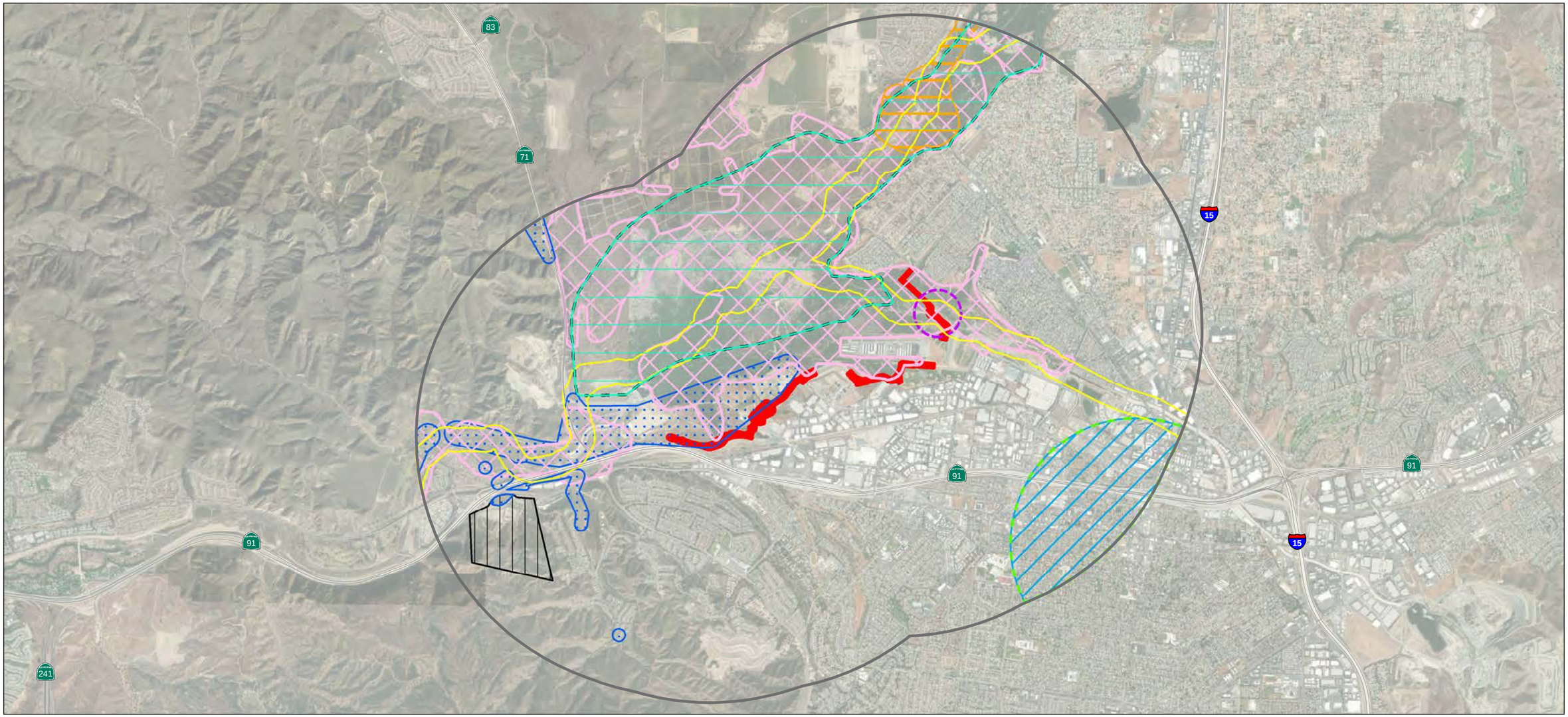
Client/Project
2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
6B

Title
2 Mile CNDDB Occurrences - Wildlife

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.CNDDB 2022.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



Project Location
2 Mile Search Radius

2 Mile Occurrences

Wildlife

- Aimophila ruficeps canescens
- Bombus crotchii
- Buteo swainsoni
- Gila orcuttii
- Icteria virens
- Lasiurus xanthinus
- Oncorhynchus mykiss irideus pop. 10
- Polioptila californica californica
- Setophaga petechia
- Vireo bellii pusillus

0 4,200 8,400 Feet

(At original document size of 11x17)
1:50,400

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-04-21
TR by SET on 2022-04-21
IR by JV on 2022-04-21

Client/Project 2042483140
Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Biological Resources Technical Report

Figure No.
6C

Title
2 Mile CNDDB Occurrences - Wildlife Continued

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.CNDDB 2022.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Appendix B PHOTOGRAPHIC LOG

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: Riverside County Regional Park & Open-Space District	**Job Number:** 204283140
Site Name: Santa Ana River Trail	**Photographer:** M. Tu, J. Varonin, A. Townsend

Photo 1: May 6, 2021

View of Temescal Wash (Drainage 1), a tributary to the Santa Ana River in Phase 2 looking northeast toward West Rincon Street

Photo 2: December 8, 2021

View of Phase 2A looking east toward Drainage 4.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Riverside County Regional Park & Open-Space District	**Job Number:** 204283140
Site Name: Santa Ana River Trail	

Photo 3: May 6, 2021

View of borrow pit in Phase 2A looking northwest

Photo 4: May 6, 2021

View of ephemeral drainage channel in Phase 2A looking north.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: Riverside County Regional Park & Open-Space District	**Job Number:** 204283140
Site Name: Santa Ana River Trail	**Photographer:** M. Tu, J. Varonin, A. Townsend

Photo 5: May 6, 2021

Drainage 10 in Phase 3A looking west

Photo 6: May 6, 2021

View of gravel road in Phase 3A looking east.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: Riverside County Regional Park & Open-Space District	**Job Number:** 204283140
Site Name: Santa Ana River Trail	**Photographer:** M. Tu, J. Varonin, A. Townsend

Photo 7: May 6, 2021

View of a mulefat (*Baccharis salicifolia*) bush in Phase 3A occupied by least Bell 's vireo (*Vireo bellii pusillus*) looking northwest.

Photo 8: May 6, 2021

Paniculate tarplant (*Deinandra paniculat*a), California Rare Plant Rank 4.2, in Phase 3A, looking north.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: Riverside County Regional Park & Open-Space District	**Job Number:** 204283140
Site Name: Santa Ana River Trail	**Photographer:** M. Tu, J. Varonin, A. Townsend
Photo 9: May 6, 2021	
	
View of coastal California gnatcatcher (*Polioptila californica californica*) occupied coastal sage scrub habitat in Phase 3A looking north.	

Appendix C ACREAGES OF VEGETATION COMMUNITIES AND LAND COVER TYPES IN THE PROJECT AREA

Table C-1 Temporary and Permanent Impacts to Vegetation Communities and Land Cover Types within the Project Area

Vegetation Communities and Land Cover Types	Temporary Impacts[1]	Permanent Imapcts[1]	Project Area[1]
	Acres		
Vegetation Communities			
Arroyo willow thickets	2.07	0.30	2.37
California buckwheat scrub	0.50	0.24	0.74
California sagebrush scrub	6.34	2.10	8.44
Coyote brush scrub	0.76	0.17	0.93
Eucalyptus groves	0.68	0.04	0.72
Menzie's goldenbush scrub	0.04	0.00	0.04
Mulefat thickets	4.73	0.76	5.48
Perennial pepperweed patches	0.62	0.00	0.62
Poison hemlock or fennel patches	0.10	0.00	0.10
Shining willow groves	0.37	0.00	0.37
Smartweed-cocklebur patches	0.02	0.01	0.03
Upland mustards or star-thistle fields	2.48	0.62	3.10
Wild oats and annual bromes grassland	13.17	2.68	15.85
Subtotal	*31.88*	*6.92*	*38.79*
Land Cover Types			
Disturbed/Developed	18.55	4.04	22.59
Partially vegetated channel	0.47	0.06	0.53
Restoration	2.22	0.49	2.71
Ruderal	0.91	0.04	0.95
Subtotal	*22.15*	*4.63*	*26.78*
Total[1]	**54.03**	**11.55**	**65.57**

Note[1] = some of the total acreages and Project area acreages do not add up due to rounding. The Project and impact acreages in this table are from April 2022 design drawings.

Appendix D AQUATIC RESOURCES REPORT

This report will be provided separately

Appendix E RIPARIAN BIRDS

LEATHERMAN
BioConsulting, Inc.

4848 Lakeview Avenue, Suite 100E
Yorba Linda, CA 92886
(714) 701-0863

September 7, 2021

Ms. Stacey Love
USFWS
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Re: Results of Focused Surveys for the Western Yellow-billed Cuckoo, Southwestern Willow Flycatcher, and Least Bell's Vireo for the Santa Ana River Trail Project, Riverside County, California (Permit No. TE824793)

Dear Ms. Love:

This letter reports the results of focused surveys to evaluate the presence or absence of the southwestern willow flycatcher (*Empidonax traillii extimus*), (flycatcher) least Bell's vireo (*Vireo bellii pusillus*) (vireo), and western yellow-billed cuckoo (*Coccyzus americanus*) (cuckoo) conducted by Leatherman BioConsulting, Inc. (LBC) for the Santa Ana River Trail Project (Project) in Riverside County, California.

The Project is located on the Prado Dam and Corona North USGS 7.5minute series quadrangle maps in Township 2 South and Range 7 West, in an area where Section lines largely are not delineated (Figure 1). The UTM coordinates (NAD83) of the approximate survey area are 0440410 meters East (mE) and 3749650 meters North (mN) at the southwest end, and 0445675 mE and 3755765 mN at the northeast end.

The proposed alignment route includes three phases in the Prado Basin from just east of State Route 71 and proceeding east and then north to Archibald Avenue in Riverside County (Figure 2). Some phases of the alignment support little, or no habitat and other phases support stretches of nearly contiguous habitat. The survey area included all potentially suitable riparian habitat within 500 of the Project alignments for each of the three target species.

The proposed Project would assist in completing a portion of the Santa Ana Trail. It would entail construction of three (3) new trail segments (2, 2A, and 3A) within the Prado Dam Flood Control Basin area, as part of the existing Santa Ana River Trail project. Currently, only portions of the trail have been completed or are being constructed.

BACKGROUND

Willow Flycatcher

The willow flycatcher (*Empidonax traillii*) is a state-listed Endangered species (CDFG 1991), whereas only the southwestern subspecies (*E.t. extimus*) is federally listed as Endangered (USFWS 1995). This survey focused on the southwestern willow flycatcher because it is the only subspecies that nests in southern California. However, migrants of all subspecies may occur in the area during spring and fall migration, so multiple visits to the survey area are required to determine if individuals observed during the first surveys are nesting birds.

The willow flycatcher was formerly a common summer resident in suitable habitat throughout California (Grinnell and Miller 1944). It has now been extirpated as a breeding bird from most of its California range, and is seriously threatened in southern California primarily because of habitat loss and degradation, and brood parasitism by brown-headed cowbirds (*Molothrus ater*) (Garrett and Dunn 1981; USFWS 1995). The population of southwestern willow flycatcher in California was estimated to include approximately 66 territories at five sites (Kus 2019). The southwestern willow flycatcher has not shown the same recovery that the vireo has shown in response to habitat restoration and cowbird trapping (Kus 2011).

The willow flycatcher closely resembles other Empidonax flycatcher species in California, but the indistinct (or completely lacking) eye ring, broader and longer bill, and generally lighter appearance through the breast and throat help to distinguish it from other species. The species' vocalizations are the best form of identification in the field (but can't be used to identify subspecies). The southwestern willow flycatcher is a migratory bird, occurring in this region only during the breeding season (May to early August). The male arrives later in the spring than most migrants, usually in mid to late May or early June.

The southwestern willow flycatcher breeds in riparian habitats along rivers, streams, or other wetlands in floodplains and broader canyons, preferring dense riparian thickets near surface water (Sogge et al. 2010), often with adjacent open areas for foraging. Vegetation structure, composition, and extent vary widely but generally include extensive areas dominated by dense stands of willows (*Salix* spp.), mule fat (*Baccharis salicifolia*), or other tree species (including tamarisk [*Tamarix* sp.] in some areas), usually with scattered cottonwoods (*Populus* spp.) overstory (USFWS 1995). These riparian areas provide both nesting and foraging habitat. Southwestern willow flycatcher will nest in areas with suitable habitat regardless of the elevation (from sea level to high mountains). Nests are constructed in thickets of trees and shrubs in a fork or horizontal branch between three and 15 feet above the ground.

The U.S. Fish and Wildlife Service (USFWS) published a final rule designating critical habitat for the flycatcher in 2005 (USFWS 2005); however, the USFWS proposed to revise the critical habitat designation in 2011, and a final rule was published in 2013 (USFWS 2013). Approximately 17,212 acres of critical habitat were designated in California.

Least Bell's Vireo

The vireo is a state and federally listed endangered species (USFWS 1986). This subspecies was once widespread throughout the Central Valley and other low elevation river systems of California (Grinnell and Miller 1944). The widespread loss of riparian habitat and brood parasitism by the brown-headed cowbird are the major causes of the decline of this species (Garrett and Dunn 1981). At the time of its listing, about 76 percent of the U. S. population is found in just five localities (USFWS 1994). The breeding population in California has increased dramatically because of brown-headed cowbird trapping efforts in breeding areas, and they are recolonizating areas where they were once locally extirpated; in fact, there were an estimated 3,504 territories reported in 2018 (Kus 2019). Continued cowbird control and exotic plant removal in riparian habitat are considered necessary for the foreseeable future in order to continue this increasing trend (USFWS 2006).

The vireo is a small grayish songbird with indistinct wing bars and facial markings. It is a very vocal species and can be easily detected from some distance by its unique song, which is given repeatedly. The vireo is migratory and only occurs in southern California during the breeding season. The males arrive sometime in late March to April and establish breeding territories, and the females arrive shortly thereafter. Nests are constructed (usually in willow trees) only about three to four feet off the ground where the female will lay 3 to 4 eggs on average. The vireo usually returns to the wintering grounds sometime in August or September. Preferred habitat is willow riparian woodland that supports dense understory thickets of scrubby willows and mule fat, especially within three to six feet of the ground (USFWS 1998).

The USFWS issued their final determination of critical habitat for the vireo in February 1994 (USFWS 1994). Approximately 37,560 acres of habitat were designated in California.

Western Yellow-billed Cuckoo

The cuckoo is a federally listed threatened and state listed endangered species (USFWS 2014a). The USFWS ruled that cuckoos west of the Rocky Mountains and Continental Divide meet the criteria for listing as a distinct population segment and that listing it as threatened was warranted. The current geographical range of the cuckoo in California is about 30 percent of what it was historically, and the current nesting population in the state likely does not exceed 40 to 50 pairs (USFWS 2013).

In California, the cuckoo is a rare summer visitor and breeder where it requires large blocks of riparian habitat for breeding (Halterman et al. 2015, USFWS 2021). It can occur from May to September (Grinnell and Miller 1944), but usually arrives and breeds in southern California from early June to mid-August (Garrett and Dunn 1981, USFWS 2013). It occurs almost exclusively in mature streamside forest with old growth willows and scattered cottonwoods (usually of at least 25 acres), particularly with a dense tangled understory of nettles (*Urtica* spp.), willows, blackberry (*Rubus* sp.), wild grape (*Vitus* sp.), mesquite (*Prosopis* spp.) etc. (Grinnell and Miller 1944; Garrett and Dunn 1981). Data collected in California indicate that nesting occurs in thickets dominated by willow trees along floodplains greater than 200 acres in extent and greater than 100 yards wide (USFWS 2021). It is rarely seen away from suitable breeding habitat

(Garrett and Dunn 1981). It was formerly fairly common and widespread in the broad lower floodplains of larger rivers in southern California and Central Valley (Garret and Dunn 1981). Its decline is primarily attributed to widespread habitat loss associated with agriculture, urban development, and flood control projects, and because the small, isolated populations that remain are more susceptible to decline (USFWS 2013). The current range of the cuckoo in California is estimated to be about 30 percent of its historical extent and estimates of the loss of riparian habitat state-wide are as high as 91 percent (USFWS 2013).

The USFWS published a proposed rule to designate critical habitat for the cuckoo in 2014 (USFWS 2014b); however, a proposed rule to revise the critical habitat designation was published in 2020 reopening the public comment period, and a final rule designating critical habitat was finally published in 2021 (USFWS 2021). Only two of 72 critical habitat units were designated in California (on the Sacramento River and South Fork Kern River) totaling approximately 36,580 acres, over 90 percent of which is in the Sacramento unit.

EXISTING HABITAT

Vegetation in the survey area consists of a variety of riparian communities that could be categorized under one of several riparian alliances under the current (online) classification system used by the California Native Plant Society (CNPS 2021). The extent and quality of the riparian vegetation varies widely among the Project phases, in some areas supporting sparse habitat with low diversity and others supporting dense habitat with high plant diversity. No surface water was present in any of the habitat surveyed. A description of the habitat in each of Project phases is provided below, beginning at the west end of the alignment and proceeding east.

Most of the habitat in the Phase 3A consists of high quality coastal sage scrub. Habitat at the west end of Phase 3A survey area consists of a relatively small, sparse patch of mule fat scrub with a few scattered blue elderberry (*Sambucus nigra* ssp. *caerulea*) trees providing structure similar to that provided by willow scrub. This most closely resembles the blue elderberry shrubland alliance (CNPS 2009). Below the existing dam, the habitat supports arroyo willow shrubland alliance dominated by mule fat, and arroyo willow (*Salix lasiolepis*), and blue elderberry. The alignment also traverses a low elevation area dominated by mule fat adjacent to a dense stand of eucalyptus trees (*Eucalyptus globulus*) where vegetation structure resembles the higher quality riparian habitat usually occupied by vireos.

The west end of Phase 2A consists primarily of non-native annual grassland and crosses disturbed lands recently used as a borrow area by a U.S. Army Corps of Engineers contractor to construct the Alcoa Dike adjacent to the Corona Airport. A portion of the area was recently hydroseeded with grassland species. Two incised drainages support the arroyo willow shrubland alliance dominated by mule fat, arroyo willow, and red willow (*Salix laevigata*). At the east end of Phase 2A, the alignment is adjacent to riparian habitat consisting of a variety of native and non-native trees including black willow (*Salix gooddingii*), red willow, eucalyptus, Brazilian pepper (*Schinus terebinthifolia*), fan palm (*Washingtonia* sp.), ash tree (*Fraxinus* sp.) and a mixed understory of mule fat, tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*),

and wild grape (*Vitus girdiana*). This most closely resembles the black willow woodland alliance.

The habitat along Phase 2 supports the most mature and diverse riparian forest in the survey area that includes the Fremont cottonwood forest alliance, black willow woodland alliance, arroyo willow shrubland alliance, and the mule fat shrubland alliance. Habitat at the southeast end is relatively open mule fat thickets and transitions to well developed willow forest habitat to the northwest. The willow forest habitat consists of dense stands of black willow and red willow with scattered Fremont's cottonwoods (*Populus fremontii*). Understory consists of dense patches of mule fat, arroyo willow, Pacific willow (*S. lasiandra*) and red willow. Some patches are deeply shaded and are dominated by dense cover of wild grape, other areas are more open and support a variety of non-native herbaceous cover, including large dense stands of perennial peppergrass (*Brassica latifolium*). This habitat was also occupied by several homeless camps, and associated trash and debris were evident in many areas. Lastly, sign (scat, trails, digs) of the domestic pig (*Sus scrofa*) were observed throughout this area indicating that they are common in this portion of the alignment.

METHODS

Prior to conducting the focused surveys, a search was conducted of the California Natural Diversity Data Base (CNDDB) (CDFW 2021a) for the Prado and Corona North USGS 7.5-minute series quadrangle maps and other references to determine if and to what extent the target species are known to occur in the Project region.

Survey methods followed the guidelines endorsed by the USFWS for each species as described below. In general, surveys were conducted in riparian habitat by walking slowly and methodically within and along the margins of all suitable riparian habitat for each species. The focus of the surveys was on the detection and identification of the target species, but all wildlife incidentally observed or detected in the survey area was documented. Identifications were made with the aid of high quality 8 X 42 Bosch and Lomb Elite binoculars. All focused surveys were conducted by Mr. Brian Leatherman (USFWS permit No. TE827493-9). A list of the species observed during the surveys is enclosed.

Surveys for the flycatcher followed the mandatory protocol developed by Sogge et al. (2010) and guidance promulgated by the USFWS (2000). The protocol requires that five surveys be conducted within three defined periods between May 15 and July 17 and at least five days apart. Sogge et al. (2010) recommend that surveys be conducted between dawn and 1030 under suitable weather conditions.

Surveys for the vireo followed the survey guidelines developed by the USFWS (2001), which requires that eight surveys be conducted 10 days apart between April 10 and July 31. Vireo surveys can be conducted between dawn and 1100 under suitable weather conditions, at a maximum rate of 1.5 km (0.93 mile) or 50 ha (124 acres) per day. Surveys reported here were conducted between dawn and 1115.

The surveys for the cuckoo followed the mandatory protocol developed by Halterman et al. (2015). The protocol requires that four surveys be conducted within three certain periods between June 15 and August 15. Halterman et al. (2015) recommend that surveys be conducted from 12 to 15 days apart between dawn and 1100 under suitable weather conditions. Surveys reported here were generally conducted between dawn and 1100.

Recorded vocalizations of the flycatcher and cuckoo were played as described in the survey protocols in an attempt to elicit a response from individuals potentially present. For the flycatcher, the tape was played for roughly 15 seconds, stopped for one or two minutes to listen for a response, and then played again before moving to the next spot. For the cuckoo, the prescribed 6-minute broadcast with five vocalizations spaced one minute apart was played every 328 feet (or 100 meters, per the survey protocol) before moving to the next spot. No vocalizations were used for the vireo in compliance with the protocol for that species.

Five of the eight surveys for the vireo were conducted on the same day as the flycatcher surveys. During those combined survey days, recent guidance from USFWS was followed so that surveys for both species were not conducted concurrently. Instead, surveys for the flycatcher were conducted on the outbound portion of the survey and surveys for the vireo were conducted on the return portion of each habitat segment within the survey area. Cuckoo surveys were conducted separately from the vireo and flycatcher surveys. Dates, times, and weather data for the focused surveys are shown in Table 1 and Table 2.

Table 1. Dates, Times, and Weather Data for Vireo and Flycatcher Surveys

DATE	SURVEY NO.	TIME		WEATHER CONDITIONS*					
				Temp (°F)		Winds (mph)		Cloud Cover (percent)	
		Start	End	Start	End	Start	End	Start	End
4-May	LBV1	600	1115	56	74	0-1	2-4	clear	clear
13-May	LBV2	615	1100	55	75	2-4	4-7	100	clear
24-May	LBV3/WIFL1	545	1100	54	78	0-2	4-7	clear	clear
4-Jun	LBV4/WIFL2	600	1100	59	85	0-2	8-12	clear	clear
14-Jun	LBV5/WIFL3	600	1030	64	88	2-4	4-7	clear	clear
25-Jun	LBV6/WIFL4	600	1015	62	77	0-2	2-4	clear	clear
5-Jul	LBV7/WIFL5	545	1015	63	78	2-4	4-7	clear	clear
15-Jul	LBV8	600	1030	67	83	2-4	2-4	clear	clear

LBV – Least Bell's Vireo, WIFL – Willow Flycatcher
*recorded with Kestrel 2000

Table 2. Dates, Times, and Weather Data for Cuckoo Surveys

DATE	SURVEY NO.	TIME		WEATHER CONDITIONS**					
				Temp (°F)		Winds (mph)		Cloud Cover (percent)	
		Start	End	Start	End	Start	End	Start	End
17-Jun	YBCU1	500	1000	63	83	0-2	8-12	100	20
2-Jul	YBCU2	530	1000	64	77	2-4	4-7	clear	clear
16-Jul	YBCU3	600	1015	65	79	0-2	4-7	100	clear
2-Aug	YBCU4	515	1000	67	84	0-2	2-4	30	clear

YBCU-yellow-billed cuckoo

RESULTS

No critical habitat for the cuckoo is designated in the survey area. Critical habitat for the flycatcher and vireo is designated in the Prado Basin and along the Santa Ana River in the vicinity of the Project.

Records for the flycatcher, vireo, and cuckoo were found in the CNDDB database (CDFW 2021a) for each of the two quads searched (Prado and Corona North). A large population of vireos continues to nest in Prado Basin and along the Santa Ana River on an annual basis. However, the small population of flycatchers that persisted for years has not been recorded in the basin since 2016 when only one pair was recorded (Kus 2019). The cuckoo occurred along the Santa Ana River and the Prado Basin historically, but recent records include only two birds in 2000 and one bird in 2011 (Clark et al. 2014).

No flycatchers or cuckoos were observed during the surveys. A total of an estimated 28 vireo territories were documented in the survey area during the focused survey effort (Figure 3), including four territories in Phase 3A, four in Phase 2A, and 20 in Phase 2. The presence of a territory was based on the detection of at least a singing male. Patches of habitat with mule fat or willow scrub or other suitable trees and shrubs with the vegetation structure favored by vireos were occupied along the entire Santa Ana River Trail survey area. No attempt was made to determine if each singing male was paired or nesting, but in most territories a female or breeding behavior was observed.

Due to the density of vireo territories along Phase 2 (along West Rincon Street), it was difficult to determine the number of individual territories. However, based on a review of the survey data, the distribution of the vireos in that area as depicted in Figure 3 represents our best estimate of the number of territories.

No brown-headed cowbirds were observed in riparian habitat during the surveys. Brown-headed cowbird trapping has been conducted in the Prado Basin for over two decades (although none were observed during the surveys).

CONCLUSION

Focused surveys were conducted for the flycatcher, vireo, and cuckoo along the Santa Ana River Trail Project survey area within suitable habitat for each species. No flycatchers or cuckoos were observed during the surveys. Twenty-eight vireo territories were documented in the survey area.

