Mitigation Monitoring and Reporting Program for the Upper Santa Ana River Tributaries Restoration and Mitigation Reserve Program

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Prepared for:
San Bernardino Valley Municipal Water District
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SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

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Upper Santa Ana River Tributaries Restoration Project
and Mitigation Reserve Program

Mitigation Monitoring and Reporting Program

Introduction

Assembly Bill 3180 (AB 3180), codified in Section 21081.6 of the California Public Resources Code, became effective January 1, 1989, and requires a lead or responsible agency to adopt a mitigation monitoring and reporting program (MMRP) when approving or carrying out a project. The purpose of this program is to ensure that when an environmental document, either an environmental impact report (EIR) or a mitigated negative declaration, identifies measures to reduce potential adverse environmental impacts to less-than-significant levels that those measures are implemented as detailed in the environmental document. As lead agency for the Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program (proposed project), and pursuant to AB 3180, San Bernardino Valley Municipal Water District (Valley District) is responsible for implementation of this MMRP.

As such, this MMRP is required to ensure that adopted mitigation measures are successfully implemented and a monitoring strategy is prepared for each mitigation measure identified in the proposed project. Once Valley District adopts the MMRP, the mitigation monitoring and reporting requirements will be incorporated into the appropriate permits (e.g., engineering specifications, engineering construction permits, real estate entitlements). Therefore, in accordance with the aforementioned requirements, this document lists each mitigation measure, describes the methods for implementation and verification, and identifies the responsible party or parties as detailed below in the Mitigation Monitoring and Reporting Program Implementation section.

Monitoring and Reporting Procedures

This MMRP for the proposed project will be in place through all phases of the project including design, construction, and operation, and will help ensure that project objectives are achieved. Valley District will be responsible for administering the MMRP and ensuring that all parties comply with its provisions. Valley District may delegate implementation and monitoring activities to staff, consultants, or contractors. All construction contractors shall submit an environmental compliance plan for construction management and Valley District approval prior to beginning construction activities. This plan shall document how the contractor intends to comply with all measures applicable to the contract, including application of best management practices (BMPs) in accordance with instructions listed in the construction specifications. Valley District also will ensure that monitoring is documented through periodic reports and that deficiencies are promptly corrected. The designated environmental monitor will track and document compliance with mitigation measures, note any problems that may result, and take appropriate action to rectify problems.

Mitigation Monitoring and Reporting Program Implementation

Pursuant to AB 3180, this MMRP was prepared and used to verify compliance with individual mitigation measures. This MMRP identifies each mitigation measure by discipline, the entity (organization) responsible for its implementation, and the report/permit/certification required for each measure, as shown in Table 1. Certain inspections and reports may require preparation by qualified individuals, and these are specified as needed. The timing and method of verification for each measure are also specified.

Table 1. Mitigation Monitoring and Reporting Program for the Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

Mitigation Measure	Timing and Methods	Responsible Parties
Biological Resources		
BIO-1: Consult with Agencies Regarding ESA and CESA Permitting. The ESA provides regulatory protection for species listed as "threatened" or "endangered." The Tributaries Restoration Project and Mitigation Reserve Program Phase I shall obtain federal and state incidental take authorization as necessary for all federally listed species identified as potentially being adversely affected from the construction, operations, and/or maintenance of the Tributaries Restoration Project and Mitigation Reserve Program Phase I. The project shall require a permit from USACE in order to construct within waters of the United States. As required by Section 7 of the ESA, USACE analyzes the potential direct, indirect, and cumulative effects associated with the proposed project and makes determinations on each federally protected species that may be affected. We anticipate that USACE will likely initiate consultation with USFWS in order to receive a Biological Opinion and incidental take coverage for least Bell's vireo, Santa Ana sucker, and potentially Santa Ana River woolly-star, as adverse impacts on these species may be unavoidable. Therefore, formal consultation shall occur between the federal action agency, USACE, and USFWS in order to ensure the Tributaries Restoration Project and Mitigation Reserve Program Phase I is not likely to jeopardize the continued existence of any threatened or endangered species or result in the adverse modification of critical habitat. USFWS will issue a Biological Opinion, including terms and conditions, which shall then be included as terms and conditions of the USACE permit issued to the Applicant, Valley District. These terms and conditions may include, for example, ensuring that an authorized and approved biological monitor is in place during construction and that any incidental take in excess of the authorized amount stated in the Biological Opinion is reported immediately to USFWS. The mitigation measures included in this EIR are intended to avoid and minimize harm to the species and will be included in the application to USACE and in the Biological Assessment submitted to USFWS for consultation.	**Timing:** Preconstruction, construction, and operations **Methods:** • Valley District will obtain federal and state incidental take authorization as needed. • A permit will be obtained from USACE to construct within waters of the United States. • Formal consultation will occur between USACE and USFWS. • A Biological Opinion will be issued by USFWS, which will include terms and conditions of the USACE permit. • CESA Incidental Take coverage will be obtained from CDFW.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with CDFW, USACE and USFWS

Mitigation Measure	Timing and Methods	Responsible Parties
In order to receive incidental take coverage for the state-listed species for least Bell's vireo and potentially Santa Ana River woolly-star, it is anticipated that the Biological Opinion will provide the description and mitigation measures required for CDFW to issue a consistency determination, which states that the federal incidental take authorization is "consistent" with CESA under CFGC Section 2080.1. Alternatively, CDFW may wish to issue a CESA Incidental Take Permit to the project. Expected terms and conditions may address take avoidance, habitat restoration and conservation, construction monitoring, and project operations for federally listed species identified or expected to occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits.		
BIO-2: Conduct Pre-Construction Biological Clearance Surveys to Avoid and Minimize Direct Impacts on Special-status Terrestrial Species From Construction Activities. To avoid or minimize direct impacts on special-status species from construction activities, a qualified biologist approved by USFWS and/or CDFW shall conduct preconstruction clearance surveys at all Tributaries Restoration Project and Mitigation Reserve Program Phase I sites for special-status species prior to any ground-disturbing and/or dewatering activities. During these surveys, the biologist shall inspect the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites prior to earthwork or other disturbance for any special-status wildlife species listed in Table 3.3-3 and prepare a list of species observed and record their activity before and during construction. Prior to construction each day, biological construction monitors will sweep survey at a reconnaissance level all areas scheduled for construction to confirm that special-status species are not present. Any species found shall be captured and relocated to an approved location in consultation with USFWS and/or CDFW by a biologist having appropriate permits, if required, and in compliance with regulatory permits and authorizations issued.	**Timing:** Preconstruction and construction **Methods:** • Valley District will provide a qualified biologist to inspect prior to construction activity and monitor during construction activities. • Prior to construction each day, biological construction monitors will sweep survey as defined. • A qualified biologist with appropriate permits will capture and relocate any special-status species found in consultation with USFWS and/or CDFW.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with CDFW and/or USFWS
BIO-3: Conduct Preconstruction Nesting Bird Surveys Within 300 Feet of the Limits of Disturbance. Vegetation clearing within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance shall be completed prior to bird nesting season to the maximum extent possible. Impacts on nesting birds will be avoided through	**Timing:** Preconstruction and construction **Methods:** Valley District will implement preconstruction surveys, ongoing monitoring, and minimization	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in

Mitigation Measure	Timing and Methods	Responsible Parties
the implementation of preconstruction surveys, ongoing monitoring, and, if necessary, establishment of minimization measures. Specific avoidance and minimization measures for nesting birds methods may include specific procedures as recommended by the CDFW and detailed below.	measures as recommended by CDFW, if necessary.	coordination with CDFW
BIO-3.1: Designated Biologist and Survey Protocols – Valley District shall designate a biologist experienced in: identifying local and migratory bird species; conducting bird surveys using appropriate survey methodology (e.g., Ralph et al. 1993 and USFWS and/or CDFW-accepted species-specific survey protocols, available here: https://www.wildlife.ca.gov/conservation/survey-protocols); nesting surveying techniques, recognizing breeding and nesting behaviors, locating nests and breeding territories, and identifying nesting stages and nest success (e.g., Martin and Geupel 1993); determining/ establishing appropriate avoidance and minimization measures; and monitoring the efficacy of implemented avoidance and minimization measures.	**Timing:** Preconstruction and construction **Methods:** • Valley District will designate a qualified biologist to conduct bird surveys as defined in USFWS- and/or CDFW-accepted survey protocols. • A qualified biologist will determine/establish avoidance and minimization measures and monitor the efficacy of implemented measures.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District
BIO-3.2: Pre-construction Surveys – Surveys shall be conducted by the designated biologist at the appropriate time of day/night, during appropriate weather conditions, no more than 3 days prior to the initiation of project activities. Surveys shall encompass all suitable areas including trees, shrubs, bare ground, burrows, cavities, and structures. Survey duration shall take into consideration the size of the property, density and complexity of the habitat, number of survey participants, and survey techniques employed; and shall be sufficient to ensure the data collected are complete and accurate. Pre-construction surveys shall focus on both direct and indirect evidence of nesting, including nest locations and nesting behavior (e.g., copulation, carrying of food or nest materials, nest building, removal of fecal sacks, flushing suddenly from atypically close range, agitation, aggressive interactions, feigning injury or distraction displays, or other behaviors). If a nest is suspected, but not confirmed, the designated biologist shall establish a disturbance-free buffer until additional surveys can be completed, or until the location can be inferred based on observations.	**Timing:** Preconstruction **Methods:** • The designated biologist will conduct preconstruction surveys as defined and provide the survey results to CDFW. • If a nest is suspected, the designated biologist will establish a buffer until additional surveys can be completed. • If a nest is observed but thought to be inactive, the designated biologist will monitor.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with CDFW