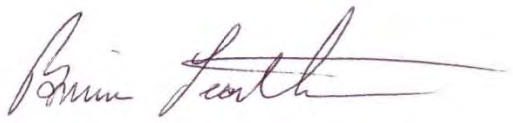
Based on the limited marginally suitable habitat and the negative focused survey results, the flycatcher and cuckoo are likely absent from the survey area at this time. In addition, based on trends in flycatcher and cuckoo populations and occurrences in the area in the recent past, none are expected to occur in the vicinity of the Project in the near future (if they are to reappear in the area, it is likely to be in the more extensive high-quality habitat immediately behind Prado Dam).

Vireos were observed throughout suitable habitat within the survey area during the focused surveys and are expected to occur in suitable riparian habitat in the Project area on an annual basis.

A copy of this letter report is being sent to the USFWS and California Department of Fish and Wildlife (CDFW) per conditions of the surveyors' 10(a)(1)(A) permit and memorandum of understanding (MOU). Figures 1-3, the references cited, a list of wildlife observed, and the required flycatcher and cuckoo survey forms are attached. Survey certification is provided below. If you have any comments or questions regarding the information provided in this report you can reach me by phone at (714) 701-0863, or by email at bleathermanwlb@aol.com.

Sincerely,

LEATHERMAN BIOCONSULTING, INC.



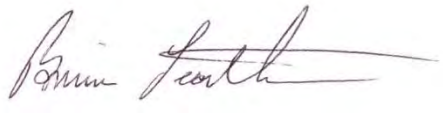
Brian Leatherman
Principal Biologist

Attachments: Figures 1-3
References
Wildlife Species List
Willow Flycatcher Survey Forms
Yellow-billed Cuckoo Survey Forms

Santa Ana River Trail Project
Survey Certification

CERTIFICATION:

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.



August 26, 2021

Brian Leatherman
Permit No. TE827493-9

Date

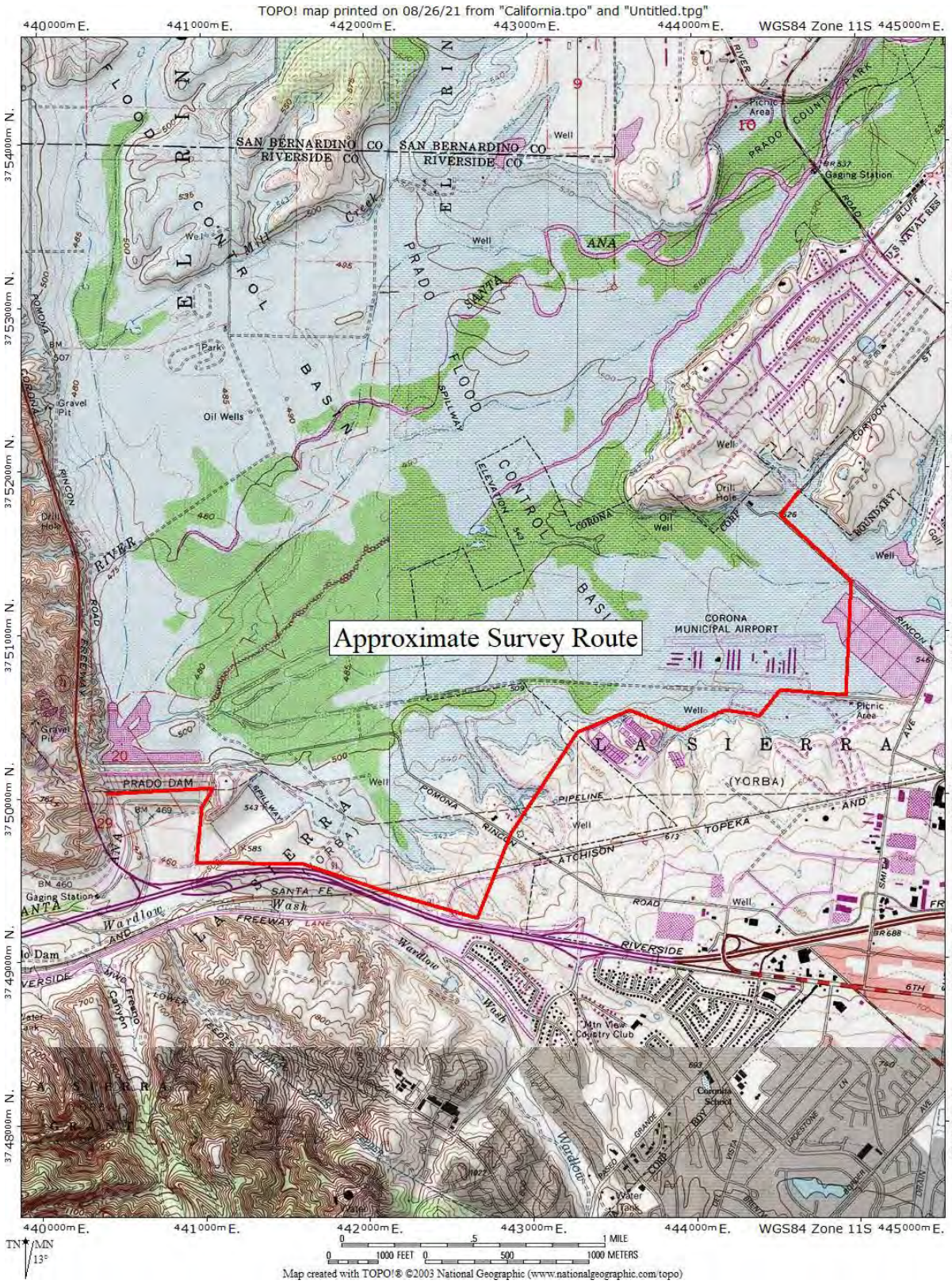


Figure 1. Santa Ana River Trail Project Region

Figure 2. Santa Ana River Trail Project Phases

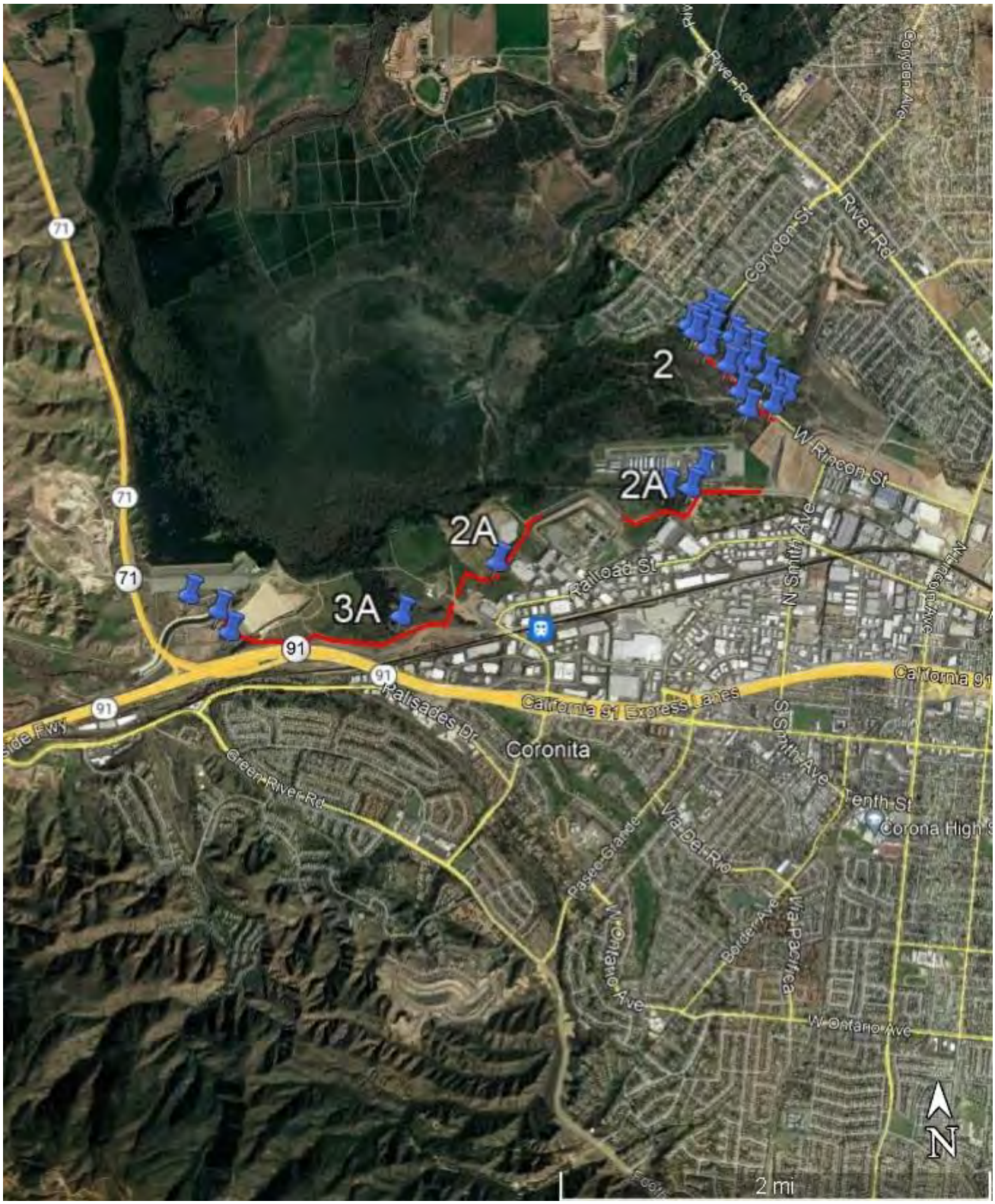


Figure 3. Least Bell's Vireo Territory Locations

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Santa Ana River Trail Project Wildlife Species List

Non-native species are indicated by an asterisk. Species on CDFW's Special Animals' list are indicated by two asterisks. Other species may have been overlooked or inactive/absent because of the season (amphibians are more active during/after rains, reptiles during summer, some birds (and bats) migrate out of the area for summer or winter, some mammals hibernate etc.), or because of the time of the survey (some species are strictly nocturnal). Taxonomy and nomenclature generally follow the Complete List of Amphibian, Reptile, Bird and Mammal Species in California (CDFW 2016).

	COMMON NAME	SCIENTIFIC NAME
	AMPHIBIANS	**AMPHIBIA**
	True Toads	**Bufonidae**
	Western toad	*Anaxyrus boreas*
	True Frogs	**Ranidae**
*	Bullfrog	*Lithobates catesbeianus*
	REPTILES	**REPTILIA**
	Box and Water Turtles	**Emydidae**
*	Pond slider	*Trachemys scripta*
	Softshells	**Trionychidae**
	Spiny softshell	*Apalone spinifera*
	Spiny Lizards, Horned Lizards, etc.	**Phrynosomatidae**
	Western fence lizard	*Sceloporus occidentalis*
	Common Side-blotched lizard	*Uta stansburiana*
	BIRDS	**AVES**
	Cormorants	**Phalacrocoracidae**
**	Double-crested cormorant	*Phalacrocorax auritus*
	Herons and Bitterns	**Ardeidae**
**	Great blue heron	*Ardea herodias*
**	Great egret	*Ardea alba*
**	Black-crowned night-heron	*Nycticorax nycticorax*
	Vultures	**Cathartidae**
	Turkey vulture	*Cathartes aura*
	Geese and Ducks	**Anatidae**
	Canada goose	*Branta canadensis*
	Mallard	*Anas platyrhynchos*
	Hawks, Eagles and Kites	**Accipitridae**
**	Cooper's hawk	*Accipiter cooperii*
	Red-shouldered hawk	*Buteo lineatus*
	Red-tailed hawk	*Buteo jamaicensis*
	Falcons	**Falconidae**
	American kestrel	*Falco sparverius*
	Quail	**Odontophoridae**
	California quail	*Callipepla californica*

Pidgeons and Doves		**Columbidae**
*	Eurasian Collared-dove	*Streptopelia decaocto*
	Mourning dove	*Zenaida macroura*
Cuckoos and Roadrunners		**Cuculidae**
	Greater roadrunner	*Geococcyx californianus*
Owls		**Strigidae**
	Great horned owl	*Bubo virginianus*
Swifts		**Apodidae**
	White-throated swift	*Aeronautes saxatalis*
Hummingbirds		**Trochilidae**
	Anna's hummingbird	*Calypte anna*
**	Allen's hummingbird	*Selasphorus sasin*
Woodpeckers		**Picidae**
**	Nuttall's woodpecker	*Dryobates nuttallii*
	Downy woodpecker	*Dryobates pubescens*
	Northern flicker	*Colaptes auratus*
Tyrant Flycatchers		**Tyrannidae**
	Western wood-pewee	*Contopus sordidulus*
	Pacific-slope flycatcher	*Empidonax difficilis*
	Black phoebe	*Sayornis nigricans*
	Say's phoebe	*Sayornis saya*
	Ash-throated flycatcher	*Myiarchus cinerascens*
	Cassin's kingbird	*Tyrannus vociferans*
Vireos		**Vireonidae**
**	Least Bell's vireo	*Vireo bellii pusillus*
Jays and Crows		**Corvidae**
	American crow	*Corvus brachyrhynchos*
	Common raven	*Corvus corax*
Larks		**Alaudidae**
**	Horned lark	*Eremophila alpestris*
Swallows		**Hirundinidae**
	Northern rough-winged swallow	*Stelgidopteryx serripennis*
	Cliff swallow	*Petrochelidon pyrrhonota*
	Barn swallow	*Hirundo rustica*
Bushtits		**Aegithalidae**
	Bushtit	*Psaltriparus minimus*
Wrens		**Troglodytidae**
	Rock wren	*Salpinctes obsoletus*
	Bewick's wren	*Thryomanes bewickii*
	House wren	*Troglodytes aedon*
Gnatcatchers		**Silviidae**
**	California gnatcatcher	*Polioptila californica*
Bluebirds and Thrushes		**Turdidae**
	Western bluebird	*Sialia mexicana*
Wrentits		**Timaliidae**
	Wrentit	*Chamaea fasciata*
Mockingbirds and Thrashers		**Mimidae**
	Northern mockingbird	*Mimus polyglottos*
Starlings		**Sturnidae**
*	European starling	*Sturnus vulgaris*

Silky Flycatchers		**Ptilogonatidae**
	Phainopepla	*Phainopepla nitens*
Wood Warblers		**Parulidae**
**	Yellow warbler	*Setophaga petechia*
	Common yellowthroat	*Geothlypis trichas*
**	Yellow-breasted chat	*Icteria virens*
Towhees and Sparrows		**Emberizidae**
	Spotted towhee	*Pipilo maculatus*
	California towhee	*Melozone crissalis*
	Song sparrow	*Melospiza melodia*
Cardinals,Grosbeaks, Buntings, Tanagers		**Cardinalidae**
	Black-headed grosbeak	*Pheucticus melanocephalus*
	Blue grosbeak	*Passerina caerulea*
	Western tanager	*Piranga ludoviciana*
Blackbirds and Orioles		**Icteridae**
	Hooded oriole	*Icterus cucullatus*
	Bullock's oriole	*Icterus bullockii*
Finches		**Fringillidae**
	House finch	*Haemorhous mexicanus*
	Lesser goldfinch	*Spinus psaltria*
**	Lawrence's goldfinch	*Spinus lawrencei*

MAMMALS		**MAMMALIA**
Hares and Rabbits		**Leporidae**
	Desert cottontail	*Sylvilagus audubonii*
Squirrels		**Sciuridae**
	California ground squirrel	*Ostospermophilus beecheyi*
Pocket Gophers		**Geomyidae**
	Botta's pocket gopher (burrows)	*Thomomys bottae*
Old World Rats and Mice		**Muridae**
	Dusky-footed woodrat (nest)	*Neotoma fuscipes*
Dogs, Wolves and Foxes		**Canidae**
	Coyote (scat, tracks)	*Canis latrans*
Pigs		**Suidae**
	Feral pig	*Sus scrofa*

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: **Santa Ana River Trail Project** State: **CA** County: **Riverside**

USGS Quad Name: **Prado** Elevation: **155** (meters)

Creek, River, or Lake Name: **Santa Ana River**

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? *Yes* **X** *No* ____

Survey Coordinates: Start: E **04 40 410m** N **37 49 650m** UTM Datum: **NAD83** (See instructions)

Stop: E **04 45 675m** N **37 55 765m** UTM Zone: **11S**

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

*****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 If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding;-potential threats [livestock, cowbirds, *Diorhabda* spp.]). If *Diorhabda* found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1	Date: 5/25/2021	0								
Observer(s): Brian Leatherman	Start: 545									
	Stop: 1115									
	Total hrs: 5.5									
Survey # 2	Date: 6/3/2021	0					# Birds	Sex	UTM E	UTM N
Observer(s): Brian Leatherman	Start: 545									
	Stop: 1100									
	Total hrs: 5.25									
Survey # 3	Date: 6/15/2021	0					# Birds	Sex	UTM E	UTM N
Observer(s): Brian Leatherman	Start: 545									
	Stop: 1045									
	Total hrs: 5									
Survey # 4	Date: 6/28/2021	0					# Birds	Sex	UTM E	UTM N
Observer(s): Brian Leatherman	Start: 530									
	Stop: 1030									
	Total hrs: 5									
Survey # 5	Date: 7/9/2021	0					# Birds	Sex	UTM E	UTM N
Observer(s): Brian Leatherman	Start: 530									
	Stop: 1030									
	Total hrs: 5									
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total survey hrs: 25.0		Total Adult Residents: 0	Total Pairs: 0	Total Territories:	Total Nests:	Were any WIFLs color-banded? Yes ____ No ____ If yes, report color combination(s) in the comments section on back of form and report to USFWS.				

Reporting Individual: **Brian Leatherman** Date Report Completed: **8/19/2021**

US Fish & Wildlife Service Permit #: **TE827493-9** State Wildlife Agency Permit #: **SC-001562**

***Submit** form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.*

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual **Brian Leatherman** Phone # **(714) 701-0863**

Affiliation **Leatherman BioConsulting Inc.** E-mail bleathermanwlb@aol.com

Site Name **Santa Ana River Trail** Date report Completed **8/19/2021**

Was this site surveyed in a previous year? Yes___ No_X___ Unknown___

Did you verify that this site name is consistent with that used in previous yrs? Yes____ No____ Not Applicable____

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 below.

Did you survey the same general area during each visit to this site this year? Yes____ No____ If no, summarize below.

Management Authority for Survey Area: Federal **X** Municipal/County **X** State____ Tribal____ Private____

Name of Management Entity or Owner (e.g., Tonto National Forest) **US Army Corps, Riverside County**

Length of area surveyed: **1.3** (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

____ Native broadleaf plants (entirely or almost entirely, > 90% native)

X Mixed native and exotic plants (mostly native, 50 - 90% native)

____ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

____ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Salix goodingii, Salix laevigata

Average height of canopy (Do not include a range): **10** (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.

Survey area along proposed bike trail route consists of isolated stretches of habitat in Prado Basin separated by different types of developments (housing, industrial, parks etc.) with very different vegetation components. Highest quality habitat along W. Rincon and Corydon Streets at northeast end of alignment.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Yellow-Billed Cuckoo Survey Summary Form (Form revised 2021)

Site Name: Santa Ana River Trail Project | County: Riverside | Elevation (m): 155 | State: CA

USGS Quad Name: Prado, Corona North | Creek, River, Wetland, Canyon, or Lake Name: Prado Basin, Santa Ana River

Site Coordinates (UTM): | UTM Zone: 11S | Start: E 440410 N 3749650 | Magnetic North Declination: 14

NAD 83 preferred | Datum: NAD83 | Stop: E 445675 N 3755765

Was site surveyed in a previous year? (Yes, No, Unknown): No | If yes, what name was used?:

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total # of YBCUs	Survey Number:	YBCU#:	Time Detected (AM):	Detection Method: I = Incidental P = Playback B=Both	Detection Type: A=Aural V=Visual B=Both	Vocalization Type: CN= Contact CO=coo AL=alarm OT=other	Number of 'kowlp' calls played prior to response:	Behavior Observed: (refer to codes)	Surveyor Detection Coordinates UTM E (6 digits)	Surveyor Detection Coordinates UTM N (7 digits)	Distance (m):	Bearing (in number degrees):	Corrected Coordinates (automatically generated) UTM E	Corrected Coordinates (automatically generated) UTM N
Survey	Date:	0	1												0	0
1	6/17/2021		1												0	0
Observer(s):	Start:		1												0	0
Brian Leatherman	500		1												0	0
	Stop:		1												0	0
	1000		1												0	0
	Total hrs:	Total:	1												0	0
	5	0	1												0	0
Survey	Date:		2												0	0
2	7/2/2021		2												0	0
Observer(s):	Start:		2												0	0
Brian Leatherman	530		2												0	0
	Stop:		2												0	0
	1000		2												0	0
	Total hrs:	Total:	2												0	0
	4.5	0	2												0	0
Survey	Date:		3												0	0
3	7/16/2021		3												0	0
Observer(s):	Start:		3												0	0
Brian Leatherman	600		3												0	0
	Stop:		3												0	0
	1015		3												0	0
	Total hrs:	Total:	3												0	0
	4.25	0	3												0	0
Survey	Date:		4												0	0
4	8/2/2021		4												0	0
Observer(s):	Start:		4												0	0
Brian Leatherman	515		4												0	0
	Stop:		4												0	0
	1000		4												0	0
	Total hrs:	Total:	4												0	0
	4.75	0	4												0	0
Survey	Date:		5												0	0
5			5												0	0
Observer(s):	Start:		5												0	0
			5												0	0
	Stop:		5												0	0
			5												0	0
	Total hrs:	Total:	5												0	0
			5												0	0

Survey Summary REQUIRED	Total Survey Hours:	Tot. # of Detections:	Total Estimated Breeding Territories: (refer to Territory Definitions below) Number of PO BreedingTerritories:	Number of PR Breeding Territories:	Number of CO Breeding Territories:	Number of Nests Found:
	18.5	0				

Sur. #:	YBCU #:	Detection Comments/Additional Behaviors/Nest UTM:

Breeding Behavior Observation Codes

Brooding/Incubating	BI
Carrying Nest Material	MAT
Copulation	COP
Distraction Display	DD
Feeds Mate	FM
Feeds Nestling	FN
Fledgling	FLG
Nest Building	NB
Carry Food	CF
Kowlp Exchange/Pair	VEX

Breeding Territory Definitions

Possible Breeding Territory (PO):	Probable Breeding Territory (PR):	Confirmed Breeding Territory (CO):
Detections within a 300 - 500 m area during at least 2 surveys and 12 - 14 days apart.	Detections within a 300-500 m area during at least 3 surveys and 12-14 days apart; or PO territory plus purposeful food carry (single observation, bird does not eat food), stick carry (single observation), multiple incidents of alarm calls in same area, or PO territory plus pair exchanging multiple kowlp or alarm calls (not coos) within 100 m of one another.	Observation of active nest (or multiple stick carries to nest being built), copulation, fledgling (unable to fly) with adult; or PR plus multiple food carries to same area or distraction display (dropped wings).

Page 2

Site Name:	Santa Ana River Trail Project	Date Report Completed:	8/26/2021
Name of Reporting Individual:	Brian Leatherman	Phone #:	714 -701-0863
Affiliation:	Leatherman BioConsulting, Inc.	Email:	bleathermanwlb@aol.com
USFWS Permit #:	TE827493-9	State Permit #:	SC-001562
Ownership: Primary:	Other (Municipal/County)	Owner Name (if applicable):	County, US ACE
Did you survey the same general area during each visit to this site this year (if no, summarize in comments section below)?			No
If site was surveyed last year, did you survey the same general area this year (if no, summarize in comments section below)?			No
Length of survey area (km):	1.26		

Overall Vegetation Characteristics:

Overall, are the species in tree/shrub layer at this site comprised predominantly of (check one):

Native broadleaf plants (>75% native)		Mixed native and exotic plants (mostly native 51%-75%)	X
Exotic/introduced plants (>75% exotic)		Mixed native and exotic plants (mostly exotic 51%-75%)	

Average Overstory/Canopy (where playback calls were used):

List up to 5 species of overstory vegetation and proportion of average canopy cover of each species . Click on dropdown menu to select scientific name. If species is missing, select OTHER and include scientific name in Comments. For relative percent cover, the total should equal 100%.

		Relative				Relative	
Species 1:	Salix goodingii	% Cover	80	Species 3:	Platanus racemosa	% Cover	5
Species 2:	Populus fremontii	% Cover	10	Species 4:	Eucalyptus sp.	% Cover	5
				Species 5:	NONE	% Cover	

General Overstory/Canopy Characteristics:

Average Height (top of trees) of Overstory (meters; do not include a range):	2.5
Estimated Absolute (as opposed to relative) Canopy Cover (percent; may be < 100%):	50

Average Subcanopy (if present; where playback calls were used):

List up to 5 species of subcanopy vegetation (if present) and estimate proportion of average subcanopy cover of each species. Click on dropdown menu to select scientific name. If species is missing, select OTHER and include scientific name in Comments. For relative percent cover, the total should equal 100%.

		Relative				Relative	
Species 1:	Salix laevigata	% Cover	50	Species 3:	OTHER	% Cover	30
Species 2:	Salix lasiolepis	% Cover	20	Species 4:	NONE	% Cover	
				Species 5:		% Cover	

General Subcanopy Characteristics:

Average Height (top of trees) of Subcanopy (meters; do not include a range):	3.5
Estimated Absolute (as opposed to relative) Subcanopy Cover (percent; may be < 100%):	20

Average Understory (if present; where playback calls were used):

List up to 5 species of understory/ shrub vegetation (not all sites will have a separate understory) and estimate proportion of average understory cover of each species. Use scientific names. For relative percent cover, the total should equal 100% even if more than 5 species present.

		Relative				Relative	
Species 1:	Baccharis salicifolia	% Cover	30	Species 3:	Lepidium latifolium	% Cover	25
Species 2:	Vitus girdiana	% Cover	25	Species 4:	Salix lasiolepis	% Cover	10
				Species 5:	Brassica spp	% Cover	10

General Understory Characteristics:

Average Height (top) of Understory (meters; do not include a range):	2
Estimated Absolute (as opposed to relative) Understory Cover (percent; may be < 100%):	75

Immediate Adjacent Habitat Along Entire Transect (Outside of survey site):

Categorize adjacent habitat (e.g. rock outcrop, desert/scrub/thornscrub, urban/residential, agriculture/pasture, orchard, oak woodland, pinyon-juniper woodland, mixed conifer forest, grassland, marsh/wet meadow, open water, ditch/irrigation). List up to 5 categories of adjacent habitat, and estimate proportion of percent cover (should =100%). If adjacent habitat type is missing, select "OTHER" and enter habitat type in Comments.

Category 1:	Urban/Residential	% Cover	30	Category 3:	Desert/Scrub/thornscrub	% Cover	20
Category 2:	Grassland	% Cover	50	Category 4:		% Cover	
				Category 5:		% Cover	

Is the survey area or adjacent area (within 300 m) dominated by surface water or saturated soil during at least 2 surveys?	No
Perennial, intermittent, or ephemeral drainage (or body of water):	Perennial

Comments. If surface water changed between surveys please describe in this section. Provide comments regarding differences between the survey patches within the site. For example, if the average canopy for this site is 30% cover, but within one patch it is 60% cover--please note. Please note significant differences between dominant overstory, subcanopy, and understory vegetation among the patches. Document these differences with photographs whenever possible. referencing comments to photo number whenever available. Note potential threats (e.g., livestock, ORV, hunting, etc.) to the site. If *Diorhabda* beetles are observed, provide location and photos. Attach additional pages or use the continuation sheet if needed.

The Santa Ana River Trail Project alignment survey area spans several miles and traverses several habitat types. The riparian habitat along the alignment varies widely in composition, structure, and diversity, and most of the riparian habitat that is suitable for other species (i.e. least Bell's vireo) is not suitable for the yellow-billed cuckoo and was not surveyed. Highest qualify habitat consists of mature willow forest dominated by S. goodingii, with an understory of dense Vitus girdiana in some areas and dense Lepidium latifolium along W. Rincon Street and Corydon Street.

Appendix F BURROWING OWL

Stantec

Memo

To:	David Lewis Capital Projects Manager Project Delivery Riverside County Transportation Commission 4080 Lemon St Riverside, CA 92501	From:	Jared Varonin 290 Conejo Ridge Ave Ste 100 Thousand Oaks, CA 91361
Project/File:	Santa Ana River Trail Project	Date:	January 10, 2021

Reference: Santa Ana River Trail Project Phase 2, 2A, and 3A Burrowing Owl Habitat Assessment and Focused Surveys

1.0 Introduction

Riverside County Regional Park & Open-Space District requested Stantec Consulting Services Inc. (Stantec) conduct a burrowing owl (*Athene cunicularia*) habitat assessment for the Santa Ana River Trail Project Phases 2, 2A, and 3A (Project).

The Project is in the northwestern corner of Riverside County, California, within the United States Geological Survey (USGS) Riverside West 7.5-minute topographic quadrangle. The Project occurs within an approximately 46-acre area. The Project area is mostly open space and surrounded to the north by the Santa Ana River and the Corona Airport, to the east by light industrial and open space, and to the south/southwest by state route 91 and open space. Land use in the general area surrounding the Project area includes developed areas (Attachment A Figures 1 and 2).

The proposed Project consists of trail construction that would complete a portion of the larger 110-mile regional Santa Ana River Trail system. Specifically, the Project includes a 2.79-mile dual-track Class I multi-use path/natural surface trail that would be constructed within the Prado Dam Flood Control Basin. The Project includes the construction of three new trail segments, Phase 2 will be 0.65-mile long, Phase 2A will be 1.37-mile long, and Phase 3A will be 0.77-mile long. The three trail segments are shown in Attachment A Figures 2-1 to 2-4. The Survey Area for the burrowing owl habitat focused surveys included the Project area and a 150-meter buffer (Burrowing Owl Survey Area) (Attachment A Figure 3).

2.0 Background

The burrowing owl uses a variety of natural and modified habitats for nesting and foraging, typically low growing vegetation. The burrowing owl occupies open areas within grasslands, shrub lands, desert, golf-courses, earthen berms, unpaved airfields, drainage ditches, fallow fields, and agricultural land use areas (RCA 2006). Natural and artificial burrows are essential to burrowing owl habitat, they provide shelter and nesting locations. The burrows are typically remnant burrows of California ground squirrel (*Otospermophilus beecheyi*) but can also be man-made structures such as culverts, asphalt, cement, or wood debris piles or openings beneath cement or asphalt pavement.

Burrowing owls hunt at dawn and dusk but are often found perched in or near the entrance of their burrow during the day. They forage for small vertebrates and invertebrates in the low vegetation. Nesting season typically occurs between February 1 and August 31.

The burrowing owl was historically abundant and widely distributed within coastal southern California, but it has declined dramatically in Los Angeles, Orange, San Diego, Riverside, and San Bernardino counties. A petition was filed to list the California population of the burrowing owl as a state endangered or threatened species (Center for Biological Diversity 2003); however, the California Department of Fish and Wildlife (CDFW) declined to list the burrowing owl as either endangered or threatened. The burrowing owl is listed by the CDFW as a California Species of Special Concern (CDFW 2021a).

Burrowing owl historically occurred on the Burrowing Owl Survey Area. Based on CDFW California Natural Diversity Database (CNDDB) data, burrowing owls were documented in the Burrowing Owl Survey Area in 1989. In 2012, burrowing owl were documented near Norco College approximately 2.2 miles northeast of the Burrowing Owl Survey Area (CDFW 2021a, Cornell 2021).

3.0 Methods

The following subsections provide the resources reviewed before conducting the burrowing owl habitat assessment and the methods used to conduct the habitat assessment.

LITERATURE REVIEW AND DESKTOP ANALYSIS

A focused literature search of the Burrowing Owl Survey Area was conducted prior to the habitat assessment for this Project. The Burrowing Owl Survey Area is located within the USGS Corona North, California, 7.5-minute topographic quadrangle. A search of the CDFW CNDDB was conducted for the Burrowing Owl Survey Area and a surrounding ten-mile buffer area to determine special-status plants, wildlife, and vegetation communities that have been documented within this area (CDFW 2021a). The database included portions of the following quadrangles surrounding the Burrowing Owl Survey Area:

- Guasti
- Fontana
- Black Star Canyon
- Ontario
- Prado Dam
- Lake Mathews
- Corona South
- Riverside West

Additional data regarding the potential occurrence of burrowing owl was gathered from the following sources:

- Special Animals List (CDFW 2021b)
- Bird Species of Special Concern (CDFW 2021c)
- Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan (WRCMSHCP) (RCA 2006)
- WRCMSHCP (2015)
- WRCMSHCP Burrowing Owl Reports (RCA 2017)
- WRCMHCP Burrowing Owl Survey Area (RCA 2021)

BURROWING OWL HABITAT ASSESSMENT

Based on the Burrowing Owl Survey Instructions for the WRCMSHCP (RCA 2006), three qualified biologists walked the entire Project area to identify the presence or absence of burrowing owl habitat (RCA 2006) (Attachment A Figures 2-1 to 2-4). In areas with potential habitat for burrowing owls (primarily open grassland or ruderal habitat), the biologists surveyed for burrows or other potential signs of burrowing owl. Ground squirrel burrows were mapped with ArcCollector connected to a sub-meter Arrow global positioning system receiver.

FOCUSED BURROW SURVEYS

One qualified biologist conducted the four focused surveys. The biologist used binoculars to scan suitable habitat and the area of mapped burrows to determine owl presence prior to walking the Burrowing Owl Survey Area. The biologist walked transects through the area adjacent to the ground squirrel burrows.

4.0 Existing Conditions

The Burrowing Owl Survey Area is adjacent to the Santa Ana River, the Prado Basin, and the Corona Municipal Airport within unincorporated Riverside County. Elevations within the Project area range from 500 to 600 feet above mean sea level.

VEGETATION COMMUNITIES AND LAND COVER TYPES

As defined in the Manual of California Vegetation, Second Edition (MCVII) (Sawyer et al. 2009), a vegetation alliance is “a category of vegetation classification which describes repeating patterns of plants across a landscape. Each alliance is defined by plant species composition and reflects the effects of local climate, soil, water, disturbance, and other environmental factors.” Generally, Stantec’s mapping and description of plant communities follows the classification system described in MCVII. The MCVII is generally limited to communities that are native to or naturalized within California; however, (generally disturbed) habitat occurs within the Burrowing Owl Survey Area that is not defined in MCVII. Therefore, land cover types assigned to these types of habitats are descriptive in nature and are not specifically referenced in the MCVII. The scientific and common names of each species detailed within this report correspond to those described in the second edition of *The Jepson Manual* (Baldwin et al. 2012).

The vegetation communities and land cover types in the Burrowing Owl Survey Area are presented on Figures 3-1 to 3-4 in Attachment A.

Vegetation Communities

Arroyo Willow Thickets (Salix lasiolepis Shrubland Alliance)

This vegetation classification generally consists of arroyo willow (*Salix lasiolepis*) as the dominant in the tall shrub or low tree canopy with bigleaf maple (*Acer macrophyllum*), coyote brush (*Baccharis pilularis*), mulefat (*Baccharis salicifolia*), common buttonbush (*Cephalanthus occidentalis*), American dogwood (*Cornus sericea*), California wax myrtle (*Morella californica*), California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), black cottonwood (*Populus trichocarpa*), other willows (*Salix* sp.), and black elderberry (*Sambucus nigra*) as co-dominants. Emergent trees may be present at a low cover.

The plants are usually less than 10 meters in height, canopy is open to continuous, and the herbaceous layer is variable.

Within the Burrowing Owl Survey Area, this vegetation community is dominated by arroyo willow with smaller amounts of mulefat shrubs and scattered black willows. Most of the arroyo willow thickets occur in the Survey Area surrounding Phase 2.

California Buckwheat Scrub (Eriogonum fasciculatum Shrubland Alliance)

This vegetation classification generally consists of California buckwheat (*Eriogonum fasciculatum*) as a dominant in the shrub canopy in cismontane stands with California sagebrush (*Artemisia californica*), coyote brush, sticky monkeyflower (*Diplacus aurantiacus*), bush sunflower (*Encelia californica*), brittlebush (*Encelia farinosa*), Menzies' goldenbush (*Isocoma menziesii*), common deerweed (*Acmispon glaber*), chaparral mallow (*Malacothamnus fasciculatus*), white sage (*Salvia apiana*), or black sage (*Salvia mellifera*) as co-dominant species. Emergent trees may be present at low cover. Shrubs are usually less than two meters in height, canopy is continuous or intermittent, and the herbaceous layer is variable and may be grassy.

Within the Burrowing Owl Survey Area, this vegetation is dominated by California buckwheat with smaller amounts of California sagebrush, deerweed, and California brittlebush. California buckwheat scrub occurs in small patches in the Burrowing Owl Survey Area surrounding Phases 2A, 3, and 3A.

Coastal Sagebrush Scrub (Artemisia californica Shrubland Alliance)

This vegetation classification generally consists of California sagebrush as the dominant in the shrub canopy with chamise (*Adenostoma fasciculatum*), coyote brush, bladderpod (*Cleome isomeris*), sticky monkeyflower, bush sunflower, brittlebush, desert tea (*Ephedra californica*), interior goldenbush (*Ericameria linearifolia*), coastal buckwheat (*Eriogonum cinereum*), California buckwheat, yellow yarrow (*Eriophyllum confertiflorum*), chaparral yucca (*Hesperoyucca whipplei*), Menzie's goldenbush, heart leaved keckella (*Keckiella cordifolia*), southern honeysuckle (*Lonicera subspicata*), deerweed, laurel sumac (*Malosma laurina*), chaparral prickly pear (*Opuntia littoralis*), evergreen buckthorn (*Rhamnus ilicifolia*), lemonade berry (*Rhus integrifolia*), sugar bush (*Rhus ovata*), white sage, black sage, and poison oak (*Toxicodendron diversilobum*). Emergent trees or tall shrubs may be present at low cover, including southern California black walnut (*Juglans californica*), coast live oak (*Quercus agrifolia*), or black elderberry. Shrubs are less than two meters in height or in two tiers with a second less than five meters tall. The canopy is intermittent to continuous, and the herbaceous layer is variable.

Within the Burrowing Owl Survey Area, this vegetation is dominated by California sagebrush with smaller amounts of California buckwheat and coyote brush. California sagebrush scrub occurs in large patches in the Survey Area in Phases 2A, 3, and 3A.

Cheeseweed Flats (Malva parviflora)

This non MCVII vegetation classification generally consists of a monoculture of cheeseweed (*Malva parviflora*). Within the Burrowing Owl Survey Area, this vegetation is dominated by monoculture of dense cheeseweed with other non-native annual species such as short-pod mustard (*Hirschfeldia incana)* occasionally observed. Cheeseweed flats occur in one patch in the Survey Area southeast of Phase 2A and

the area appears to have been previously disturbed and may have been used as an access road in the past.

Common and Giant Reed Marshes (Phragmites australis Arundo donax Herbaceous Semi-Natural Alliance)

This vegetation classification is dominated by common reed (*Phragmites australis*) or giant reed (*Arundo donax*). Within the Burrowing Owl Survey Area, this vegetation is dominated by giant reed. One reed marsh occurs in the Burrowing Owl Survey Area north of Phase 2A in an area surrounded by native riparian vegetation.

Coyote Brush Scrub (Baccharis pilularis Shrubland Alliance)

This vegetation classification generally consists of coyote brush, California coffeeberry (*Frangula californica*) and/or coast silk tassel (*Garrya elliptica*) is dominant to co-dominant in the shrub canopy with coastal sagebrush, sticky monkeyflower, California buckwheat, deerweed, California blackberry (*Rubus ursinus*), white sage*,* purple sage (*Salvia leucophylla*) and poison oak. Emergent trees may be present at low cover.

Within the Burrowing Owl Survey Area, this vegetation is dominated by coyote brush with smaller amounts of deerweed, bush sunflower, mulefat, and Menzie's goldenbush. Coyote brush scrub occurs in small patches in the Phase 2A Survey Area and in the Survey Area west of Phase 3A.

Eucalyptus Groves (Eucalyptus spp. Woodland Semi-Natural Alliance)

This non MCVII vegetation classification generally consists of eucalyptus species/gum trees (*Eucalyptus* sp.) as the dominant in the tree canopy. The trees are less than 60 meters in height, canopy is open to continuous, shrub layer is generally sparse, and the herbaceous layer is sparse to intermittent.

Within the Burrowing Owl Survey Area, this vegetation is dominated by large eucalyptus trees with bare ground along low drainage areas. Eucalyptus groves occur in the Survey Area in Phases 2A and 3A.

Menzie's Goldenbush Scrub (Isocoma menziesii Shrubland Alliance)

This vegetation classification generally consists of Menzie's goldenbush as dominant or co-dominant in the shrub canopy with coastal sagebrush, coyote brush, broom baccharis (*Baccharis sarothroides*), giant coreopsis (*Coreopsis gigantea*), matchweed (*Gutierrezia californica*), island broom (*Acmispon dendroideus)*, silver bush lupine (*Lupinus albifrons),* and Virginia glasswort (*Salicornia depressa*). Herbs commonly present include *San Miguel Island milkvetch* (*Astragalus miguelensis*), California orach (*Etriplex californica*), ripgut brome (*Bromus diandrus*), coast morning glory (*Calystegi macrostegia*), saltgrass (*Distichlis spicata*), and purple needlegrass (*Stipa pulchra*).

Within the Burrowing Owl Survey Area, this vegetation is dominated by Menzie's goldenbush with smaller amounts of coyote brush. California buckwheat, and quailbush (*Atriplex lentiformis*). This community occurs in one patch in the Survey Area north of Phase 2A.

Mulefat Thickets (Baccharis salicifolia Shrubland Alliance)

This vegetation classification generally consists of mulefat (*Baccharis salicifolia*) as the dominant in the shrub canopy with coastal sagebrush, willow baccharis (*Baccharis emoryi*), coyote brush, laurel sumac, tree tobacco (*Nicotiana glauca*), arrow weed (*Pluchea sericea*), blackberry species (*Rubus* sp.), narrow leaved willow (*Salix exigua*), arroyo willow, black elderberry, and tamarisk species (*Tamarix* sp.) as co-dominants. Emergent trees may be present at low cover, including grey pine (*Pinus sabiniana*), California sycamore, Fremont cottonwood, oak species (*Quercus* sp.), or willow species (*Salix* sp.). Shrubs are less than five meters in height, the canopy is continuous with tie tiers at less than two meters and at less than five meters, and the herbaceous layer is sparse.

Within the Burrowing Owl Survey Area, this vegetation is dominated by mulefat with smaller amounts of arroyo willow and coyote brush. This community occurs in the Survey Area of all three phases and most of this vegetation in the Phase 2 Survey Area. Approximately 30 acres of this community occurs in the Survey Area.

Perennial Pepperweed Patches (Lepidium latifolium Herbaceous Semi-Natural Alliance)

This vegetation classification is dominated by perennial pepperweed (*Lepidium latifolium*). Emergent trees and shrubs may be present at low cover. Within the Burrowing Owl Survey Area, this vegetation is dominated by perennial pepperweed. This community occurs in one small patch in the Survey Area at the edge of Phases 2A and 3A.

Poison hemlock or fennel patches (Conium maculatum- Foeniculum vulgare Herbaceous Semi-Natural Alliance)

This vegetation classification generally consists of thoroughwort (*Ageratina adenophora*), poison hemlock (*Conium maculatum*), wild teasel (*Dipsacus fullonum*), Indian teasel (*Dipsacus sativus*) and/or sweet fennel (*Foeniculum vulgare*), or another non-native invasive plant of the *Apiaceae* is dominant or co-dominant with other non-native plants in the herbaceous layer. Emergent trees and shrubs may be present at low cover, including oak trees and coyote brush.

Within the Burrowing Owl Survey Area, this vegetation is dominated by poison hemlock. This community occurs in one small patch in the Survey Area at the edge of Phases 2A and 3A.

Shining Willow Groves (Salix lucida ssp. lasiandra Forest and Woodland Alliance)

This vegetation classification generally consists of shining willow (*Salix lucida*) as dominant or co-dominant in the tree canopy with bigleaf maple, white alder (*Alnus rhombifolia*), American dogwood, California sycamore, Freemont cottonwood, black cottonwood, coast live oak, willows, and blue elderberry.

Within the Burrowing Owl Survey Area, this vegetation is dominated by shining willow with smaller amounts of mulefat, other willow species, and castor bean. This community occurs in one large patch in the Survey Area in Phase 2A west of Butterfield Park. Approximately 10 acres of this community occurs in the Survey Area.

Tamarisk Thicket (Tamarix spp. Shrubland Semi-Natural Alliance)

This vegetation classification generally consists of salt cedar (*Tamarix ramosissima*) or another *Tamarix* species dominant in the shrub canopy. Emergent trees may be present at low cover, including Freemont's cottonwoods or willow trees.

Within the Burrowing Owl Survey Area, this vegetation is dominated by salt cedar. This community occurs in one linear patch along West Rincon Street in the Survey Area east of Phase 2.

Upland mustards or star-thistle fields (Brassica nigra – Centaurea [solstitialis, melitensis] Herbaceous Semi-Natural Alliance)

This vegetation classification generally consists of black mustard (*Brassica nigra*), common mustard (*Brassica rapa*), Italian thistle (*Carduus pycnocephalus*), Maltese star thistle (*Centaurea melitensis*), yellow starthistle (*Centaurea solstitialis*), cardoon artichoke thistle (*Cynara cardunculus*), Geraldton carnation weed (*Euphorbia terracina*), short-pod mustard, Dyer's woad (*Isatis tinctoria*), or wild radish (*Raphanus sativus*), or similar ruderal forb is dominant in the herbaceous layer. Emergent trees and shrubs may be present at low cover.

Within the Burrowing Owl Survey Area, this vegetation is dominated by short-pod mustard and Maltese star-thistle with smaller amounts of other non-native annual grasses, mostly bromes, and non-native annual herbs. This community occurs along West Rincon Street in Phase 2 and in the eastern portion of Phase 3A.

Wild Oats and Annual Brome Grasslands (Avena spp.-Bromus spp. Herbaceous Semi-Natural Alliance)

This vegetation classification generally consists of slim oat (*Avena barbata*), wildoats (*Avena fatua*), purple false brome (*Brachypodium distachyon*), rattlesnake grass (*Briza maxima*), ripgut brome, soft chess, and foxtail barley (*Hordeum murinum*) as dominant or co-dominant in the herbaceous layer with other non-natives such as Australian saltbush (*Atriplex semibaccata*) and barley species (*Hordeum* sp.). Emergent trees and shrubs may be present at low cover. Herbs are less than four feet in height and cover is open to continuous.

Within the Burrowing Owl Survey Area, this vegetation is dominated by bromes and other non-native annual grasses. Wild oats and annual brome grasslands occur in large patches in the Survey Area surrounding Phases 2A and 3A. Approximately 50 acres of this community occur in the Survey Area.

Land Cover Types

Disturbed/Developed

This land cover type includes areas that have been graded or paved and are developed with urban infrastructure. These areas are generally periodically maintained for weed control, precluding any significant growth of non-ornamental species, but may be sparsely interspersed with ruderal pioneer plant species that readily colonize open disturbed soil such as along disturbed areas or roadsides. The Phase 2 Survey Area includes Corydon Street, West Rincon Street, and disturbed areas between West Rincon Street and the Corona Airport. The Phase 2A Survey Area includes dirt access roads, a large borrow pit, portions of the

Corona Airport and Butterfield Park, and buildings south and west of Phase 2A. The Phase 3A Survey Area includes portions of State Route 91. Over 100 acres of this land cover type occurs in the Survey Area.

Non-vegetated Channel

Non-vegetated channel is not a MCVII classification. In this land cover type, the area is unvegetated on a relatively permanent basis. The area is usually dominated by sand, gravel, or rock and usually exhibits an ordinary-high water mark. Variable water lines inhibit the growth of vegetation; although, some grasses or other weedy species may grow along the outer edges of the channel. Vegetation may exist here but is usually less than 10 percent total cover (Holland 1986).

A drainage ditch occurs along the south side of Butterfield Drive in the Phase 2A Survey Area.

Partially vegetated channel

This land cover type is like non-vegetated channel but has more than 10 percent vegetative cover. Partially vegetated channel is not a MCVII classification. The lack of vegetation is due to flowing water during the rainy season. The area is usually dominated by sand, gravel, or rock and usually exhibits an ordinary-high water mark. Variable water lines inhibit the growth of vegetation; although, some grasses or other weedy species may grow along the outer edges of the channel.

This land cover type includes Temescal wash east and west of West Rincon Street in Phase 2. Some large willow trees have been established on the edges of the wash.

Restoration Areas

Areas mapped as restoration were either observed to be undergoing active habitat restoration activities or were areas that have been previously restored and are being monitored or have been completed. Two restoration areas occur within the Phase 2A Survey Area.

Ruderal Areas

Ruderal vegetation is not a MCVII classification. This land cover type is usually sparsely vegetated with pioneer plant species that readily colonize open disturbed soil. In the Burrowing Owl Survey Area these include non-native annual grasses, bromes, redstem filaree, and Maltese star-thistle. Ruderal patches occur in the Phase 2A Survey Area near Auto Center Drive.

5.0 Results

Based on the WRCMSHCP Burrowing Owl Survey Area and Survey Instructions and the existing conditions in the Survey Area, the entire Project area was assessed for habitat to support burrowing owl (Figure 2-1 to 2-4). On May 6, 2021, biologists from Stantec conducted the burrowing owl habitat assessment and the first focused burrow survey. The other three focused burrow surveys were conducted on June 30, August 12, and September 3, 2021.

Most of the Project area consists of unsuitable burrowing owl habitat that consists of dense riparian habitat and coastal sage scrub with an understory of non-native grasses (Figures 3-1 to 3-4).

The highest quality burrowing owl habitat was observed in disturbed non-vegetated areas in Phase 2A along Butterfield Drive just south of the Corona Airport (Figure 3-2). The mulefat thickets in the Phase 2A on along the north side of West Rincon Drive are partially disturbed and open and provide marginally suitable habitat for burrowing owl (Attachment A Figure 3-1). Marginally suitable non-native grasslands (Wild Oats and Annual Brome Grasslands) occur in Phases 2, 2A, and 3A (Attachment A Figures 3-1 to 3-4). Much of the non-native grassland habitat in the Project area consists of dense thatch that is not suitable for burrowing owl. Other potential burrowing owl habitat consists of restoration areas, ruderal habitat, and non-vegetated disturbed areas along the edge the dirt roads in Phases 2, 2A, and 3A (Attachment A Figures 3-1 to 3-4).

The four focused surveys were conducted in the Project area and the 150-meter-wide Burrowing Owl Survey Area in the suitable habitat described in the previous paragraph. The surveys were conducted in suitable conditions for burrowing owl. The temperature ranged from 60 to 81 degrees Fahrenheit (F) and it was a sunny day with clear skies and no clouds with a slight breeze during the first survey on May 6, 2021. On June 30, the temperature ranged from 68 to 85 degrees F; it was a sunny, clear day with no clouds and a slight breeze. On August 12, the temperature ranged from 86 to 95 degrees F; it was a sunny, clear day with no clouds; and windy at the start of the survey and calm by the end of the survey. On September 3, the temperature ranged from 66 to 79 degrees F; and it was a sunny, clear day with a slight breeze at the end of the survey.