Mitigation Measure	Timing and Methods	Responsible Parties
Surveyors shall not risk failure of the nest to determine the exact location or status and will make every effort to limit the nest to potential predation as a result of the survey/monitoring efforts (e.g., limit number of surveyors, limit time spent at/near the nest, scan the site for potential nest predators before approaching, immediately depart nest area if indicators of stress or agitation are displayed). If a nest is observed, but thought to be inactive, the designated biologist shall monitor the nest for 1 hour (4 hours for raptors during the non-breeding season) prior to approaching the nest to determine status. The designated biologist shall use their best professional judgment regarding the monitoring period and whether approaching the nest is appropriate. Results of pre-construction surveys shall be provided to CDFW.		
BIO-3.3: Establishment of Buffers – When an active nest is confirmed, the designated biologist shall immediately establish a conservative buffer surrounding the nest based on their best professional judgment and experience. The buffer shall be delineated to ensure that its location is known by all persons working within the vicinity, but shall not be marked in such a manner that it attracts predators. Once the buffer is established, the designated biologist shall document baseline behavior, stage of reproduction, and existing site conditions, including vertical and horizontal distances from proposed work areas, visual or acoustic barriers, and existing level of disturbance. Following documentation of baseline conditions, the designated biologist may choose to make adjustments to the buffer based on site characteristics, stage of reproduction, and types of project activities proposed at/near that location. The designated biologist shall monitor the nest at the onset of project activities and at the onset of any changes in project activities (e.g., increase in number or type of equipment, change in equipment usage) to determine the efficacy of the buffer. If the designated biologist determines that project activities may be causing an adverse reaction, the designated biologist shall adjust the buffer accordingly.	**Timing:** Preconstruction and construction **Methods:** • If an active nest is confirmed, the designated biologist will establish a buffer and monitor the nest at the onset of project activities. • Once buffer is established, the designated biologist will document baseline conditions. • The designated biologist may adjust the buffer. • The designated biologist will monitor the nest at the onset of project activities and at the onset of any changes in project activities.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District
BIO-3.4: Deterrents – Valley District, under the direction of the designated biologist, may also take steps to discourage nesting on the project site, including moving equipment and materials daily, covering material with	**Timing:** Preconstruction and construction **Methods:**	**Implementation:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
tarps or fabric, and securing all open pipes and construction materials. The designated biologist shall ensure that none of the materials used pose an entanglement risk to birds or other species.	• Valley District may use deterrents as defined to discourage nesting on the project site. • The designated biologist will ensure that none of the materials used pose an entanglement risk to any species.	**Monitoring and Reporting:** Valley District
BIO 3.5: Reporting – The designated biologist shall be responsible for providing summary reports, where relevant, to CDFW no less than once weekly regarding the nesting species identified on site, discovery of any of new nests, the status/outcome of any previously identified nest, buffer distances established for each nest, and any adjustments made to established buffers. If the project results in the abandonment of, or damage to, a nest, CDFW shall be notified within 24 hours.	**Timing:** Preconstruction and construction **Methods:** • Valley District will provide a designated biologist to provide summary reports to CDFW no less than once weekly. • CDFW shall be notified within 24 hours if the project results in the abandonment of, or damage to, a nest.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with CDFW
BIO-4: Conduct Pre-construction Surveys for Coastal California Gnatcatcher within 500 Feet of the Limits of Disturbance. A qualified biologist shall conduct preconstruction surveys for coastal California gnatcatcher no more than 7 days prior to the start of ground-disturbing activities if work would occur between February 15 and August 31. Surveys for coastal California gnatcatcher shall be conducted in suitable habitat within 500 feet of the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance. If a breeding territory or nest is confirmed, USFWS shall be notified and, in coordination with USFWS, an exclusionary buffer shall be established around the nest. Construction activities in occupied coastal California gnatcatcher habitat shall be monitored by a USFWS-approved qualified biologist at a frequency specified by USFWS. Unless otherwise authorized by USFWS, no proposed activities shall occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I established buffer until it is determined by the qualified biologist that the young have left the nest.	**Timing:** Preconstruction and construction **Methods:** • Valley District will provide a qualified biologist to conduct preconstruction surveys for coastal California gnatcatcher. • If a breeding territory or nest is confirmed, Valley District will notify USFWS and implement an exclusionary buffer around the nest. • If construction activities occur in occupied coastal California gnatcatcher habitat, monitoring will be conducted by a USFWS-approved qualified biologist.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with USFWS