Signs of ground squirrels were present, and individuals were observed, only within the eastern extent of the Project area/Survey Area; the sign/individuals were in the general vicinity of the Corona Municipal Airport. Three ground squirrel burrows were observed within a disturbed/developed area in the eastern portion of Phase 2A and mapped on Figure 3-2. The ground squirrel burrows ranged in size from 5 to 8 inches wide (Photograph 1).

No burrowing owl or sign of burrowing owl was observed.

Photograph 1. Ground squirrel burrows near Phase 2A

6.0 Conclusion

There are not any recent records of burrowing owl in the vicinity of the Survey Area and no burrowing owl or sign of burrowing owl was observed during these surveys. Based on the 2021 burrowing owl habitat assessment conducted for this Report, most of the Burrowing Owl Survey Area no longer contains suitable habitat for burrowing owl. However, pre-construction burrowing owl surveys are required by the WRCMSHCP in suitable burrowing owl habitat prior to construction. The surveys will need to be conducted no more than 30 days prior to ground disturbance.

Please contact us if you have any questions.

Respectfully,

Stantec Consulting Services Inc.

Melissa Tu
Senior Biologist
Phone: (858) 633-4225
melissa.tu@stantec.com

Jared Varonin
Principal Biologist/Ecosystems Practice Leader
Phone: (805) 358-7696
Jared.Varonin@stantec.com

Attachment: Attachment A Figures

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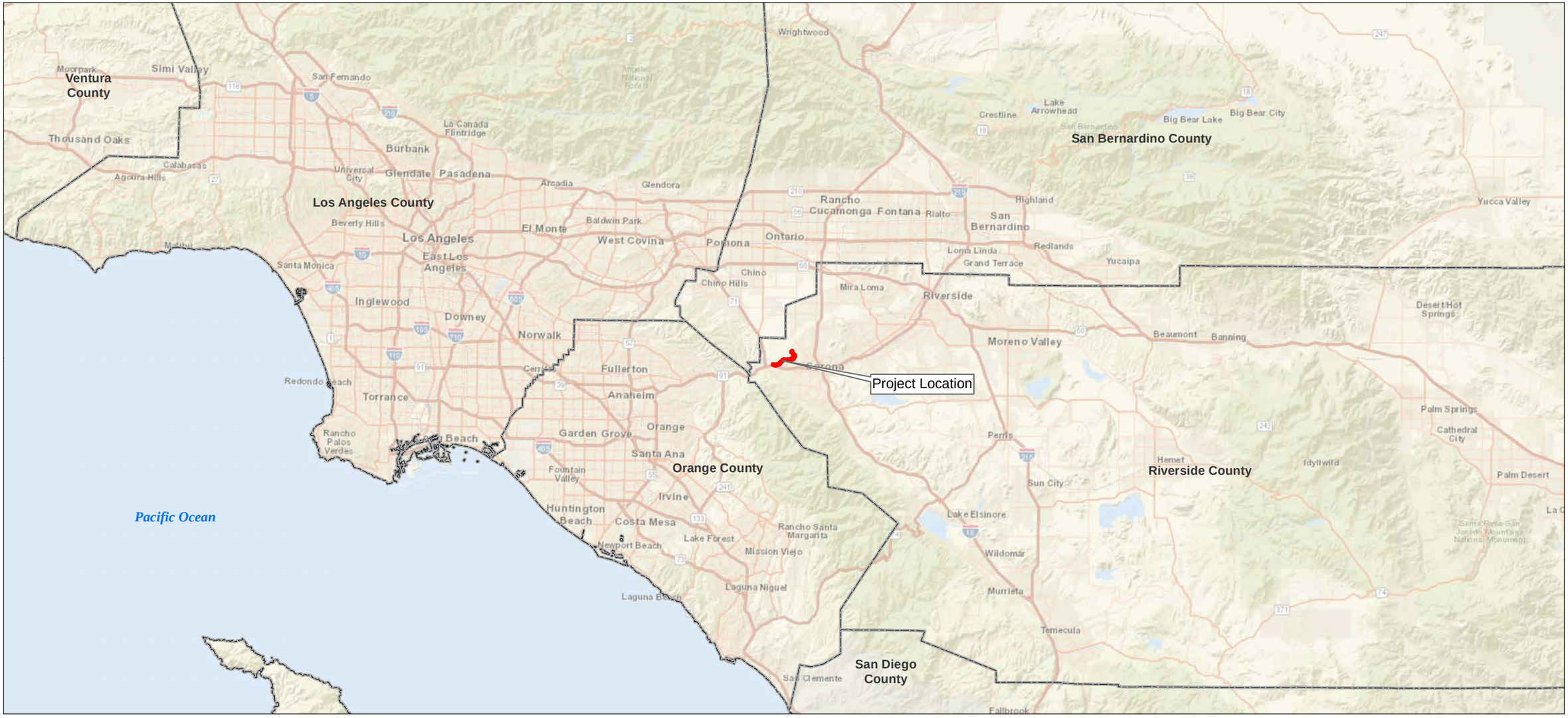
Attachment A Figures



Project Location

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Stantec

Project Location	Prepared by DL on 2022-01-04
Near Corona	TR by SET on 2022-01-04
Riverside County, California	IR by JV on 2022-01-04
Client/Project	2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.

1

Title

Regional Location

Notes

1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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- Riprap: Permanent Impact
- Trail: Permanent Impact
- Ingress/Egress Location
- △ Phase 2A End Location / Phase 3A Start Location
- Railroad

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Near Corona Riverside County, California	TR by SET on 2022-01-04 IR by JV on 2022-01-04
Client/Project	2042483140
Riverside County Regional Park & Open-Space District Santa Ana River Trail Project Burrowing Owl Habitat Assessment and Focused Surveys	
Figure No.	
2	
Title	
Site Plan	

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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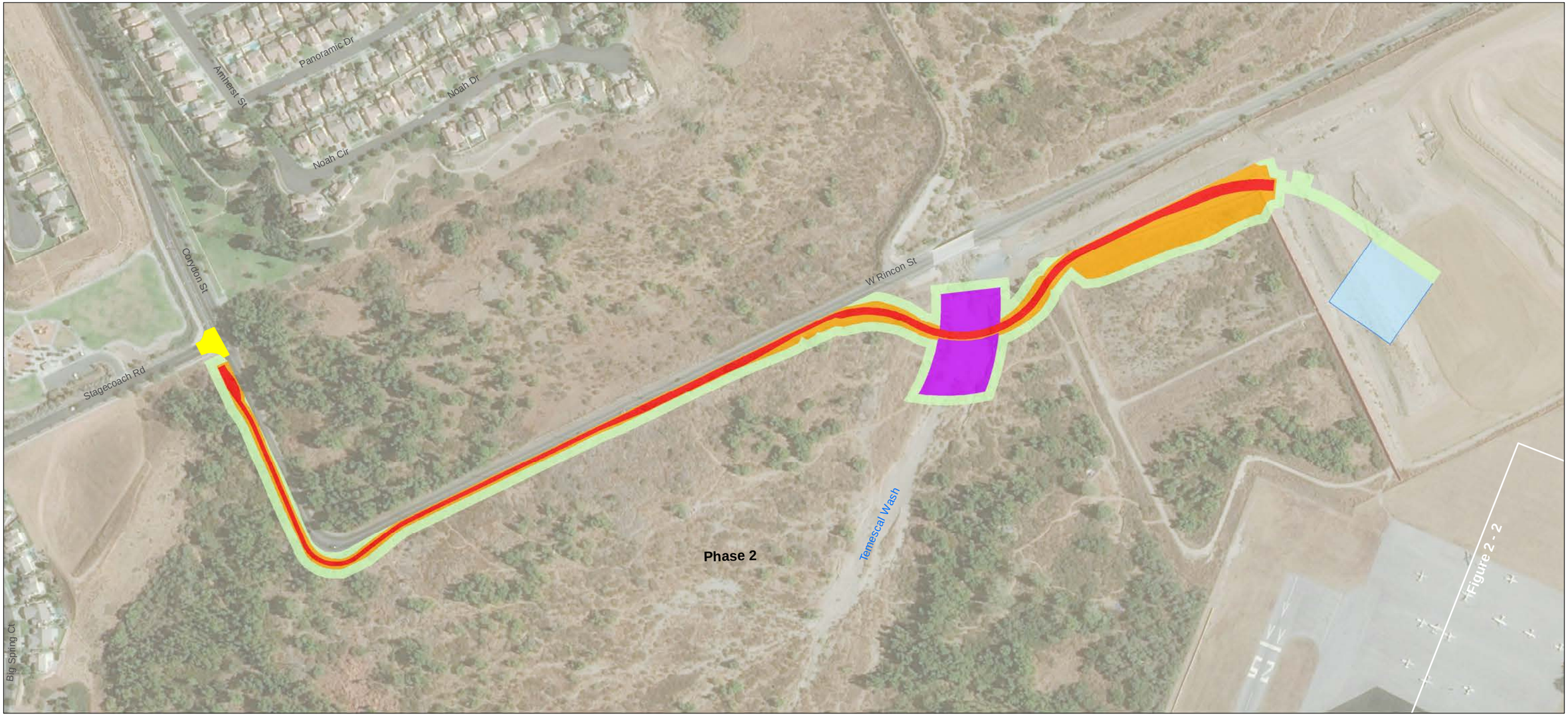

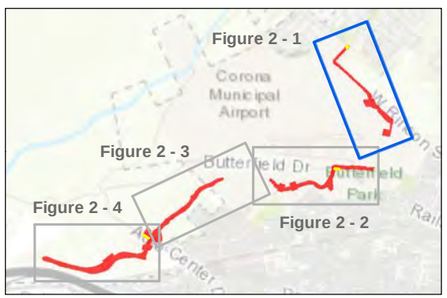

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- Trail: Permanent Impact
- Ingress/Egress Location

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Project Location
Near Corona
Riverside County, California

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Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
2 - 1

Title
Plan Sheet 1

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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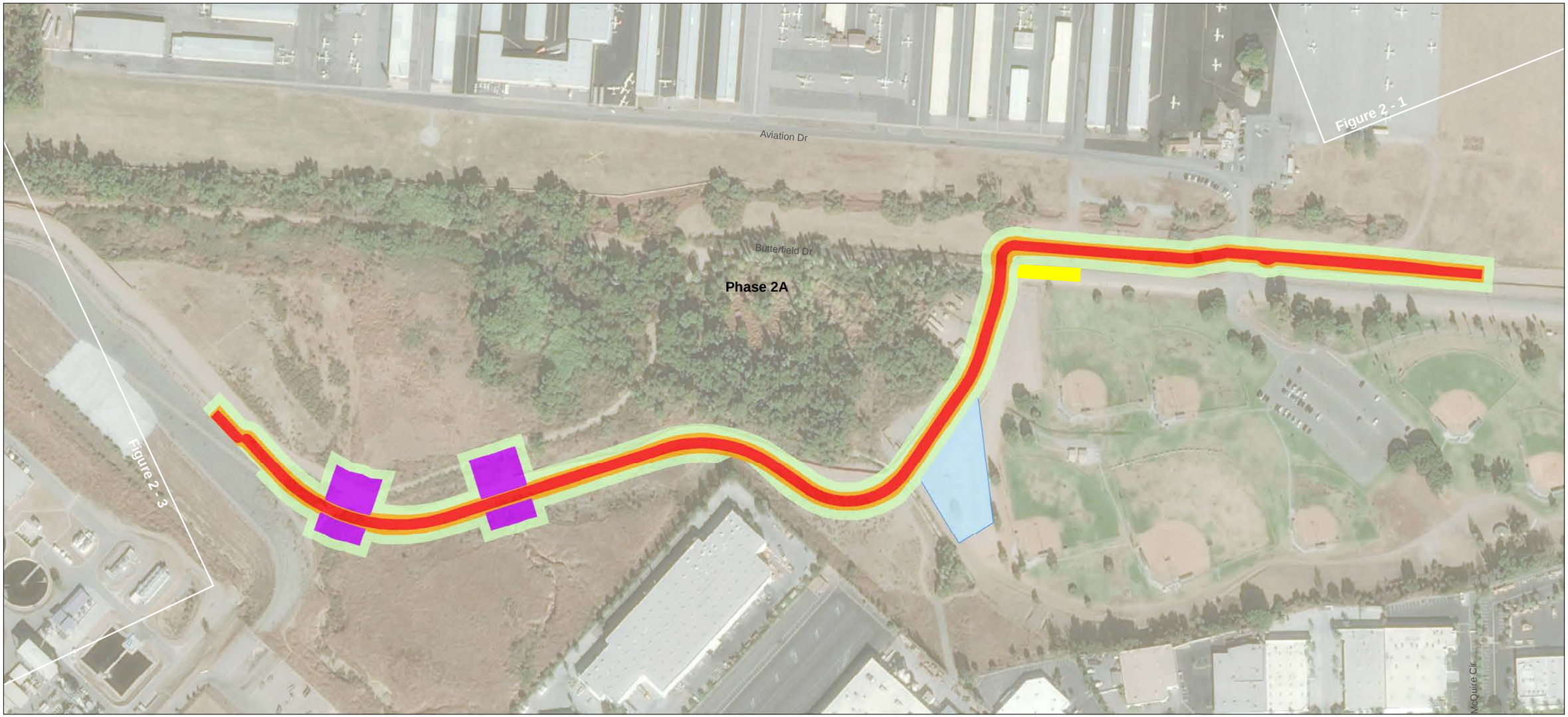

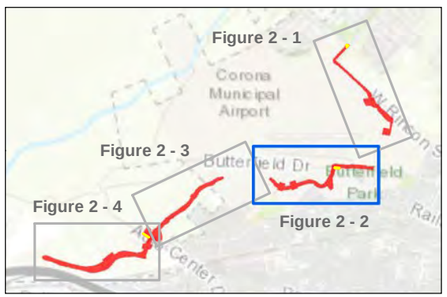

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- Ingress/Egress Location

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Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
2 - 2

Title
Plan Sheet 2

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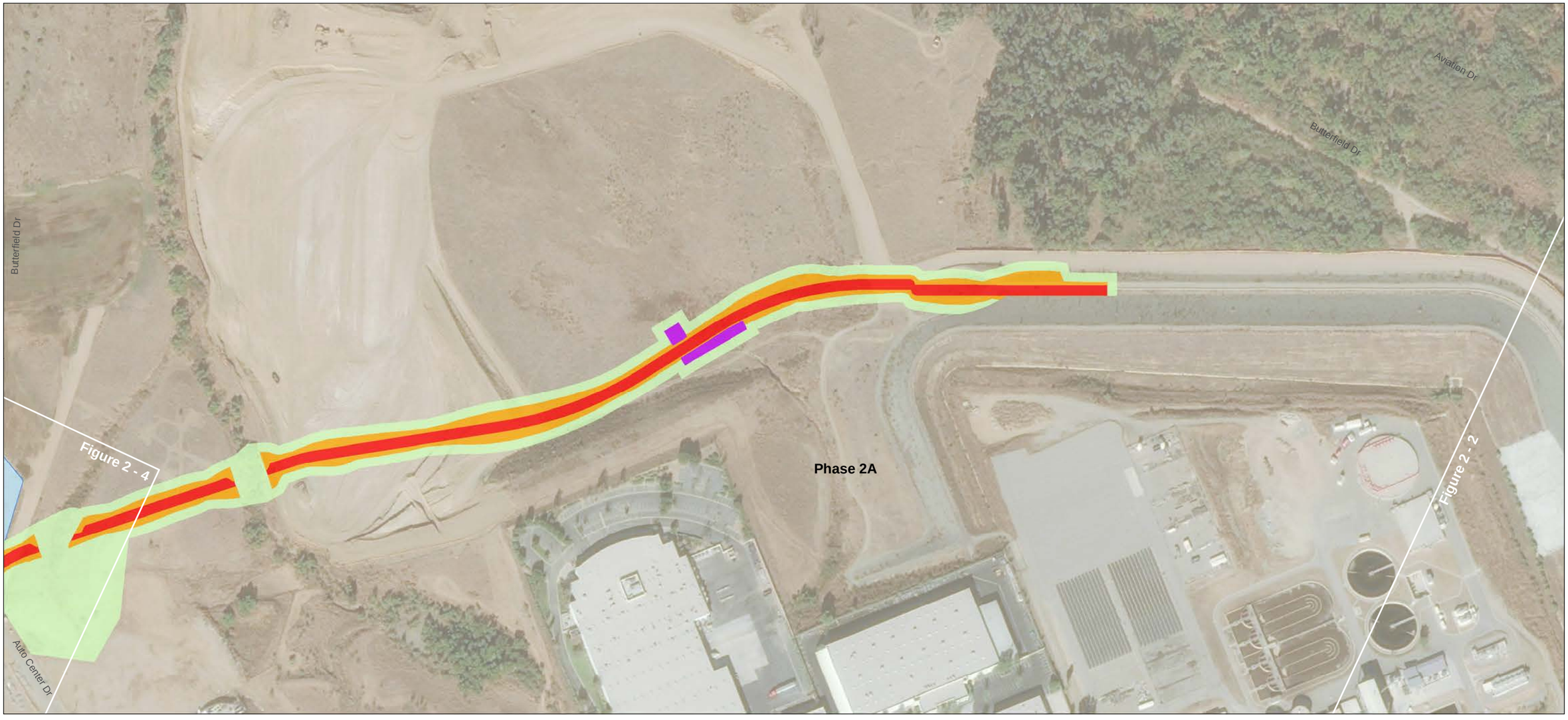

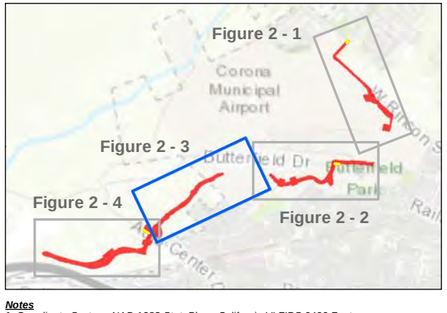

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TR by SET on 2022-01-04
IR by JV on 2022-01-04

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Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
2 - 3

Title
Plan Sheet 3

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1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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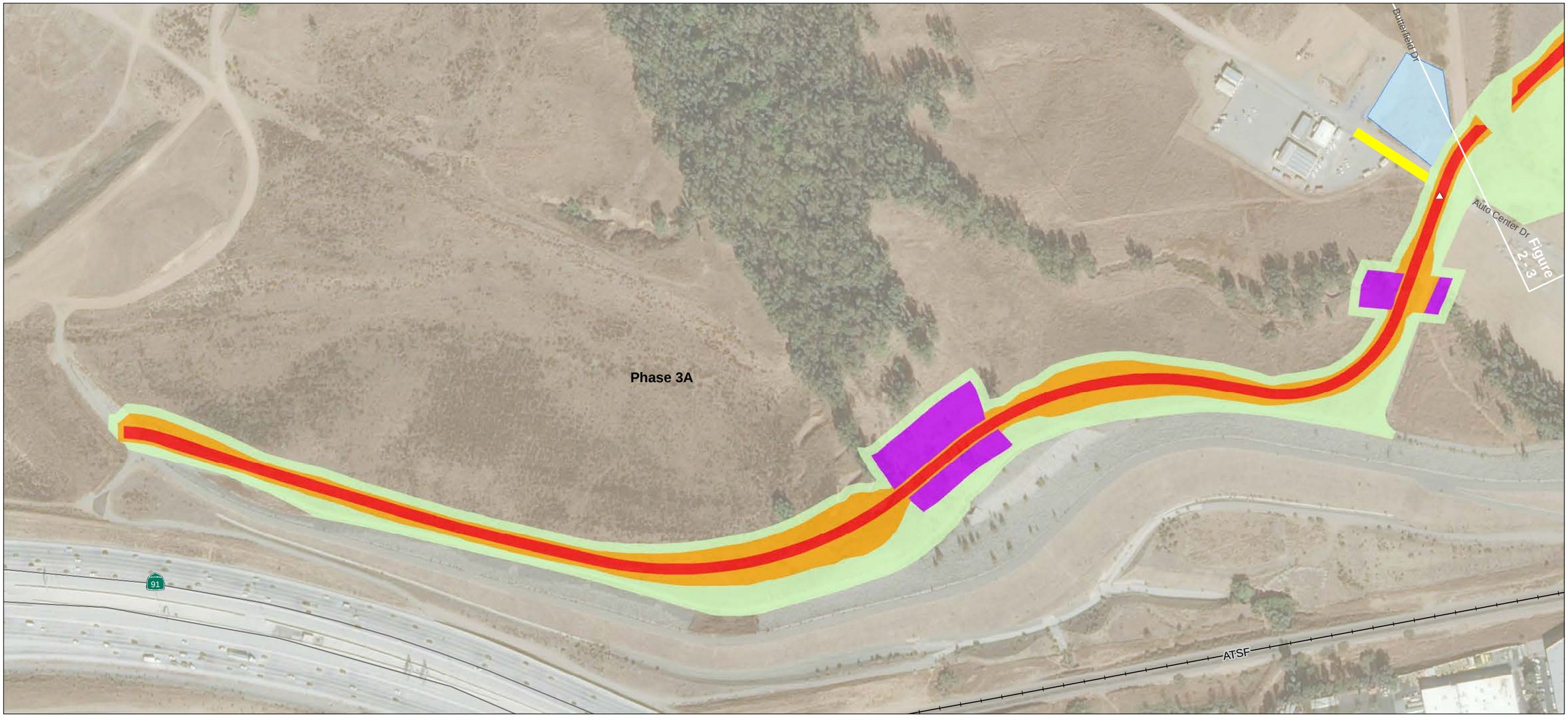

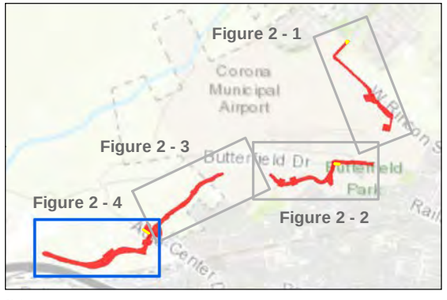

- Laydown Yard: Temporary Impact
- Grading: Temporary Impact
- Grading: Permanent Impact
- Riprap: Permanent Impact
- Trail: Permanent Impact
- Ingress/Egress Location
- △ Phase 2A End Location / Phase 3A Start Location
- Railroad

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Project Location
Near Corona
Riverside County, California

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Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
2 - 4

Title
Plan Sheet 4

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1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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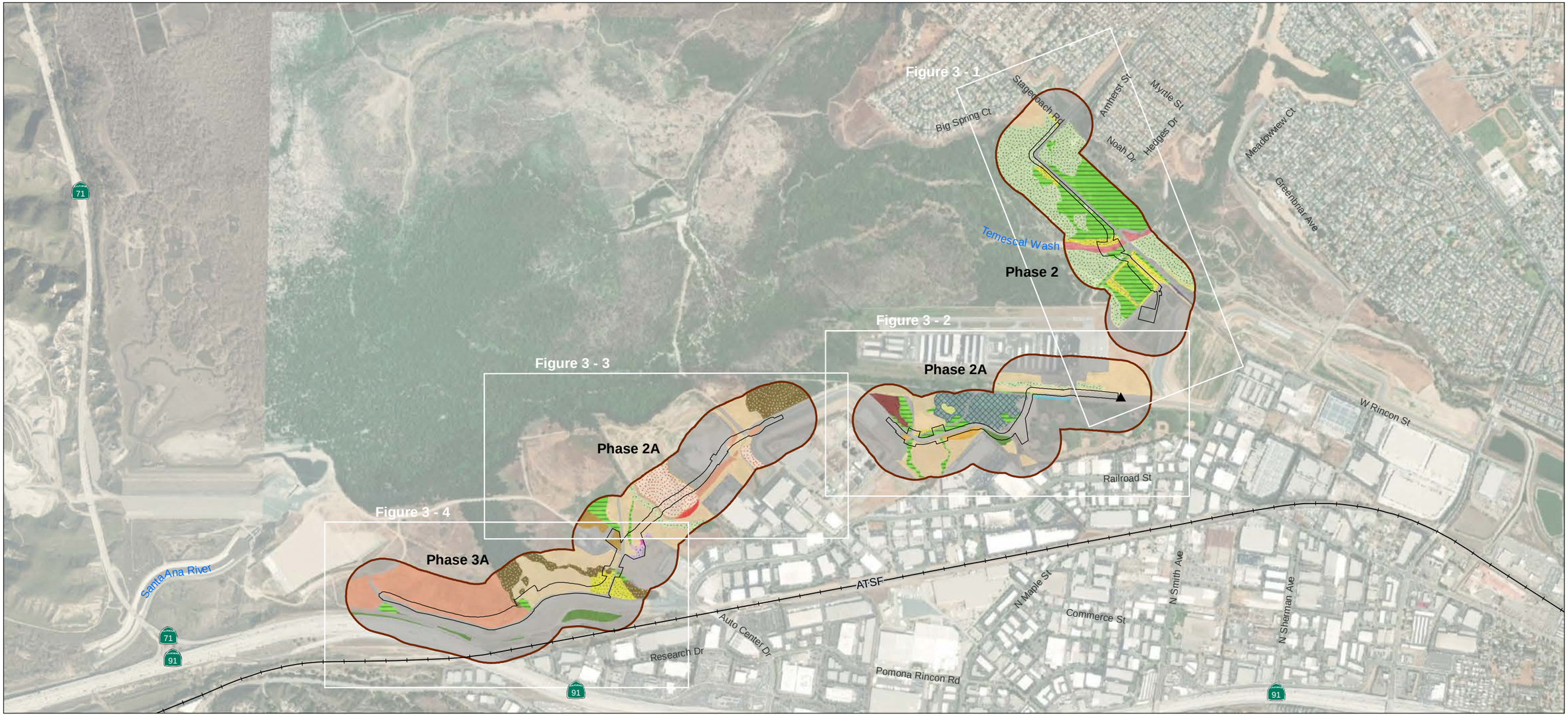

- Burrowing Owl Survey Area (150 Meter)
- Project Footprint
- ▲ Mammal burrow

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- California buckwheat scrub
- California sagebrush scrub
- Cheeseweed flats
- Coyote brush scrub
- Disturbed/Developed
- Eucalyptus groves
- Giant reed stands
- Menzie's goldenbush scrub
- Mulefat thickets
- Non-vegetated channel
- Partially vegetated channel
- Perennial pepperweed patches
- Poison hemlock or fennel patches
- Restoration
- Ruderal
- Shining willow groves
- Tamarisk thickets
- Upland mustards or star-thistle fields
- Wild oats and annual brome grasslands

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Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
3 - 0

Title
Biological Resources

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.NRCS 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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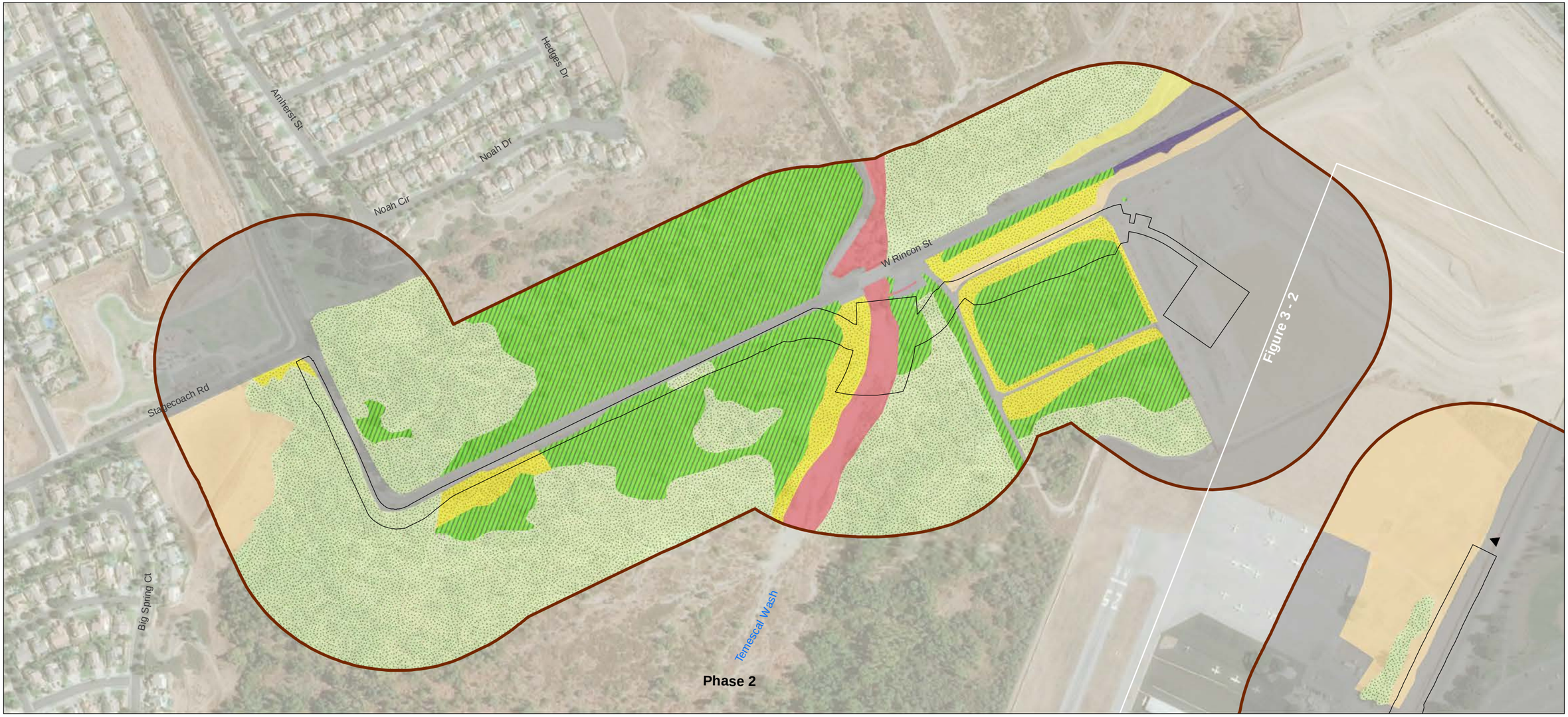

- Burrowing Owl Survey Area (150 Meter)
- Project Footprint
- ▲ Mammal burrow

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- Disturbed/Developed
- Giant reed stands
- Mulefat thickets
- Partially vegetated channel
- Tamarisk thickets
- Upland mustards or star-thistle fields
- Wild oats and annual brome grasslands

0 350 700 Feet

(At original document size of 11x17)
1:4,200

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-01-04
TR by SET on 2022-01-04
IR by JV on 2022-01-04

Client/Project
2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
3 - 1

Title
Biological Resources

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.NRCS 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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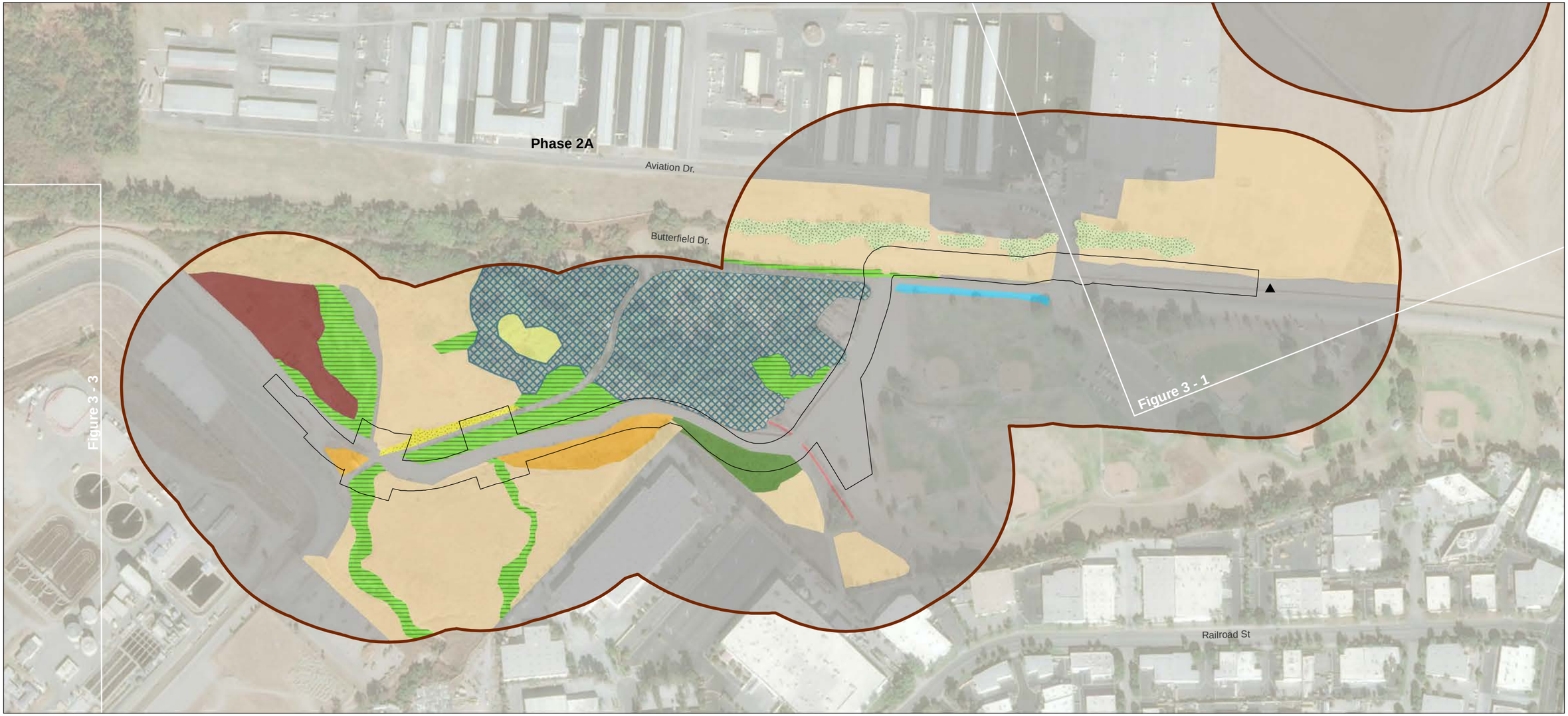

- Burrowing Owl Survey Area (150 Meter)
- Project Footprint
- ▲ Mammal burrow

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- California buckwheat scrub
- Coyote brush scrub
- Disturbed/Developed
- Giant reed stands
- Menzie's goldenbush scrub
- Mulefat thickets
- Non-vegetated channel
- Partially vegetated channel
- Shining willow groves
- Upland mustards or star-thistle fields
- Wild oats and annual brome grasslands

0 350 700 Feet

(At original document size of 11x17)
1:4,200

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-01-04
TR by SET on 2022-01-04
IR by JV on 2022-01-04

Client/Project
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Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
3 - 2

Title
Biological Resources

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.NRCS 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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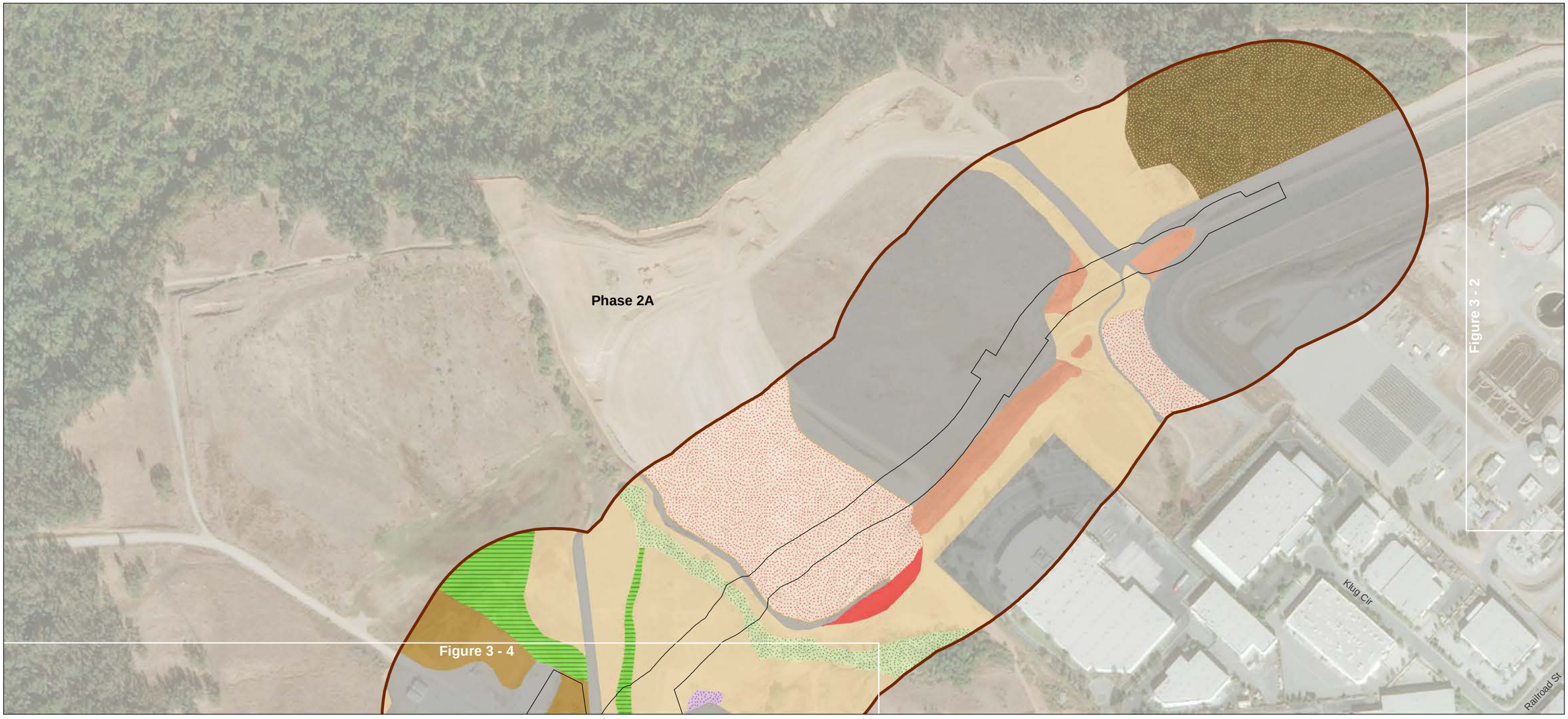

- Burrowing Owl Survey Area (150 Meter)
- Project Footprint

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- California sagebrush scrub
- Cheeseweed flats
- Disturbed/Developed
- Eucalyptus groves
- Mulefat thickets
- Perennial pepperweed patches
- Restoration
- Ruderal
- Wild oats and annual brome grasslands

0 350 700 Feet

(At original document size of 11x17)
1:4,200

N

Notes

1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.NRCS 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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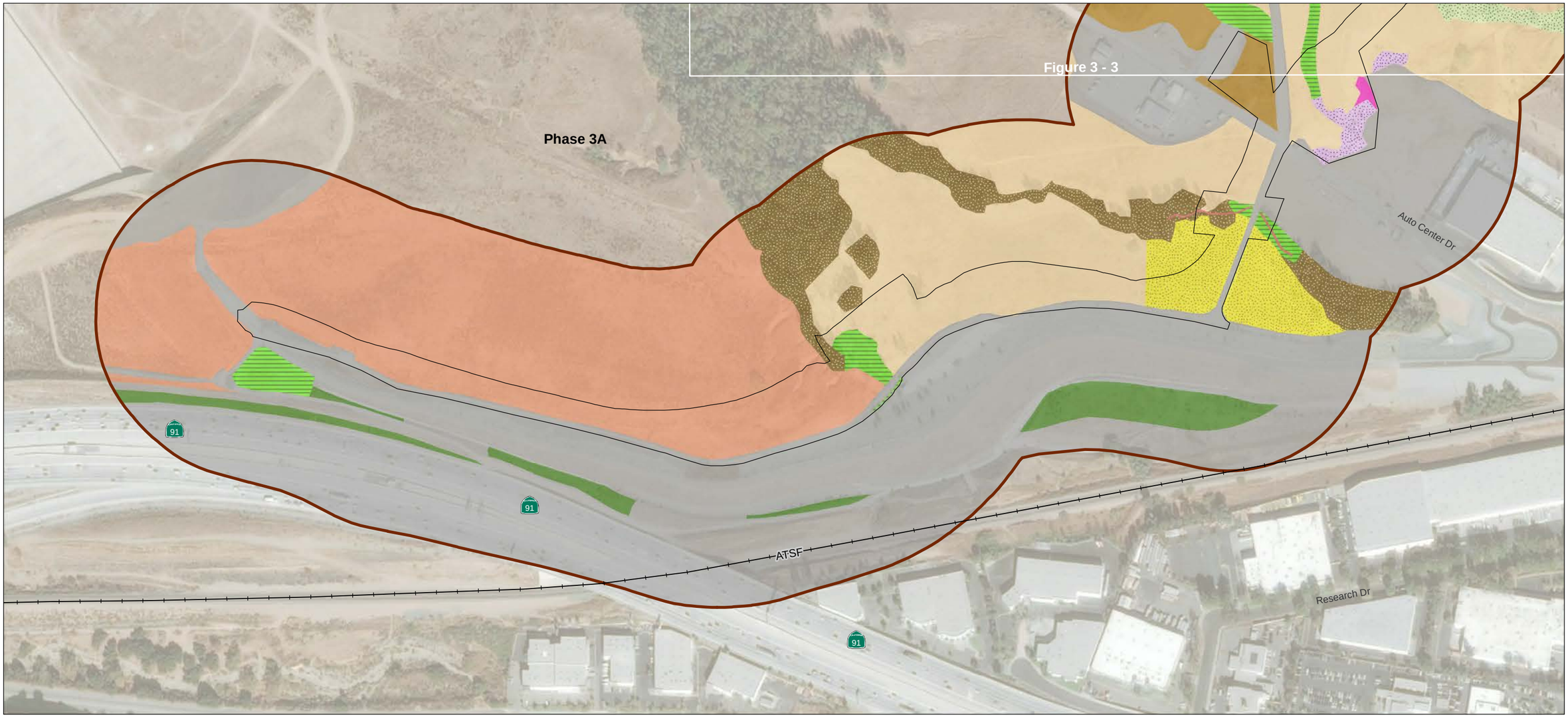
Client/Project
2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
3 - 3

Title
Biological Resources

Figure 3 - 3



- Burrowing Owl Survey Area (150 Meter)
- Project Footprint
- Railroad

Vegetation Communities and Land Cover Types

- Arroyo willow thickets
- California buckwheat scrub
- California sagebrush scrub
- Disturbed/Developed
- Eucalyptus groves
- Mulefat thickets
- Partially vegetated channel
- Perennial pepperweed patches
- Poison hemlock or fennel patches
- Ruderal
- Upland mustards or star-thistle fields
- Wild oats and annual brome grasslands

0 350 700 Feet

(At original document size of 11x17)
1:4,200

N

Stantec

Project Location
Near Corona
Riverside County, California

Prepared by DL on 2022-01-04
TR by SET on 2022-01-04
IR by JV on 2022-01-04

Client/Project 2042483140

Riverside County Regional Park & Open-Space District
Santa Ana River Trail Project
Burrowing Owl Habitat Assessment and Focused Surveys

Figure No.
3 - 4

Title
Biological Resources

Notes
1. Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
2. Data Sources:Stantec 2021.NRCS 2021.
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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APPENDIX D
Paleontological Resources Assessment

Final Paleontological Resource Assessment for the Santa Ana River Trail Phases 2, 2A, and 3A Project, Riverside County, California

June 1, 2022

Prepared for:

Riverside County Regional Park &
Open-Space District
4600 Crestmore Road
Riverside, California 92509

Prepared by:

Alyssa Bell, Ph.D.
Senior Paleontologist

Stantec Consulting Services, Inc.
801 S. Figueroa Street
Suite 300
Los Angeles, California 90017

Revision	Description	Author		Quality Check		Independent Review	
Jan 18, 2022	Addressed comments from Riverside County	A. Bell	1/18	G. Ruiz	1/18		
March 16, 2022	Revised project area	A. Bell	3/16	G. Ruiz	3/16		
May 27, 2022	Revised project description	A. Bell	5/27	G. Ruiz	6/1		

This document entitled Final Paleontological Resource Assessment for the Santa Ana River Trail Phases 2, 2A, and 3A Project, Riverside County, California was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of Riverside County Regional Park & Open-Space District (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by  _____
(signature)
Alyssa Bell, Ph.D.; Senior Paleontologist


Reviewed by _____
(signature)
Cara Corsetti, M.S.; Senior Principal


Approved by _____
(signature)
Gilberto Ruiz, Principal Environmental Planner

Table of Contents

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LIST OF APPENDICES

Executive Summary

Stantec Consulting Services Inc. (Stantec) conducted a paleontological resources assessment on behalf of the Riverside County Regional Park & Open-Space District (the District) for the Santa Ana River Trail Phases 2, 2A, and 3A Project (the Project) adjacent to the Prado Dam in unincorporated Riverside County, California. This paleontological study was conducted in support of the District as the Lead Agency (for the purposes of California Environmental Quality Act [CEQA] compliance) for the Project, which includes proposed trail improvements on a 2.79-mile dual-track Class I and Class II multi-use path/natural surface trail that would be constructed within the Prado Dam Flood Control Basin.

The proposed Project is subject to compliance with CEQA and National Environmental Policy Act (NEPA) requirements regarding the Project's potential impacts on paleontological resources. As part of CEQA and NEPA compliance, a paleontological resources assessment was conducted to determine potential impacts of the proposed Project on paleontological resources.

This paleontological resource investigation consisted of a museum records search from the Natural History Museum of Los Angeles County Project Area and vicinity, as well as a review of the most recent geologic mapping and relevant scientific literature. This research was used to assign paleontological potential rankings of the Society of Vertebrate Paleontology (2010) to the geologic units present in the Project Area, either at the surface or in the subsurface. The results of this assessment indicate that three geologic units are present in the project area: young axial channel deposits, which are assessed as having low to high paleontological potential, increasing in depth; old alluvial fan deposits, which are assessed as having high paleontological potential; and very old alluvial fan deposits, which are assessed as having high paleontological potential. Damage or destruction to paleontological resources that may be present in these high potential units would constitute an adverse impact under CEQA and NEPA. Therefore, in order to avoid adverse impacts to paleontological resources in fulfillment of CEQA and NEPA obligations, Stantec recommends a qualified paleontologist meeting professional standards as defined by Murphey et al. (2019) be retained to oversee all aspects of paleontological mitigation. Paleontological mitigation to reduce potential impacts to paleontological resources to a less-than-significant level should consist of the following activities for this Project:

- The qualified paleontologist should develop and oversee the implementation of a Paleontological Monitoring and Mitigation Plan tailored to the Project plans that provides for paleontological monitoring of earthwork and ground disturbing activities into undisturbed geologic units with high paleontological potential, whether at the surface or in the subsurface, to be conducted by a paleontological monitor meeting industry standards (Murphey et al. 2019).
- The qualified paleontologist should develop a Worker’s Environmental Awareness Program training that communicates requirements and procedures for the inadvertent discovery of paleontological resources during construction, to be delivered by the paleontological monitor to the construction crew prior to the onset of ground disturbance.

- In the event that paleontological resources are encountered during construction activities, all work must stop in the immediate vicinity of the finds while the paleontological monitor documents the find. The designated qualified paleontologist shall assess the find. Should the qualified paleontologist assess the find as significant, the find shall be collected and curated in an accredited repository along with all necessary associated data and curation fees.
- A qualified paleontologist should develop a stand-alone paleontological resources awareness training for the District. This training will include information on the types of paleontological resources that may be encountered in the area, an overview of the area's geologic and paleontological history, and instructions on steps to follow should park personnel or members of the public using the SART report the discovery of a paleontological resource. The District should ensure this training is delivered to personnel responsible for operations and maintenance activities on the SART.

Based on the findings in this study and the implementation of the above mitigation recommendations, the proposed Project should not cause an adverse impact to paleontological resources. Therefore, no additional paleontological resource studies are recommended or required at this time. Changes to the Project plans or location from what has been assessed in this study will require additional assessment for impacts to paleontological resources.

Abbreviations

bgs	Below ground surface
CEQA	California Environmental Quality Act
District, Lead Agency	Riverside County Regional Park & Open-Space District
LACM	Natural History Museum of Los Angeles County
NEPA	National Environmental Policy Act
PRPA	Paleontological Resources Preservation Act
SART	Santa Ana River Trail
SOP	Standard Operating Procedures
SR	State Route
SVP	Society of Vertebrate Paleontology
USACE	United States Army Corps of Engineers

Glossary

Paleontological Monitor	An individual who has demonstrated experience in the collection and salvage of fossil materials. An undergraduate degree in geology or paleontology is preferable but is less important than documented experience performing paleontological monitoring and mitigation.
Paleontological Monitoring	Full-time observation of construction activities in high potential geologic units by a paleontological monitor, under supervision of the project paleontologist.
Paleontological Resource	Any evidence of ancient life. This includes the remains of the body of an organism, such as bones, skin impressions, shell, or leaves, as well as traces of an organism's activity, such as footprints or burrows, called trace fossils, and relevant associated geologic data. Also referred to as fossils.
Qualified Paleontologist	An individual with a graduate degree in paleontology, geology, or related field, with demonstrated experience in the vertebrate, invertebrate, or botanical paleontology of California or related topical or geographic areas; at least one year full time professional experience, or equivalent specialized training in paleontological research (i.e., the identification of fossil deposits, application of paleontological field and laboratory procedures and techniques, and curation of fossil specimens), administration, or management; at least four months of supervised field and analytic experience in general North American paleontology; and demonstrated ability to carry research to completion.

1.0 INTRODUCTION

Stantec Consulting Services Inc. (Stantec) conducted a paleontological resources assessment on behalf of the Riverside County Regional Park & Open-Space District (the District) for the Santa Ana River Trail Phases 2, 2A, and 3A Project (the Project) adjacent to the Prado Dam in unincorporated Riverside County, California. This paleontological study was conducted in support of the District as the Lead Agency for the Project, which includes proposed trail improvements on a 2.79-mile dual-track Class I and Class II multi-use path/natural surface trail that would be constructed within the Prado Dam Flood Control Basin.

The proposed Project is subject to compliance with California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) requirements regarding the Project's potential impacts on paleontological resources. As part of CEQA and NEPA compliance, a paleontological resources assessment was conducted to determine potential impacts of the proposed Project on paleontological resources.

1.1 PROJECT INFORMATION

1.1.1 Project Location

The Santa Ana River Trail (proposed Project; SART Phases 2, 2A, and 3A) is located within the Prado Dam Flood Control Basin1 area of the Santa Ana River in unincorporated Riverside County. The Prado Dam Flood Control Basin area is located within Riverside County, approximately 26 miles east of the Pacific Ocean and 35 miles southeast of downtown Los Angeles (Figure 1). The Project site is located within the northwestern portion of Riverside County at the juncture of the administrative boundaries of Riverside, San Bernardino, and Orange counties and south and southeast of the City of Corona's jurisdictional boundaries.

The east and west improvement limits of the proposed Project extend from approximately Rincon Street to the east to Auto Center Drive to the west and are shown in Figure 2: Project Location Aerial Photo Map. As shown in Figure 2, the proposed Project intersects with the following roadways, including Rincon Street, Butterfield Drive, and Auto Center Drive. The Project limits are the Prado Dam Flood Control Basin area to the north, State Route (SR) 91 to the south, Rincon Street to the east, and SR-71 to the west. Access to the Project site is via regional freeways (SR-91 and SR-71) and local roads (Rincon Street, Butterfield Drive, Auto Center Drive, and Corydon Street).