Mitigation Measure	Timing and Methods	Responsible Parties
	• Unless authorized by USFWS, no work shall occur within the buffer until the qualified biologist determines that the young have left the nest.	
BIO-5: Conduct Pre-construction Surveys for Least Bell's Vireo Within 500 Feet of the Limits of Disturbance. A qualified biologist shall conduct preconstruction surveys for least Bell's vireo no more than 7 days prior to the start of ground-disturbing activities if work is to occur between March 15 and August 31. Surveys for least Bell's vireo shall be conducted in suitable habitat within 500 feet of the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance. If a breeding territory or nest is confirmed, USFWS and CDFW shall be notified and, in coordination with USFWS and CDFW, an exclusionary buffer shall be established around the nest. Construction activities in occupied least Bell's vireo habitat shall be monitored by an approved qualified biologist at a frequency specified by USFWS and CDFW. Unless otherwise authorized by USFWS and CDFW, no proposed activities shall occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I established buffer until it is determined by the qualified biologist that the young have left the nest.	**Timing:** Preconstruction and construction **Methods:** • Valley District will provide a qualified biologist to conduct preconstruction surveys for least Bell's vireo as defined. • Surveys for least Bell's vireo will be conducted in suitable habitat as defined. • If a breeding territory or nest is confirmed, Valley District will notify USFWS and CDFW and implement an exclusionary buffer around the nest. • If construction activities occur in occupied least Bell's vireo habitat, monitoring will be conducted by an approved qualified biologist.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District
BIO-6: Conduct Protocol Preconstruction Western Burrowing Owl Surveys Within 500 Feet of the Limits of Disturbance. Vegetation clearing within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance shall be completed during the non-nesting season to the extent feasible. If ground-disturbing activities or removal of any trees, shrubs, or any other suitable nesting or foraging habitat are scheduled within the western burrowing owl nesting season (February 1 to August 31), a protocol preconstruction clearance survey for western burrowing owl shall be conducted in accordance with CDFW guidelines. If potential western burrowing owl burrows are found during	**Timing:** Preconstruction and construction **Methods:** • Vegetation clearing within the limits of disturbance will be completed during the non-nesting season to the extent feasible. • Valley District will provide a qualified biologist to conduct	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with CDFW

Mitigation Measure	Timing and Methods	Responsible Parties
non-nesting season, the occupiable areas of those burrows will be examined, with a burrow scope if needed, and collapsed if not occupied. If active burrows are found during nesting season, an avoidance buffer shall be established through consultation with CDFW and in accordance with CDFW guidelines and remain around the occupied nest(s) until all young have fledged and the nest is confirmed by the qualified biologist to be no longer active. If active burrows are found outside of the nesting season, then CDFW will be consulted for avoidance and minimization methods. Specific avoidance and minimization measures for burrowing owl may include the following procedures as recommended by CDFW and detailed below.	protocol preconstruction surveys for western burrowing owl as defined. • If potential western burrowing owl burrows are found during non-nesting season, the burrows will be inspected and collapsed if unoccupied. • If active burrows are found during nesting season, an avoidance buffer shall be established as defined and shall remain until all young have fledged and the nest is confirmed by the qualified biologist to be no longer active. • If active burrows are found outside of the nesting season, then CDFW will be consulted for avoidance and minimization methods.	
BIO 6.1: Habitat Assessments – Burrowing owl habitat assessments, surveys, impact assessments, and associated reports shall be completed. Methodology shall follow the recommendations and guidelines provided within the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Prior to the initiation of project activities, a burrowing owl habitat assessment shall be conducted by a biologist knowledgeable of burrowing owl habitat, ecology, and field identification of the species and burrowing owl sign and in accordance with the *Staff Report on Burrowing Owl Mitigation*. The assessment shall consist of walking all areas subject to project activities and adjoining areas within 150 meters (approximately 500 feet). If no suitable habitat is found on site (i.e., if the site is completely covered in chaparral habitat, cement, or asphalt), no additional surveys are necessary. A report summarizing the results of the habitat assessment shall be submitted to CDFW.	**Timing:** Preconstruction **Methods:** • Valley District will provide a qualified biologist to conduct a burrowing owl habitat assessment as defined. • The results of the habitat assessment will be submitted to CDFW.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with CDFW