Introduction

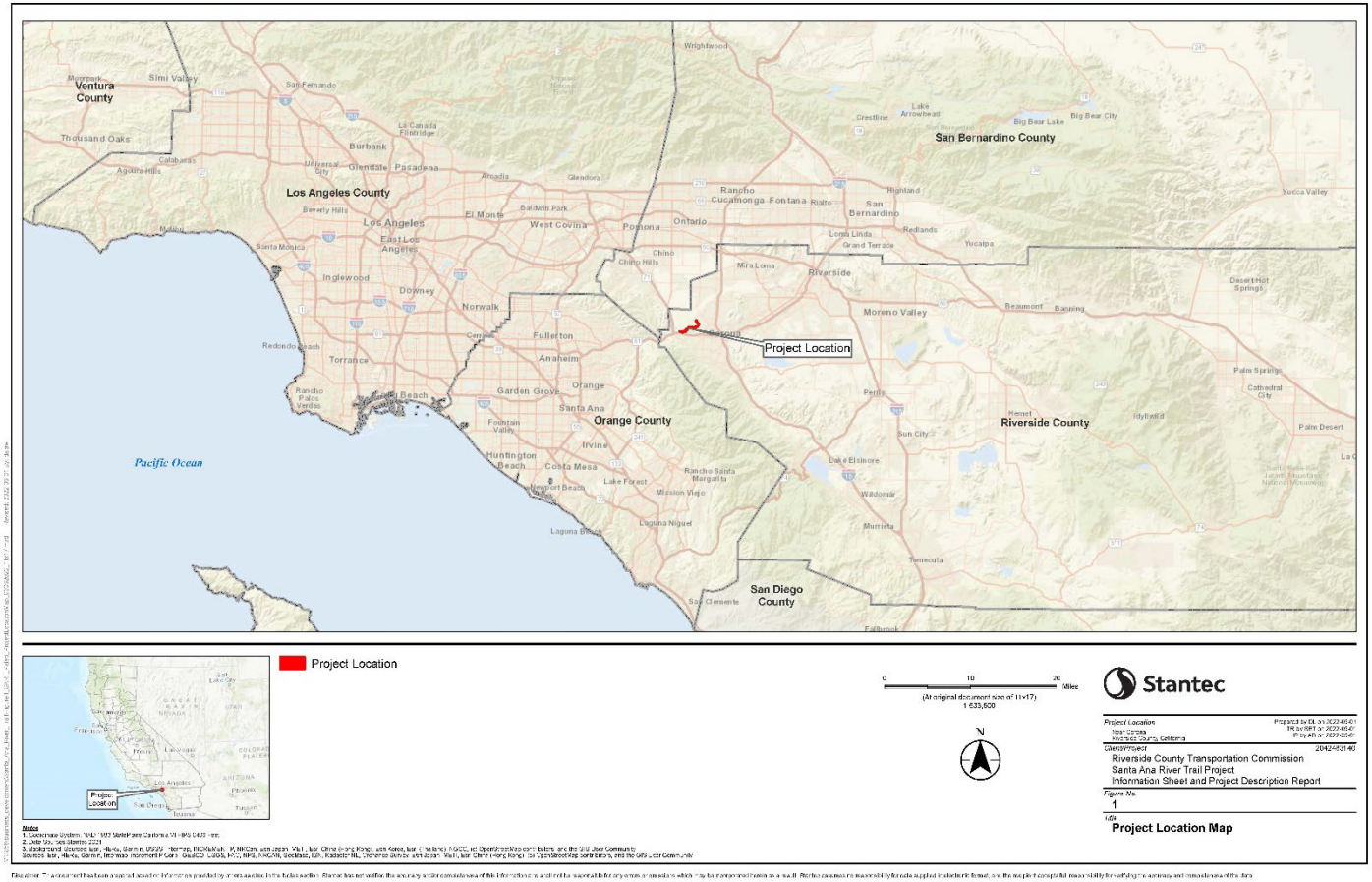

Figure 1. Project location map.

Introduction

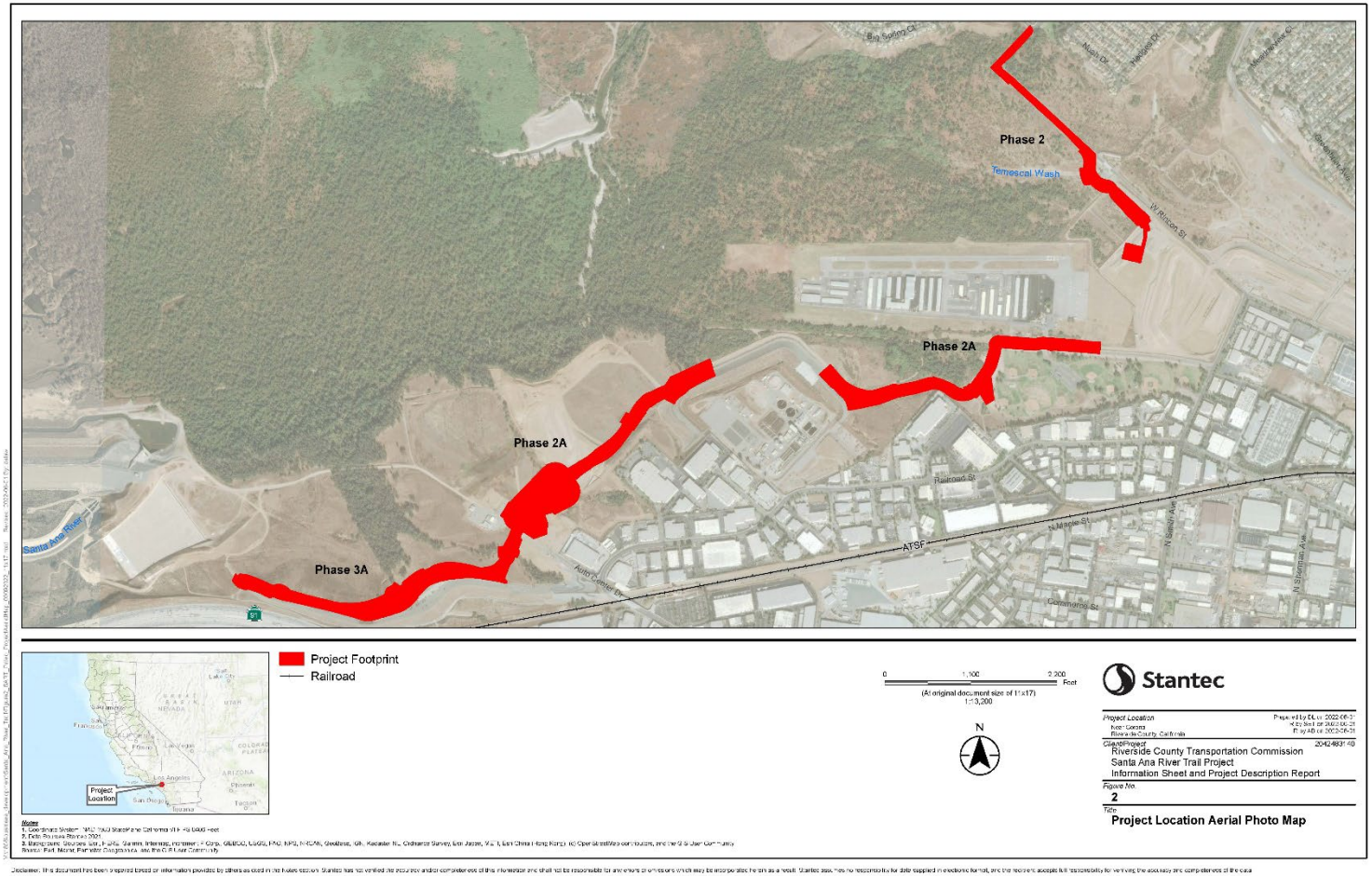

Figure 2. Project location aerial photo map

1.1.2 Project Description

The proposed Project consists of trail improvements that would complete a portion of the larger 110-mile regional SART system. Specifically, the Project includes a 2.79-mile dual-track Class I multi-use path/natural surface trail that would be constructed within the Prado Dam Flood Control Basin. It would entail construction of three (3) new trail segments (Phases 2, 2A, and 3A). These trail segments include the following lengths and are shown in Figure 3 (Site Plan), 3-1 (Plan Sheet 1), 3-2 (Plan Sheet 2), 3-3 (Plan Sheet 3), and 3-4 (Plan Sheet 4):

- **Phase 2**: 3,450 feet
- **Phase 2A**: 7,231 feet
- **Phase 3A**: 4,046 feet

Currently, only portions of the trail have been completed or are being constructed. Once constructed, the trail would be Americans with Disabilities Act (ADA) compliant and follow the California Department of Transportation (Caltrans) Highway Design Manual guidance for bicycle paths.

The following construction items are proposed in the Project:

- Class I bicycle path with pedestrian and equestrian path separated by a split rail fence with a general design, as follows:
    - Eight-to-ten-foot bicycle path travel way with two-foot shoulders
    - Five percent max slope
    - Two percent max crossfall path and shoulder slopes
    - Minimum 2 to 1 foot slope ratio for cut / fill slopes
- Signage and striping along the trail
- Implementation of drainage improvements
- Application of native hydroseed mix along slope areas of the new trail phases

At constrained locations such as bridge crossings, the Class I multi-use path and natural surface trail would merge into a combined paved trail and be shared by all users. The combined paved trail would accommodate bicyclists, equestrians, hikers, and pedestrians and would be approximately 11 feet wide on the bridges and at the Temescal Wash crossing be 20 feet wide. A combined paved trail will also be required for a portion of the trail along West Rincon Street and Corydon Street within Phase 2 due to right-of-way constraints and existing Southern California Edison (SCE) overhead powerlines.

Figure 3 shows the proposed trail alignment and preliminary slope, embankment, drainage/wash crossing locations, construction vehicle access points and roads, and potential construction and staging/laydown areas.

Introduction

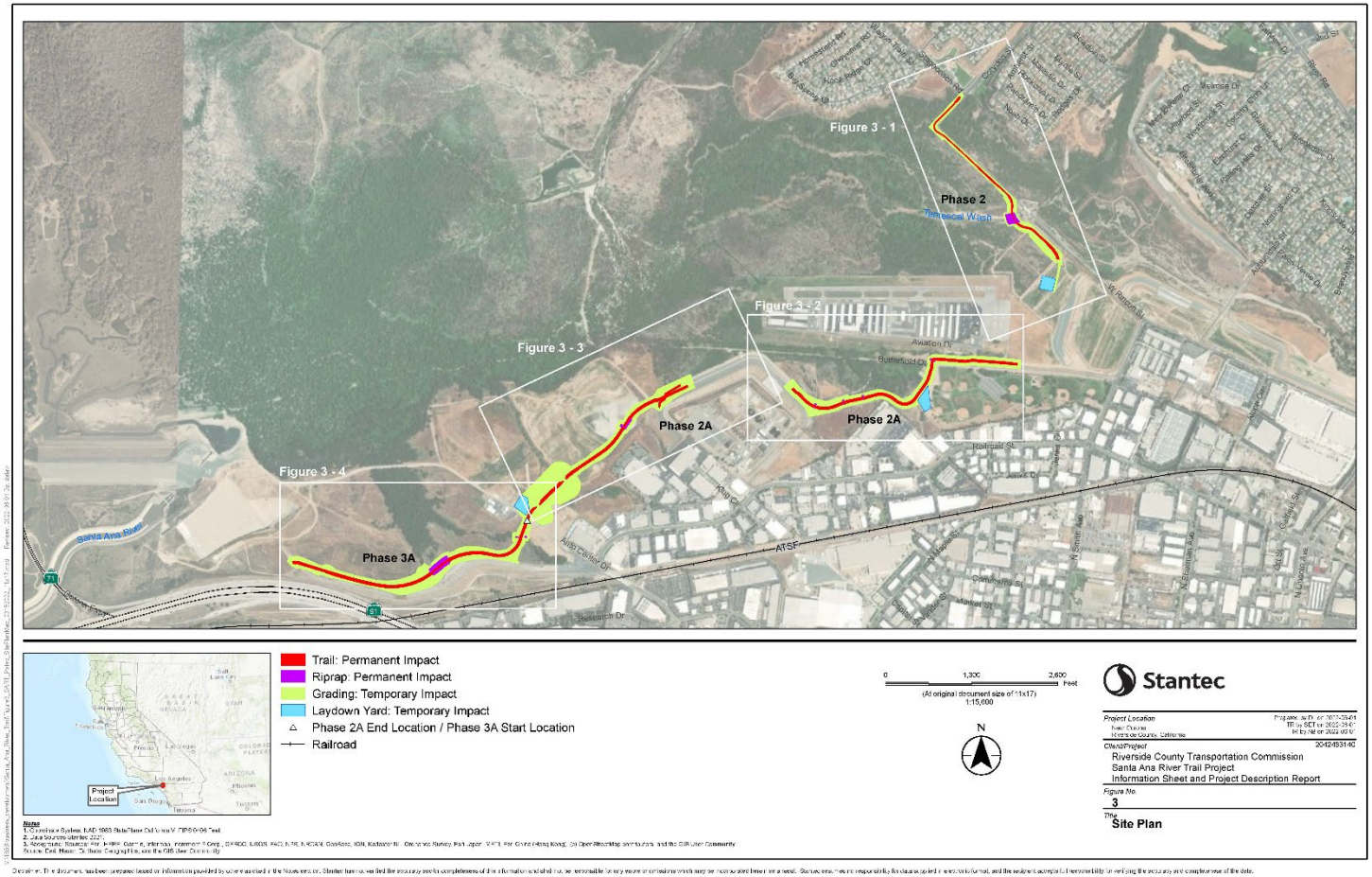

Figure 3. Site plan.

Introduction

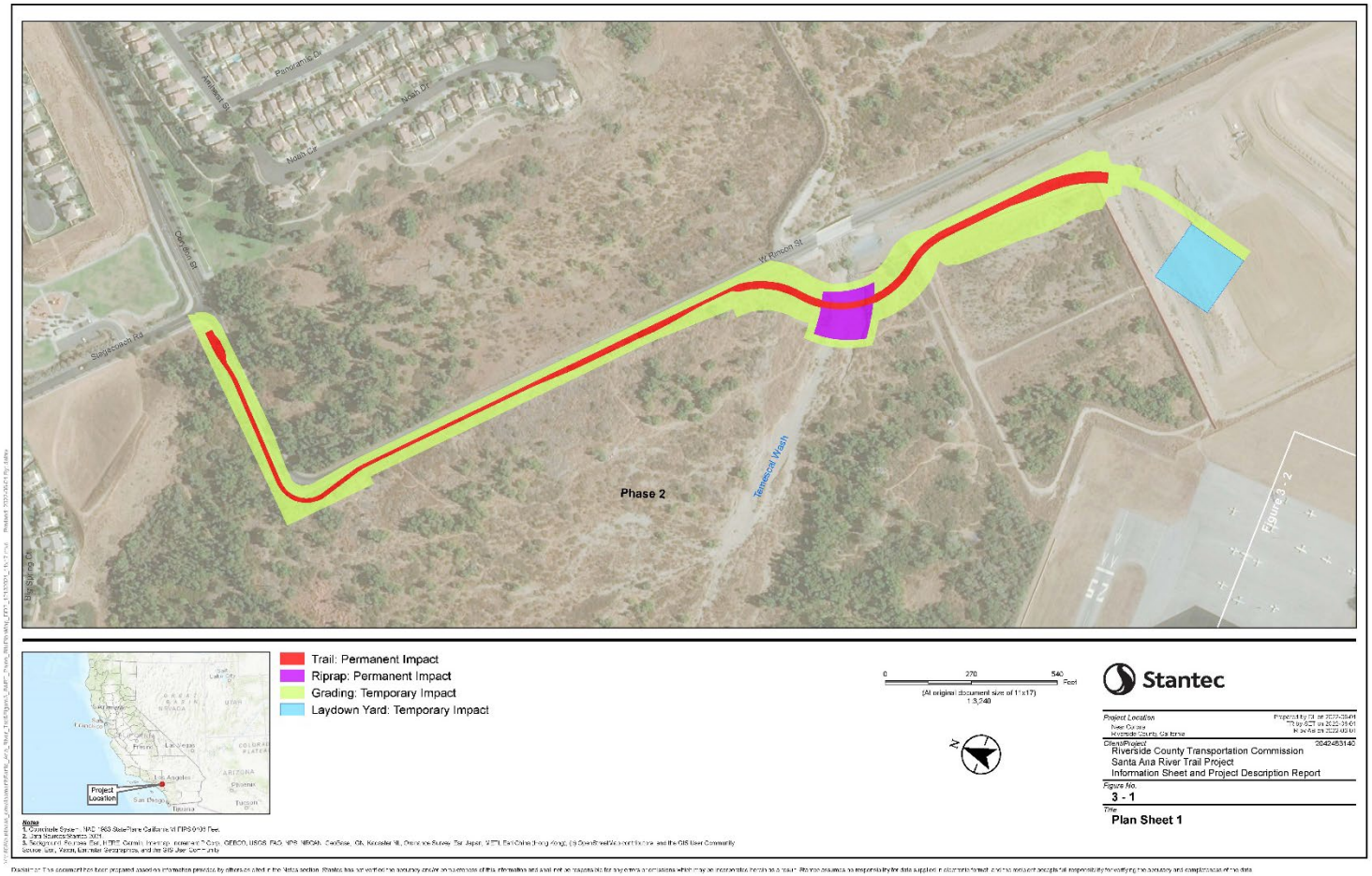

Figure 3-1. Plan Sheet 1

Introduction

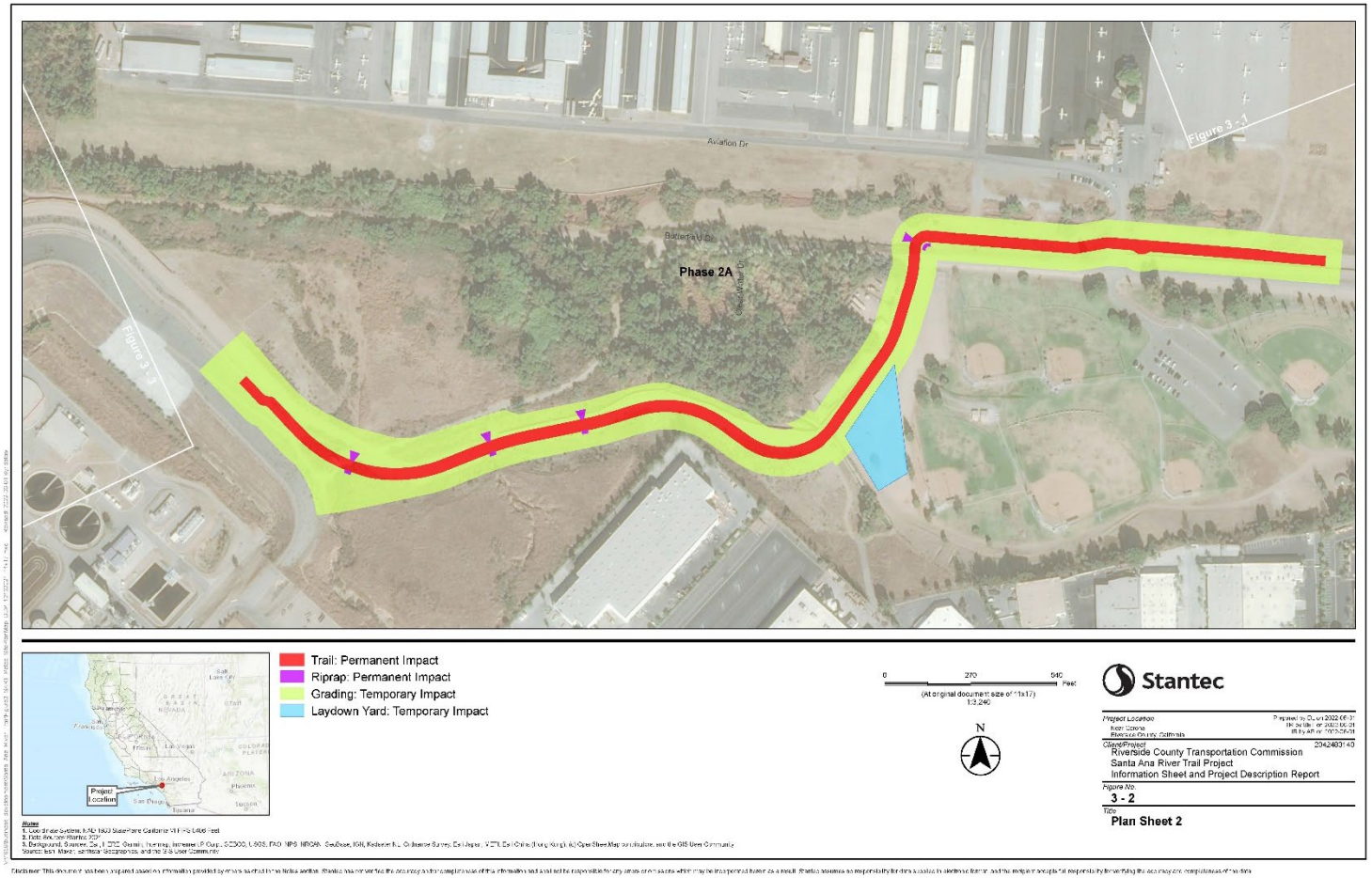

Figure 3-2. Plan Sheet 2

Introduction

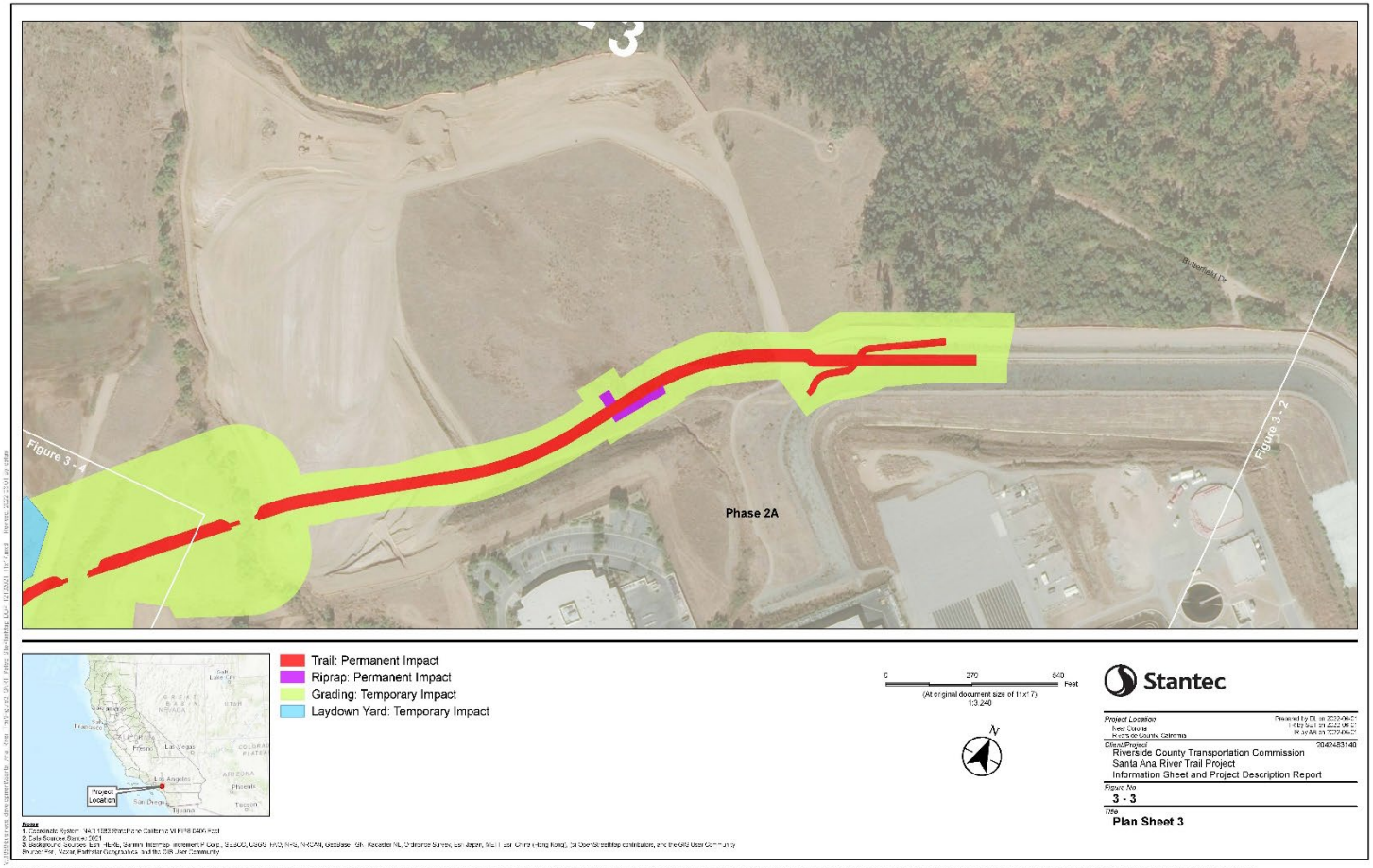

Figure 3-3. Plan Sheet 3

Introduction

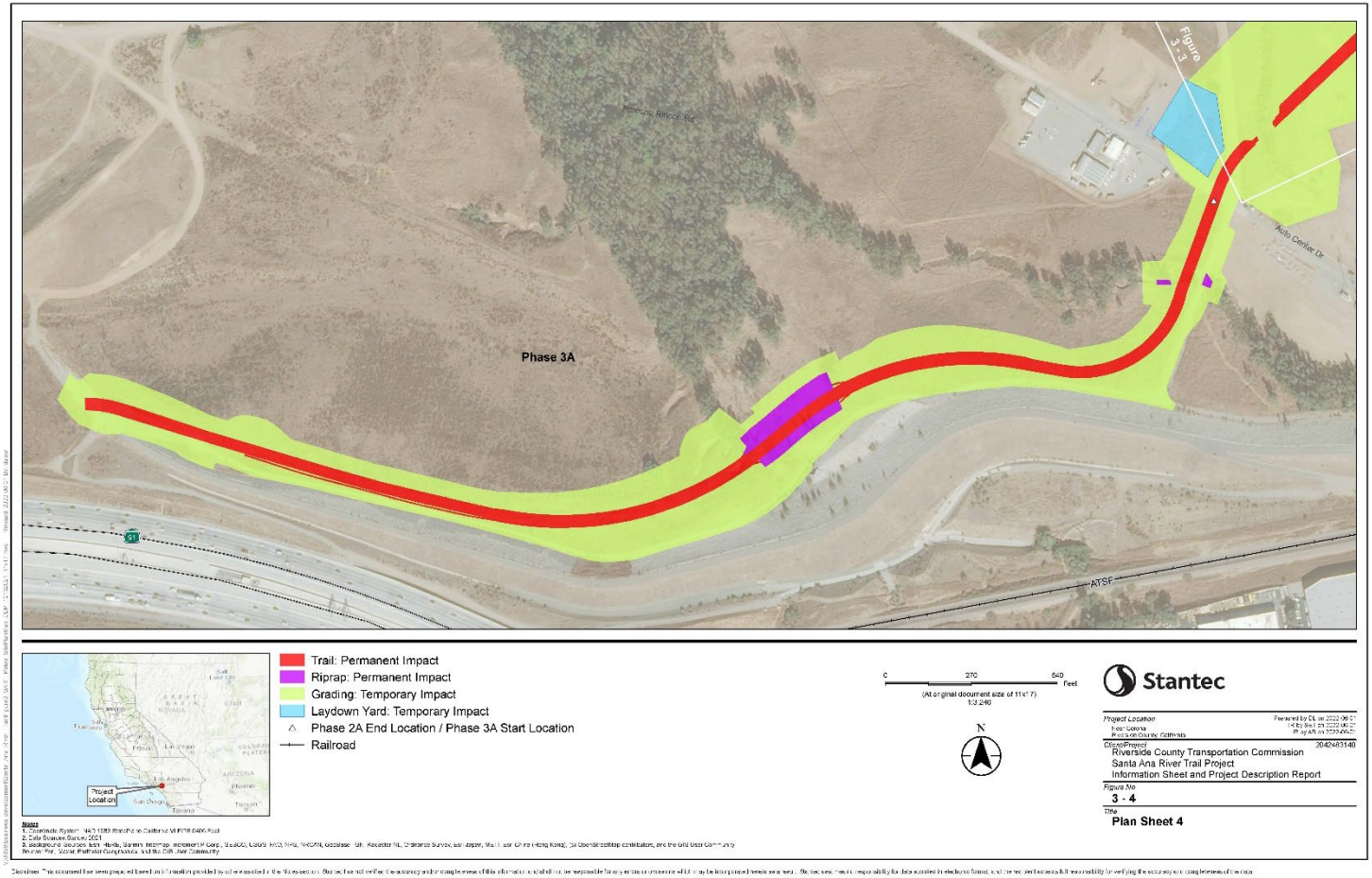

Figure 3-4. Plan Sheet 4

Drainage Crossings/Bridge Types

Figure 3 shows the location of the proposed drainage crossings along the trail phases. In Phase 2, a box culvert extending approximately 50 feet across Temescal Wash is proposed. Clear-span bridges ranging in length from about 100-feet to 180-feet would be used to cross two un-named drainages located in Phase 2A.[1] Figure 4 shows the typical trail and bridge sections. To protect the trail as it crosses drainages, riprap[2] would be installed in various locations along the alignment.

Trail Access

Trail access to each of the Phases would be achieved as follows:

- Phase 2: Stagecoach Road/Corydon Street (Stagecoach Park area) and Rincon Street/Smith Avenue (Corona Airport area)
- Phase 2A: Auto Center Drive (western portion of trail) and Butterfield Drive (eastern portion of trail)
- Phase 3A: Auto Center Drive/Railroad Street (USACE office)

1.1.3 CONSTRUCTION

The construction phasing and activities are expected to take 12 months to complete for each individual trail phase. Each trail phase will include site preparation, clear and grub, grading, drainage improvements, and construction of an asphalt-concrete (AC) bicycle trail and DG pedestrian trail. Two prefabricated bridges are proposed within Phase 2A to avoid impacts to existing natural drainages. Low flow crossings with culverts are proposed within Phases 2, 2A, and 3A. A box culvert crossing is proposed in Phase 2 for the Temescal Wash crossing. At grade dip crossings without culverts are also proposed within Phases 2 and 2A.

Although preliminary engineering is still underway, current earthwork calculations are presented in Table 1: Preliminary Grading Quantities. As noted below, a total of approximately 65,139 cubic yards of cut would result and a total of approximately 35,074 cubic yards of fill would occur, resulting in a total of approximately 30,070 cubic yards of remaining soil that would be exported off site to a landfill or other permitted location. Therefore, assuming a typical tandem-axle dump truck with an average payload capacity of 14 cubic yards, export would be expected to generate approximately 2,148 truck trips to remove the remaining 30,070 cubic yards of soil.

[1] Note: The actual lengths of the bridges will be determined based upon a detailed bridge type analysis and selected accordingly.
[2] Note: Riprap is a permanent layer of large, angular stone, cobbles, or boulders typically used to armor, stabilize, and protect the soil surface against erosion and scour in areas of concentrated flow or wave energy.

Introduction

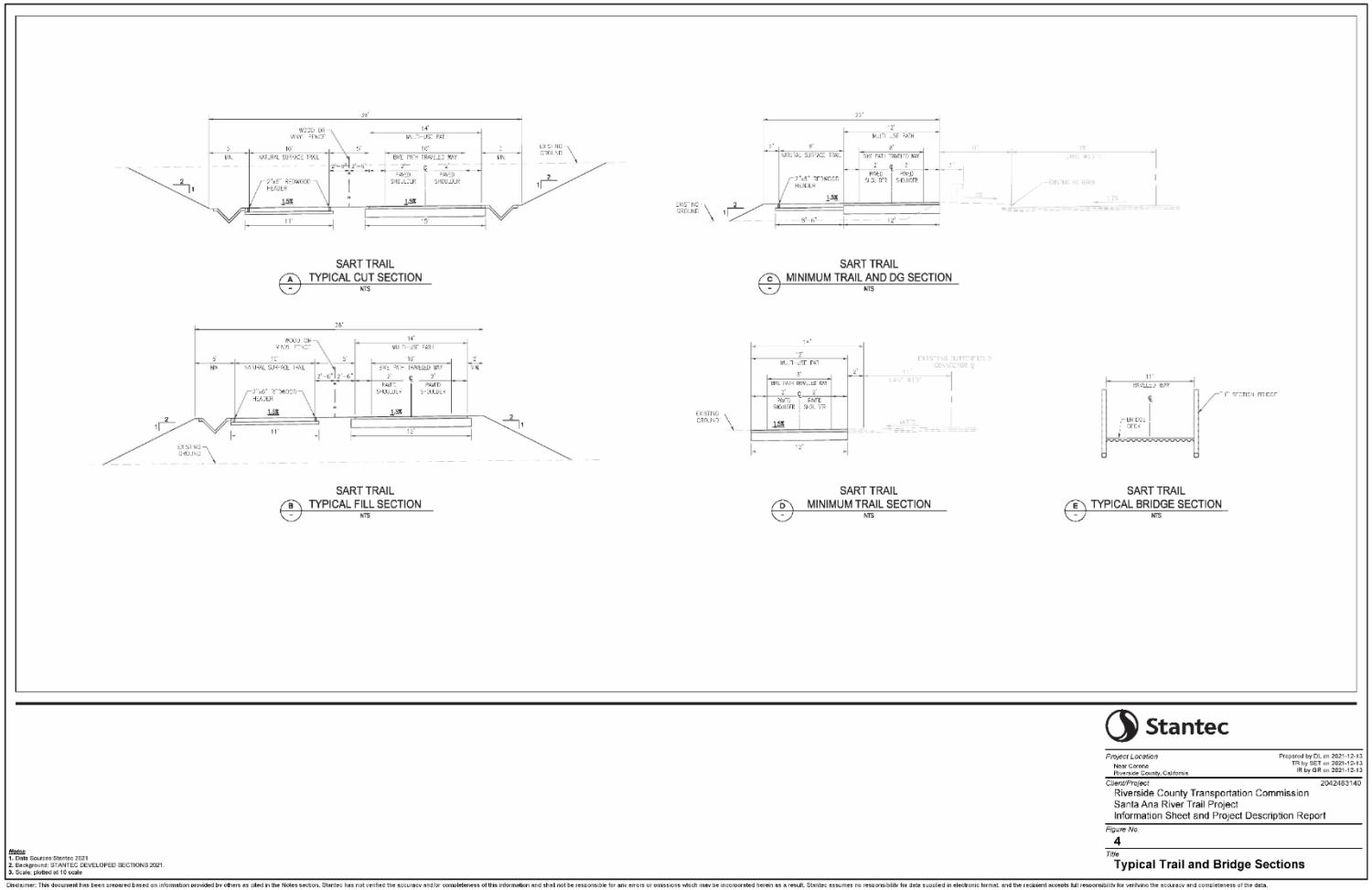

Figure 4. Typical Trail and Bridge Sections

Construction activities would be undertaken during permitted time periods, per the Riverside County Municipal Code.

Table 1. Preliminary Grading Quantities

Trail Phase	Cut (cubic yards)	Fill (cubic yards)	Net (cubic yards)
3A	45,911	10,085	-35,826
2A (west)	4,846	11,168	6,321
2A (east)	451	3,475	3,023
2	434	10,346	9,912
Trail Section (3.5 AC/12.5 AB)	9,707	0	-9,707
Ped Section (6” DG/4” AB)	3,790	0	-3,790
Total*	**65,139**	**35,074**	**30,070**

Source: Stantec, 2022
Note: Totals are rounded

Construction Vehicle Access

Construction vehicle access would be achieved via SR-91 and then via local roads, depending on the trail phase being constructed. Figure 3 shows the location of proposed ingress/egress points for construction vehicles. In addition, and in order ensure continuous and safe operation of the local roadways and intersections and worker safety during Project construction, a Traffic Management Plan (TMP) would be prepared and implemented. The TMP would assist to minimize delays by ensuring proper signage is posted to advise motorist and pedestrian of activities in the construction zone. In addition, it is also intended to ensure that safe traffic and work zones areas are in place during roadside construction activities. The TMP provides worker and public safety from vehicles and equipment both outside and within roadside worksites.

Construction Vehicle and Material Laydown

Construction vehicle and materials staging/laydown would be identified pending finalization of design and construction documents and would largely be determined by the contractor. However, it is anticipated that these areas would include only public property and no private property would be required. Figure 3 shows the preliminary location of proposed staging/laydown areas.

Utilities

Table 2 includes the existing utilities located within the Project site and which may require relocation and/or modifications.

Table 2. Existing Utilities Which May Require Relocation and/or Modifications

Owner	Utility	Location	Adjustment Required?	Relocation Required?	Description
Southern California Edison	Overhead power lines	Phase 2	Potential guy wire / guy anchor	No	Guy wires may need to be adjusted to accommodate trail
SoCalGas	Phases 2A and 3A	Phases 2A and 3A	No	No	-
City of Corona Department of Water & Power	Recycled Water	Phase 2	Yes	Yes	Waterline appurtenances will be relocated/adjusted
Santa Ana Watershed Project Authority	Inland Empire Brine Line	Phase 2A	No	No	-

Source: Stantec, 2022

Outgrant

The construction of the proposed Project within the Prado Dam Flood Control Basin area will require the acquisition of an Outgrant by the USACE, Los Angeles District. An Outgrant refers to grant of interest or right to one to use government real property by a lease, easement, license, or permit. It is an agreement whereby a private party may, depending on the type of real estate instrument issued, enjoy an interest in or use real property.

1.1.4 Operations & Maintenance

The District has established Standard Operating Procedures (SOPs) for managing and maintaining the trails. Those SOPs are intended to define and establish public safety and natural resource protection during routine patrol and maintenance. The proposed Project will be patrolled by District Rangers three to five days per week, based on active use periods. Rangers will monitor the area for disturbance, damage, or safety issues, which may include illegal off highway vehicle use, homeless encampments, and trail hazards with a focus on environmentally sensitive areas. The Homeless SOP and Homeless Eviction SOP has been developed to address illegal encampments along the SART and within Open Space areas.

In addition, the 2009 Santa Ana River Parkway Minimum Maintenance Guidelines provide minimum maintenance requirements that would be followed. The District Trails Management Team would conduct maintenance inspections of the proposed Project weekly as well as after high winds and heavy rain events to remove hazards such as downed or hazard limbs and erosion. Weekly maintenance may include soil and debris removal, tree trimming, and fence repair. The District Maintenance Team would be responsible for conducting annual weed abatement. In an effort to reduce invasive and non-native plant species along the trail corridor, and to reduce potential water quality impacts, routine scheduled

maintenance will include horse manure removal by the District at least once a month. Environmentally sensitive areas will be posted with signage at all access points to discourage entry.[3]

1.2 PALEONTOLOGICAL RESOURCES

Paleontological resources, or fossils, are any evidence of ancient life. This includes the remains of the body of an organism, such as bones, skin impressions, shell, or leaves, as well as traces of an organism's activity, such as footprints or burrows, called trace fossils. In addition to the fossils themselves, geologic context is an important component of paleontological resources, and includes the stratigraphic placement of the fossil as well as the lithology of the rock in order to assess paleoecologic setting, depositional environment, and taphonomy. Fossils are protected by federal, state, and local regulations as nonrenewable natural resources.

While CEQA does not define a significance threshold for paleontological resources, the standards of the Society of Vertebrate Paleontology (SVP) are often used in the absence of a legal definition of significance. The SVP defines significant paleontological resources as:

> identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i. e., older than about 5,000 radiocarbon years). [SVP 2010: 11].

It should be noted that the threshold for significance varies with a variety of factors, including geologic unit, geographic area, and the current state of scientific research, and may also vary between different agencies (Murphey et al. 2019). Numerous paleontological studies have developed criteria for the assessment of significance for fossil discoveries (e.g., Eisentraut and Cooper 2002, Murphey et al. 2019, Murphey and Daitch 2007, Scott and Springer 2003). In general, these studies assess fossils as significant if one or more of the following criteria apply:

- The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct.
- The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events, through biochronology or biostratigraphy and the correlation with isotopic dating.

[3] Source: https://www.rivcoparks.org/_files/ugd/3be3ea_0fe16fab040546ffac164a95b13c655f.pdf. Accessed on December 7, 2021

- The fossils provide ecological data, such as the development of biological communities, the interaction between paleobotanical and paleozoological biotas, or the biogeography of lineages.
- The fossils demonstrate unusual or spectacular circumstances in the history of life.
- The fossils provide information on the preservational pathways of paleontological resources, including taphonomy, diagenesis, or preservational biases in the fossil record.
- The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.
- The fossils inform our understanding of anthropogenic affects to global environments or climate.

A geologic unit known to contain significant paleontological resources is considered sensitive to adverse impacts if there is a high probability that earth-moving or ground-disturbing activities in that rock unit will either disturb or destroy fossil remains directly or indirectly. This definition of sensitivity differs fundamentally from the definition for archaeological resources as follows:

> It is extremely important to distinguish between archaeological and paleontological (fossil) resource sites when defining the sensitivity of rock units. The boundaries of archaeological sites define the areal extent of the resource. Paleontological sites, however, indicate that the containing sedimentary rock unit or formation is fossiliferous. The limits of the entire rock formation, both areal and stratigraphic, therefore define the scope of the paleontological potential in each case. [SVP 2010: 2].

Many archaeological sites contain features that are visually detectable on the surface. In contrast, fossils are often contained within surficial sediments or bedrock and are therefore not observable or detectable unless exposed by erosion or human activity.

In summary, in the absence of observable fossil resources on the surface, paleontologists must assess the potential of geologic units as a whole to yield paleontological resources based on their known potential to produce significant fossils elsewhere. Monitoring by experienced paleontologists greatly increases the probability that fossils will be discovered during ground-disturbing activities and that, if these remains are significant, successful mitigation and salvage efforts may be undertaken to prevent adverse impacts to these resources.

2.0 REGULATORY FRAMEWORK

There are federal, state, and local laws and regulations that provide for the protection of paleontological resources. This investigation was conducted to meet these requirements regarding paleontological resources on the lands proposed for development.

2.1 FEDERAL

2.1.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969, as amended (Public Law [PL] 91-190, 42 USC 4321–4347, January 1, 1970, as amended by PL 94-52, July 3, 1975, PL 94-83, August 9, 1975, and PL 97-258 4(b), Sept. 13, 1982) recognizes the continuing responsibility of the federal government to "preserve important historic, cultural, and natural aspects of our national heritage…" (Sec. 101 [42 USC 4321]) (#382). The passage of the Paleontological Resources Preservation Act (PRPA) (see below) in 2009 made paleontological resources widely recognized natural resources that must be considered under NEPA analyses, and it is therefore now standard practice to include paleontological resources in NEPA studies in all instances where there is a possible impact.

2.1.2 Paleontological Resources Preservation Act

The Paleontological Resources Preservation Act (PRPA) directs the U.S. Department of the Interior and U.S. Department of Agriculture to manage and protect paleontological resources on federal land using "scientific principles and expertise" (Sec. 6302), including plans for inventory, monitoring, and the scientific and educational use of paleontological resources. To formulate a consistent paleontological resources management framework, the PRPA incorporates most of the recommendations from the report of the Secretary of the Interior titled "Assessment of Fossil Management on Federal and Indian Lands" (USDI 2000). The PRPA officially recognizes the scientific importance of paleontological resources by declaring that these resources from designated federal lands are federal property that must be preserved and protected. The PRPA codifies pre-existing policies of the Bureau of Land Management (BLM), National Park Service (NPS), U.S. Forest Service (USFS), Bureau of Reclamation, and U.S. Fish and Wildlife Service (USFWS), and provides for uniform:

- criminal and civil penalties for illegal removal, transport, and sale as well as theft and vandalism of fossils from federal lands (Sections 6306, 6307, and 6308);
- minimum requirements for the issuance of paleontological resource-use permits (terms, conditions, and qualifications of applicants) (Section 6304);
- protection of locality data (Section 6309);
- definitions for "paleontological resources" and "casual collecting" (Section 6301); and
- requirements for curation of federal fossils in approved repositories (Section 6305).

2.1.3 Federal Land Policy and Management Act

The Federal Land Policy and Management Act (FLPMA) of 1976 (43 United States Code [USC] 1712[c], 1732[b]); sec. 2, Federal Land Management and Policy Act of 1962 [30 USC 611]; Subpart 3631.0 et

seq.), Federal Register Vol. 47, No. 159, 1982, does not refer specifically to fossils. However, significant fossils are understood and recognized in policy as scientific resources, as recognized with the passage of the PRPA. Permits, which authorize the collection of significant fossils for scientific purposes from BLM lands, are issued under the authority of FLPMA. Under FLPMA, federal agencies are charged to:

- manage public lands in a manner that protects the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, archaeological, and water resources, and, where appropriate, preserve and protect certain public lands in their natural condition (Section 102);
- periodically inventory public lands so that the data can be used to make informed land-use decisions (Section 102); and
- regulate the use and development of public lands and resources through easements, licenses, and permits (Section 302).

2.1.4 Archaeological Resources Protection Act

The Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm) applies to the regulation of paleontological resources in that it defines paleontological specimens as separate from archaeological resources from a regulatory standpoint except in circumstances where the specimen was found in an archaeological context.

2.2 STATE OF CALIFORNIA

2.2.1 California Environmental Quality Act

CEQA (Public Resources Code Sections 21000 et seq) requires that before approving most discretionary projects, the Lead Agency must identify and examine any significant adverse environmental effects that may result from activities associated with such projects. As updated in 2016, CEQA separates the consideration of paleontological resources from cultural resources (Public Resources Code Section 21083.09). The Appendix G checklist (Title 14, Division 6, Chapter 3, California Code of Regulations [CCR] 15000 et seq.) requires an answer to the question, “Will the proposed project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?” Under these requirements, Stantec has conducted a paleontological resources assessment to determine impacts of the proposed project on paleontological resources within the Project Area.

2.2.2 Public Resources Code

The California Public Resources Code (PRC) (Chapter 1.7, Sections 5097 and 30244) includes additional state-level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts to paleontological resources resulting from

development on state lands, define the removal of paleontological sites or features from state lands as a misdemeanor, and prohibit the removal of any paleontological site or feature from state land without permission of the applicable jurisdictional agency.

2.3 LOCAL REGULATIONS

2.3.1 County of Riverside General Plan

The Riverside County General Plan requires consideration of paleontological resources under the Multipurpose Open Space Element of the general plan (County of Riverside 2015). The Riverside County General Plan recommendations are based on the SVP's (2010) guidelines for the mitigation of paleontological resources. The Multipurpose Open Space Element of the general plan (County of Riverside 2015) provides the following requirements for paleontological resource protection in sensitive areas within the county:

- OS 19.6. Whenever existing information indicates that a site proposed for development has high paleontological sensitivity as shown on Figure OS-8 [of the County of Riverside General Plan Multipurpose Open Space Element, 2015], a paleontological resource impact mitigation program (PRIMP) shall be filed with the County Geologist prior to site grading. The PRIMP shall specify the steps to be taken to mitigate impacts to paleontological resources.
- OS 19.7. Whenever existing information indicates that a site proposed for development has low paleontological sensitivity as shown on Figure OS-8, no direct mitigation is required unless a fossil is encountered during site development. Should a fossil be encountered, the County Geologist shall be notified and a paleontologist shall be retained by the project proponent. The paleontologist shall document the extent and potential significance of the paleontological resources on the site and establish appropriate mitigation measures for further site development.
- OS 19.8. Whenever existing information indicates that a site proposed for development has undetermined paleontological sensitivity as shown on Figure OS-8, a report shall be filed with the County Geologist documenting the extent and potential significance of the paleontological resources on site and identifying mitigation measures for the fossil and for impacts to significant paleontological resources prior to approval of that department.
- OS 19.9. Whenever paleontological resources are found, the County Geologist shall direct them to a facility within Riverside County for their curation, including the Western Science Center in the City of Hemet.

3.0 PROFESSIONAL STANDARDS

The SVP (2010), the BLM (2016) and a number of scientific studies (Eisentraut and Cooper 2002; Murphey et al. 2019; Scott and Springer 2003) have developed guidelines for professional qualifications, conducting paleontological assessments, and developing mitigation measures for the protection of paleontological resources. These guidelines are broadly similar, and include the use of museum records searches, scientific literature reviews, and, in some cases, field surveys to assess the potential of an area to preserve paleontological resources. Should that potential be high, accepted mitigation measures include paleontological monitoring, data recordation of all fossils encountered, collection and curation of significant fossils and associated data, and in some cases screening of sediment for microfossils.

This study has been conducted in accordance with these guidelines and the recommendations provided herein meet these standards.

4.0 GEOLOGIC SETTING

The Project Area is located in the Peninsular Ranges geomorphic province. The Peninsular Ranges formed as a volcanic island arc collided with the west coast of North America and was accreted onto the margin of the continent, resulting in the expansion of the continent westward. The Peninsular Ranges are part of a larger subduction zone that extends all along western North America, with this particular geomorphic province extending from the Los Angeles Basin in the north to Baja in the south, and extending to Santa Catalina, Santa Barbara, San Nicolas, and San Clemente Islands on the west and the Colorado Desert on the east (Norris and Webb 1990). The core of the Peninsular Ranges formed as the core of a magmatic arc in the Mesozoic that resulted from active subduction along the Pacific Plate boundary (Harden 2004).

Two main batholiths of plutonic rock form the core of the Peninsular Ranges. The western batholith, where the project area is located, was emplaced first and is 140 – 105 million years old (Ma) and consists of mafic plutonic rocks, while the eastern batholith is 99 – 92 Ma and consist of silica-rich granodiorites and tonalities (Kimbrough et al. 2001). These plutonic rocks intruded into the older rocks of a Paleozoic carbonate platform, heavily metamorphosing them (Harden 2004). There was volcanic activity associated with the subduction zone as well, with the Santiago Peak Volcanics deposited from 130 – 120 Ma as primarily andesitic and silicic flows, that were then metamorphosed by the ongoing batholith emplacement (Fife et al. 1967). Later in the Cretaceous, marine sedimentary rocks accumulated over the plutons and volcanic rocks, deposited as turbidity currents in what was an ocean at the time (Kimbrough et al. 2001). These rocks are in turn overlain by more recent sedimentary deposits leading up to the present day, that have been heavily uplifted and faulted by tectonic activity throughout the Cenozoic. These deposits were marine through the Eocene and then shifted to terrestrial volcanic and sedimentary strata by the Oligocene and lower Miocene (Powell 1993).

5.0 METHODOLOGY

The paleontological resource assessment reported herein consisted of a records search from the Natural History Museum of Los Angeles County (LACM) as well as a review of the relevant scientific literature and the most recent geologic mapping. To assess if paleontological resources are likely to be encountered in any given area, the paleontological potential of the geologic units present in the area is assessed. Paleontological potential of a geologic unit consists of both (a) the potential for yielding abundant vertebrate fossils or for yielding significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data (SVP 2010). Unlike archaeological resources that often have a limited aerial extent, paleontological resources may occur throughout a geologic unit, and so paleontological potential is assessed for the unit as a whole. Provided below is the methodology used during the current study to assess the potential of the Project to impact paleontological resources.

5.1 RECORDS SEARCH

A records search of the Project Area and vicinity was requested from the LACM on June 2, 2021, with the results received from the LACM on June 3, 2021. The search returned the closest known paleontological localities of the LACM to the Project Area from geologic units that are present at the Project Area, either at the surface or in the subsurface.

5.2 SCIENTIFIC LITERATURE REVIEW

In order to assess the paleontological potential of the Project Area, the most recent geologic mapping) was consulted to identify all geologic units present at the surface or likely present in the subsurface of the Project Area. The scientific literature was then consulted to assess the history of each of these units for preserving fossil resources.

5.3 PALEONTOLOGICAL RESOURCES ASSESSMENT

The results of the museum records search and the scientific literature review were used to assign the paleontological potential rankings of the SVP (2010) to the geologic units present in the Project Area. These rankings are designed to inform the development of appropriate mitigation measures for the protection of paleontological resources and are widely accepted as industry standards in paleontological mitigation (Murphey et al. 2019; Scott and Springer 2003). These rankings are as follows:

> **High Potential.** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rock units classified as having high potential for producing

paleontological resources include, but are not limited to, sedimentary formations that are temporally or lithologically suitable for the preservation of fossils (e. g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.), some volcaniclastic formations (e. g., ashes or tephras), and some low-grade metamorphic rocks.

Undetermined Potential. Rock units for which little information is available in the literature or museum records concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study and field work is necessary to determine if these rock units have high or low potential to contain significant paleontological resources.

Low Potential. Rock units that are poorly represented by fossil specimens in institutional collections or, based on general scientific consensus, only preserve fossils in rare circumstances (e. g., basalt flows or Recent colluvium) have low paleontological potential.

No Potential. Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites).

5.4 PALEONTOLOGICAL RESOURCES IMPACTS ASSESSMENT

Impacts to paleontological resources can be classified as direct, indirect, or cumulative. Impacts can also be considered as adverse impacts or as positive impacts. Direct adverse impacts on paleontological resources are the result of damage or destruction of these nonrenewable resources by surface disturbing actions including construction excavations. Therefore, in areas that contain paleontologically sensitive geologic units, ground disturbance has the potential to adversely impact paleontological resources, by damaging or destroying them and rendering them permanently unavailable to science and society. Positive direct impacts, however, may result when paleontological resources are identified during construction and the appropriately documented and salvaged, thus ensuring the specimens are protected for future study and education.

Indirect adverse impacts typically include those effects which result from the continuing implementation of management decisions and resulting activities, including normal ongoing operations of facilities constructed within a given project area. They also occur as the result of the construction of new roads and trails in areas that were previously less accessible. This increases public access and therefore increases the likelihood of the loss of paleontological resources through vandalism and unlawful collecting, thus constituting an adverse indirect impact. Human activities that increase erosion also cause indirect impacts to surface and subsurface fossils as the result of exposure, transport, weathering, and reburial.

Cumulative adverse impacts can result from incrementally minor but collectively significant actions taking place over time. The incremental loss of paleontological resources over time from construction-related surface disturbance or vandalism and unlawful collection would represent a significant cumulative adverse impact, because it would result in the destruction of non-renewable paleontological resources and the associated irretrievable loss of scientific information.

Positive impacts can result from the preservation of significant paleontological resources identified during construction, a direct impact, or following Project activities, an indirect impact. By successfully identifying, salvaging, and curating significant paleontological resources in a federally accredited repository, they are preserved in perpetuity and may contribute to scientific understanding and public education and awareness.

The impact assessment conducted here takes into consideration all planned project activities in terms of aerial and subsurface extents, including the possibility of subsurface geologic units having a different paleontological potential than surficial units. For example, younger surficial sediments (alluvium, lacustrine, eolian, etc.) have low potential to preserve fossil resources due to their age; yet sediments increase in age with depth and so these surficial deposits often overly older units that have high paleontological potential. In areas with this underlying geologic setting surficial work may be of low risk for impacting paleontological resources while activities that require excavations below the depth of the surficial deposits would be at greater risk of impacting paleontological resources. For this reason the impact assessment takes into consideration both the surface and subsurface geology, and is tailored to Project activities.

6.0 RESULTS

The results of the paleontological resources assessment are described below.

6.1 PROJECT AREA GEOLOGY

Geologic mapping by Morton and Miller (2006) indicates the surface of the project area consists of three geologic units: young axial channel deposits; old alluvial fan deposits; and very old alluvial fan deposits, with an additional unit, the Puente Formation, likely present in the subsurface (Figure 4). These geologic units range in age from the Recent to the Miocene, up to approximately 12.6 Ma, and are described below.

> **Young axial channel deposits (Qya_a in Figure 4).** Young axial channel deposits are found underlying the entirety of Phase 2, the eastern-most end of Phase 2A, and along stream or drainages in Phases 2A and 3A (Figure 4). These sediments consist of slightly to moderately consolidated sands with lesser amounts of silt and gravel eroded from the surrounding highlands and deposited by fluvial action (Morton and Miller 2006). These sediments are relatively young in

age, dating from the Holocene to the late Pleistocene, and are likely underlain by older Quaternary sediments such as the old and very old alluvial deposits described below at undetermined depths.

Old alluvial fan deposits (Qof_g and Qof_{1g} in Figure 4). There are two units of old alluvial fan deposits present at the surface in the Project Area: old alluvial fan deposits, undivided, and old alluvial fan deposits, unit 1 (Morton and Miller 2006). Both of these units consist of moderately to well consolidated silty sand with a high proportion of gravel with moderate to well-developed pedogenic soil profiles (Morton and Miller 2006). Undivided old alluvial fan deposits are mapped in a single place in the Project Area, at the easternmost end of the western portion of Segment 2A (Figure 4). This unit ranges in age from the late to middle Pleistocene. Unit 1 of the old alluvial fan deposits are similar in lithology to the undivided deposits, but have a more refined age, dating to the middle Pleistocene, and are moderately dissected with 50 cm to 150 cm of soil developed (Morton and Miller 2006). This unit is mapped at the surface in the higher-relief areas of easternmost Phase 3A and westernmost Phase 2A, cut by drainages with young axial channel deposits.

Very old alluvial fan deposits ($Qvof_g$ in Figure 4). Very old alluvial fan deposits are mapped at the surface in the westernmost part of Phase 3A (Figure 4). Very old alluvial fan deposits consist of moderately to well consolidated silt, sand, and conglomerate with a high percentage of gravel, often heavily dissected (Morton and Miller 2006). This unit dates to the middle to early Pleistocene (Morton and Miller 2006).

Puente Formation, Sycamore Canyon Member (Tpsc in Figure 4). The Sycamore Canyon Member of the Puente Formation is not mapped at the surface within the Project Area but is mapped at the surface to the south and northwest of the westernmost end of Phase 3A (Figure 4). Therefore, this unit is likely present in the subsurface underlying very old alluvial fan deposits in the Project Area at unknown, but due to the proximity of the outcrops, potentially shallow depths. The Sycamore Canyon Member consists of marine sandstone and pebble conglomerate that records the deposition of submarine fans at bathyal depths during the early Pliocene and Miocene (Critelli et al. 1995). The member is highly variable laterally, with thick-bedded to massive medium- and coarse-gained sandstone, thin-bedded and poorly bedded siliceous siltstone, and lenses of massive conglomerate (Morton and Miller 2006). Some workers have elevated the Sycamore Canyon to formational status in this area (e.g., Dibblee and Ehrenspeck 2001).

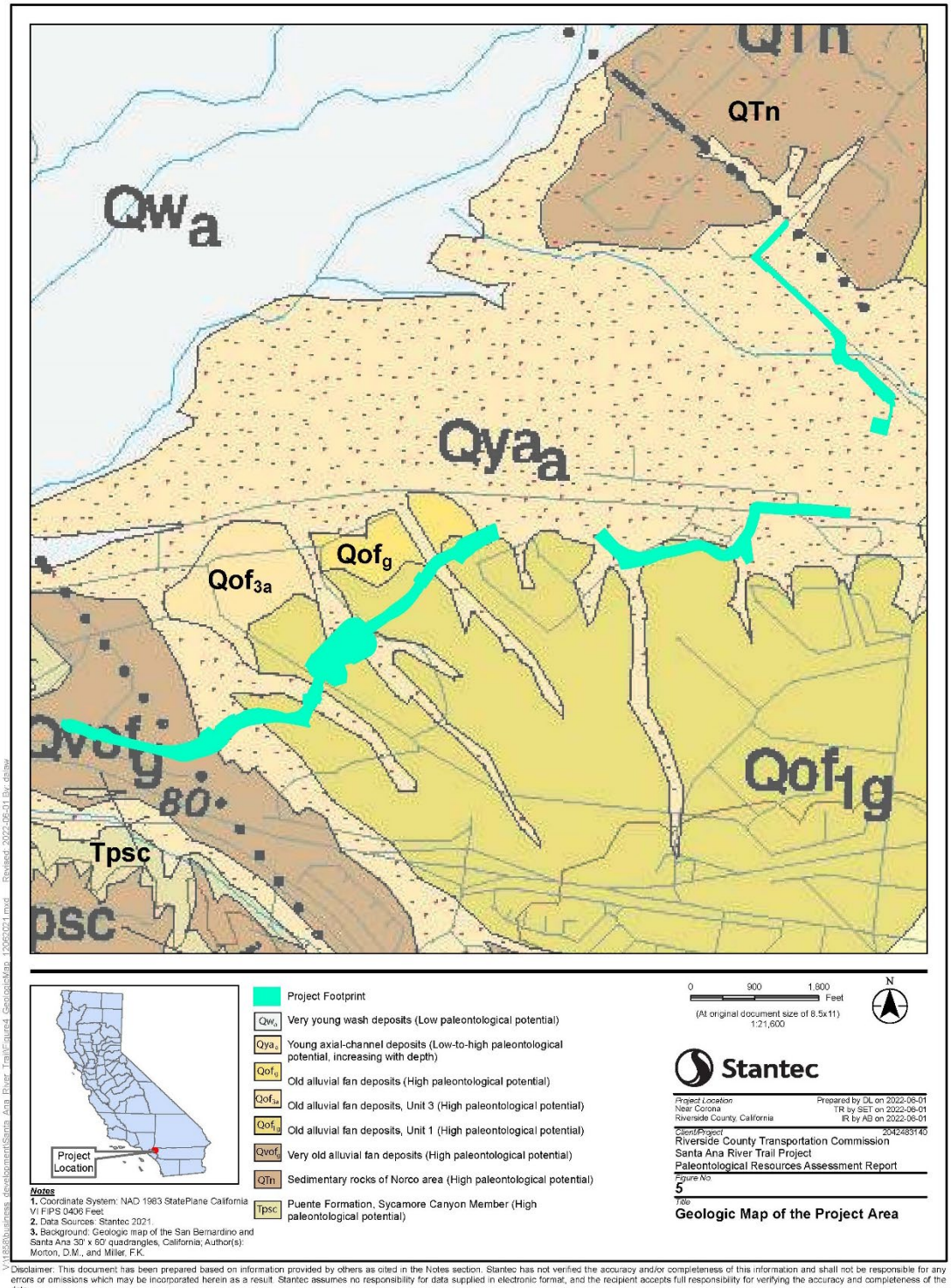

Figure 5. Geologic map of the Project Area

6.2 PALEONTOLOGICAL POTENTIAL OF GEOLOGIC UNITS IN THE PROJECT AREA

In order to assess the potential of the geologic units present at the surface or in the subsurface to preserve paleontological resources, Stantec conducted a review of the relevant scientific literature and requested a records search from the LACM (Appendix A), as summarized in Table 3 below. The results of this investigation are described below for each of the geologic units in the Project Area (Table 4).

Young axial channel deposits (Qya_a in Figure 4). The young axial channel deposits present in the Project Area date from the Holocene to the late Pleistocene, indicating they range from Recent in age to as much 1.9 Ma. As defined by the SVP (2010), fossil resources must be over 5,000 years in age, corresponding to the middle part of the Holocene. Therefore, the upper layers of the young axial channel deposits are too young to preserve paleontological resources, but as sediments increase in age with depth, the deeper layers of this unit are of an age to preserve paleontological resources.

Early Holocene and late Pleistocene sediments in Southern California have an extensive record of fossil preservation, including in the vicinity of the Project Area. The closest locality in similar sediments known to the LACM comes from near Corona, California, approximately 2 miles to 3 miles southeast of the Project Area, where a bovid fossil, a member of the group to which cows belong, was collected (LACM 2021). Other LACM localities within a 10-mile radius have preserved ground sloth, elephant, horse, and snake fossils (LACM 2021).

A review of the scientific literature indicates that across Riverside County and neighboring Los Angeles County Pleistocene fossils representing a rich Ice Age fauna are often found in similar Quaternary-aged sediments. These include animals still found in North America today, such as deer, bison, sheep, and horses, creatures no longer found in either North America, such as camels, lions, cheetahs, and sloths, and extinct creatures such as mammoths, dire wolves, and saber-toothed cats (Jefferson 1991 a and b, Graham and Lundelius 1994, McDonald and Jefferson 2008, Miller 1971, Reynolds and Reynolds 1991). In addition to these iconic large animals, a wide variety of small animals can be preserved as well, including reptiles such as frogs, salamanders, snakes (Hudson and Brattstrom 1977), and birds (Collins et al. 2018, Jones et al. 2008, Miller 1941). These fossils are important for recreating the history of Southern California, in particular studying climate change (e.g., Roy et al. 1996), extinction (e.g., Barnosky et al. 2004, Jones et al. 2008, Sandom et al. 2014, Scott 2010), and paleoecology (e.g., Connin et al. 1998). Given the extensive record of significant fossils recovered from the older layers of surficial sediments, the young axial channel deposits in the Project Area are here assessed as having low-to-high paleontological potential, increasing with depth. The exact depth at which this transition occurs cannot be determined precisely in the Project Area; however, the records of the LACM and reports in the scientific literature (i.e., Jefferson 1991 a and b, Reynold and Reynolds

1991) indicate depths of as little as 6 feet below ground surface (bgs) may yield paleontological resources.

Table 3 Summary of the records search from the LACM

Locality Number	Geologic Unit	Age	Taxa	Approximate Location	Approximate Distance to Project Area
LACM VP 1207	Unknown formation	Pleistocene	Bovidae	Corona, California	2 to 3 miles southeast of Project Area
LACM VP 7508	Unknown formation	Pleistocene	Ground sloth (*Nothrotheriops*); elephant family (Proboscidea); horse (Equus)	Near intersection of Vellano Club Dr. and Palmero Dr., Chino Hills	8 miles northwest of Project Area
LACM VP 7811	Unknown formation (eolian tan silt)	Pleistocene	Whip snake (*Masticophis*)	West of Orchard Park, Chino Valley	4 miles northeast of Project Area
LACM VP 7268, 7271	Unknown formation	Pleistocene	Horse (*Equus*)	Sundance Condominiums, south of Los Serranos Golf Course	7 miles northwest of Project Area
LACM IP 17925, 17932	Sycamore Canyon Formation (sandstone and conglomerate facies)	Pliocene-Miocene	Bivalves (Tellinidae, *Delectopecten*), Gastropods (Fasciolaridae); land plants (*Taxodium, Typha lesquereuxi, Phragmites*)	West end of the San Jose Hills, around intersection of North Azusa Ave and East Amar Rd.	19 miles northwest of Project Area

Old alluvial fan deposits (Qof_g and Qof_{1g} in Figure 4). Both undivided and Unit 1 of the old alluvial fan deposits present in the Project Area date from the late to middle Pleistocene, which ranges from approximately 11,700 to 7.7 Ma, making all depths of this unit old enough to preserve fossil resources. These sediments are similar to the deeper layers of the axial channel deposits described above, and therefore may preserve a similar collection of Ice Age fossils. Therefore, old alluvial fan deposits are assessed as having high paleontological potential.

Very old alluvial fan deposits ($Qvof_g$ in Figure 4). Very old alluvial fan deposits are much like old alluvial fan deposits described above, but are older, dating from the middle to early Pleistocene, approximately 12,900 years to 2.58 Ma. As such, they are old enough to preserve fossil resources. As described above for both the deeper layers of the axial channel deposits and the old alluvial fan deposits, these sediments are demonstrated to preserve a variety of significant paleontological resources across the region and are therefore assessed as having high paleontological potential.

Sycamore Canyon Member, Puente Formation (Tpsc in Figure 4). The Sycamore Canyon Member of the Puente Formation, sometimes elevated to formation status, has an extensive record of fossil preservation across Southern California. The nearest locality known to the LACM is approximately 19 miles northwest of the Project Area, where a variety of invertebrates, including bivalves and gastropods, as well as plant fossils were collected (LACM 2021). In addition to this locality, the Puente Formation and the Sycamore Canyon Member have been well-documented as preserving a wide range of significant fossils, such as cephalopods (Saul and Stadum 2005), crustaceans (Feldmann 2003), fishes (Carnevale et al. 2008, Huddleston and Takeuchi 2006), and other marine and terrestrial vertebrates (Barboza et al. 2017, Leatham and North 2017). One particularly interesting site has been published from which a possible mass death assemblage of decapod crustaceans was collected along with land plants, bivalves, fish, and marine mammals as a result of mitigation activities at the Corona Country Club Estates in the city of Corona, California (Feldman 2003, Lander 2002), less than five miles southeast of the Project Area. Given the extensive record of fossil preservation in the Sycamore Canyon Member of the Puente Formation, it is assessed here as having high paleontological potential.

Table 4 Paleontological potential of geologic units within the Project Area

Geologic Unit	Age	Occurrence within Project Area	Paleontological Potential*
Young axial channel deposits	Holocene to late Pleistocene	Phase 2; drainages in Phases 2A and 3A	Low-to-High, increasing with depth
Old alluvial deposits	Late to middle Pleistocene	Phases 2A and 3A	High
Very old alluvial deposits	Middle to early Pleistocene	Phase 3A	High
Puente Formation, Sycamore Canyon Member	Early Pliocene to Miocene	Phase 3A (subsurface)	High

**ranking based on the SVP (2010) classifications*

6.3 PALEONTOLOGICAL IMPACTS ASSESSMENT

The paleontological potential assessment presented above indicates that the Project Area includes two geologic units mapped at the surface that have high paleontological potential (old and very old alluvial deposits) with one unit mapped at the surface with low paleontological potential at the surface but high potential in the subsurface (young axial channel deposits). Should paleontological resources preserved in these units be damaged or destroyed by Project activities it would constitute a direct adverse impact under CEQA. Therefore, an impacts assessment was conducted to evaluate planned Project activities and their likelihood to pose an adverse impact to paleontological resources.

The Project plans to create three trail segments along the SART route (Phases 2, 2A, and 3A). This work will entail a variety of activities: vegetation removal and grubbing, cut (estimated 65,139 cubic yards) and fill (estimated 35,074 cubic yards) to level the trail surface, grading of the trail surface, drainage

improvements, laydown yards, box culverts, clear-span bridges, riprap installation, and utility relocation. Following construction, operations and maintenance activities include ranger patrols, weekly maintenance patrols and the removal of accumulated debris, monthly removal of horse manure, and annual weed abatement.

Of these activities, those that require ground disturbance that will extend into geologic units with high paleontological potential are at risk of posing an adverse impact to paleontological resources. Grading for trail construction is expected to entail a minimum of 5 feet of excavation bgs along the length of the trail, with cuts extending as much as 23 feet bgs planned on the west side of the existing auxiliary dike culvert. Other activities that may involve ground disturbance are the installation of box culverts and clear-span bridges as well as drainage improvements. Where these activities occur into previously undisturbed geologic units with high paleontological potential, either at the surface or in the subsurface, they risk posing a direct adverse impact to paleontological resources.

Following construction of the SART phases, increased recreational usage of the area may lead to increased risk of paleontological resources that are naturally exposed through erosion being lost to theft or vandalism. This would constitute an indirect adverse impact to paleontological resources.

Because this Project has the potential to cause both direct and indirect adverse impacts, Stantec has developed recommendations for mitigating these impacts, presented below.

7.0 RECOMMENDATIONS AND MANAGEMENT CONSIDERATIONS

As part of the current paleontological assessment, a records search from the LACM and a review of geologic mapping and the scientific literature were conducted to assess the potential of the geologic units in the Project Area to preserve paleontological resources. The results of this assessment show that the following geologic units are present in the project area:

- Young axial cannel deposits – present at the surface, low-to-high paleontological potential, increasing with depth;
- Old alluvial fan deposits – present at the surface, high paleontological potential;
- Very old alluvial fan deposits – present at the surface, high paleontological potential;
- Sycamore Canyon Member of the Puente Formation, present in the subsurface, high paleontological potential.

Because geologic units with high paleontological potential are present in the Project Area, Stantec conducted an impacts assessment to evaluate the Project's potential to damage or destroy unique

paleontological resources, in accordance with the CEQA Appendix G Checklist. Project activities include grading, cut slopes, drainage improvements, and installation of box culverts and clear-span bridges, all of which may involve ground disturbance. These activities, when conducted in previously undisturbed areas of geologic units with high paleontological potential, risk impacting paleontological resources. Furthermore, increased recreational use may pose an indirect impact through potential loss of paleontological resources to theft or vandalism. Therefore, in order to avoid direct or indirect impacts to paleontological resources, Stantec recommends a qualified paleontologist meeting professional standards as defined by Murphey et al. (2019) be retained to oversee all aspects of paleontological mitigation. Paleontological mitigation should consist of the following activities for this Project:

- The qualified paleontologist should develop and oversee the implementation of a Paleontological Monitoring and Mitigation Plan tailored to the Project plans that provides for paleontological monitoring of earthwork and ground disturbing activities into undisturbed geologic units with high paleontological potential, whether at the surface or in the subsurface, to be conducted by a paleontological monitor meeting industry standards (Murphey et al. 2019).

- The qualified paleontologist should develop a Worker's Environmental Awareness Program training that communicates requirements and procedures for the inadvertent discovery of paleontological resources during construction, to be delivered by the paleontological monitor to the construction crew prior to the onset of ground disturbance.

- In the event that paleontological resources are encountered during construction activities, all work must stop in the immediate vicinity of the finds while the paleontological monitor documents the find. The designated qualified paleontologist shall assess the find. Should the qualified paleontologist assess the find as significant, the find shall be collected and curated in an accredited repository along with all necessary associated data and curation fees.

- A qualified paleontologist should develop a stand-alone paleontological resources awareness training for the District. This training will include information on the types of paleontological resources that may be encountered in the area, an overview of the area's geologic and paleontological history, and instructions on steps to follow should park personnel or members of the public using the SART report the discovery of a paleontological resource. The District should ensure this training is delivered to personnel responsible for operations and maintenance activities on the SART.

These recommendations meet the standards of the SVP (2010) and conform to industry best practices (e.g., Murphey et al. 2019; Scott and Springer 2003) Based on the findings in this study the proposed project will not cause an adverse impact to paleontological resources with the incorporation of the above mitigation recommendations. Therefore, no additional paleontological resources studies are recommended or required at this time. Should the project location or plans change, this assessment will need to be revised to address those changes.

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APPENDIX A

Natural History Museum of Los Angeles County
Paleontological Records Search Results

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Research & Collections

e-mail: paleorecords@nhm.org

June 3, 2021

Stantec Consulting Services, Inc.
Attn: Alyssa Bell

re: Paleontological resources for the Santa Ana River Trails Project (#2042483140)

Dear Alyssa:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed development at the Santa Ana River Trails project area as outlined on the portion of the Prado Dam and Corona North USGS topographic quadrangles map that you sent to me via e-mail on June 1, 2021. We do not have any fossil localities that lie directly within the proposed project area, but we do have fossil localities nearby from the same sedimentary deposits that occur in the proposed project area, either at the surface or at depth.

The following table shows the closest known localities in the collection of the Natural History Museum of Los Angeles County.
Sycamore canyon; norco conglomerate

Locality Number	Location	Formation	Taxa	Depth
LACM VP 1207	Hill on east side of sewage disposal plant; 1 mile N-NW of Corona	Unknown formation (Pleistocene)	Bovidae	Unknown
LACM VP 7508	Near intersection of Vellano Club Dr. and Palmero Dr., Oakcrest Development; N of Soquel Canyon	Unknown formation (Pleistocene)	Ground sloth (*Nothrotheriops*); elephant family (Proboscidea); horse (*Equus*)	Unknown
LACM VP 7811	W of Orchard Park, Chino Valley	Unknown formation (eolian, tan silt; Pleistocene)	Whip snake (*Masticophis*)	9-11 feet bgs
LACM VP 7268, 7271	Sundance Condominiums, S of Los Serranos Golf Course	Unknown (Pleistocene)	Horse (*Equus*)	Unknown
LACM VP 7508	Near intersection of Vellano Club Dr. and Palmero Dr., Oakcrest Development; N of Serrano Canyon	Unknown formation (Pleistocene)	Ground sloth (*Nothrotheriops*); elephant family (Proboscidea); horse (*Equus*)	Unknown
LACM IP 17925, 17932	West end of the San Jose Hills, around intersection of N Azusa Ave and E Amar Rd.	Sycamore Canyon Formation (Sandstone and conglomerate	Bivalves (Tellinidae, *Delectopecten*), Gastropods (Fasciolaridae); Land plants (*Taxodium*, *Typha lesquereuxi, Phragmites*)	6-6.5 ft bgs

facies)

VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface

This records search covers only the records of the Natural History Museum of Los Angeles County ("NHMLA"). It is not intended as a paleontological assessment of the project area for the purposes of CEQA or NEPA. Potentially fossil-bearing units are present in the project area, either at the surface or in the subsurface. As such, NHMLA recommends that a full paleontological assessment of the project area be conducted by a paleontologist meeting Bureau of Land Management or Society of Vertebrate Paleontology standards.

Sincerely,

Alyssa Bell, Ph.D.
Natural History Museum of Los Angeles County

enclosure: invoice

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