Mitigation Measure	Timing and Methods	Responsible Parties
BIO 6.2: Surveys – If suitable habitat is found on site within areas subject to project activities, burrowing owl surveys shall be conducted by a qualified biologist in accordance with the *Staff Report on Burrowing Owl Mitigation*. As such, the Designated Biologist(s) shall conduct four survey visits: (1) at least one site visit between February 15 and April 15, and (2) a minimum of three survey visits, at least 3 weeks apart between April 15 and July 15, with at least one visit after June 15.	**Timing:** Preconstruction and construction **Methods:** If suitable habitat is found within the proposed project site, burrowing owl surveys will be conducted by a qualified biologist as defined.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District
BIO 6.3: CDFW Coordination – If breeding season surveys confirm occupied burrowing owl habitat in or adjoining areas subject to project activities, Valley District shall contact CDFW and conduct an impact assessment, in accordance with the *Staff Report on Burrowing Owl Mitigation*, prior to commencing project activities, to assist in the development of avoidance, minimization, and mitigation measures.	**Timing:** Preconstruction and construction **Methods:** Valley District will contact CDFW and conduct an impact assessment if burrowing owl habitat is present on the proposed project site.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with CDFW
BIO-7A: Conduct Preconstruction Surveys and Minimization Measures Within the Limits of Disturbance for Sensitive Mammal Species. No greater than 48 hours prior to initiation of ground disturbance, including vegetation-clearing activities, within suitable habitat, the limits of disturbance shall be surveyed for sensitive mammal species, including northwestern San Diego pocket mouse, SKR, San Diego black-tailed jackrabbit, San Diego desert woodrat, and Los Angeles pocket mouse. If sensitive mammal species are observed within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance and do not self-relocate out of the area by the start of scheduled construction, a qualified biologist may opt to relocate the species to a suitable area out of the construction impact zone. Any capture and relocation shall occur in coordination with USFWS and/or CDFW and be implemented by a by a biologist having appropriate permits, if required, and in compliance with regulatory permits and authorizations issued.	**Timing:** Preconstruction **Methods:** • Valley District will provide a qualified biologist to conduct preconstruction surveys for sensitive mammal species as defined. • If sensitive mammal species are observed within the limits of disturbance as defined, a qualified biologist with the appropriate permits may relocate the species out of the construction impact zone. • Coordination will occur with USFWS and/or CDFW if capture and relocation is required.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with USFWS and/or CDFW
BIO-7B: Conduct Preconstruction Surveys Within the Limits of Disturbance for Sensitive Bat Species. To mitigate for potential	**Timing:** Preconstruction	**Implementation:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
construction-related impacts on special-status bats and maternity roosts during construction activities, the following measures shall be implemented prior to the commencement of construction activities at all Tributaries Restoration Project and Mitigation Reserve Program Phase I sites. A combination, as required by specific site conditions, of habitat suitability assessments, acoustic surveys of habitat around construction sites, nighttime surveys, maternity colony assessments, and exit counts shall be used to survey the area that may be directly or indirectly affected by the Tributaries Restoration Project and Mitigation Reserve Program Phase I. Avoidance and minimization measures for bats may include specific procedures as recommended by CDFW and detailed below.	**Methods:** Valley District will provide a qualified biologist to conduct preconstruction surveys for sensitive mammal species.	**Monitoring and Reporting:** Valley District
BIO-7B.1: Roosting Habitat Suitability Assessment – Prior to commencement of project activities, a CDFW-approved bat biologist shall conduct a bat roosting habitat suitability assessment of the structures and trees that may be removed, altered, or indirectly affected by the proposed project activities. As bats may utilize dense tree canopies, snags, rock crevices, or built structures over creeks/water, these habitat types shall be surveyed. Foraging areas and specific flight routes to those foraging areas shall be documented, as well. If bat roosting habitat is detected during the pre-construction surveys, Valley District will implement a Bat Protection Plan. All contractors, subcontractors, and employees shall also comply with these measures and it shall be the responsibility of the Permittee to ensure compliance. Valley District shall submit to CDFW for review and approval a Bat Avoidance, Monitoring, and Protection Plan (BAMPP). The BAMPP shall include project-specific avoidance and minimization measures to ensure that impacts on bats are avoided or minimized. The BAMPP shall be created and be implemented by the CDFW-approved bat biologist. The BAMPP shall include: monitoring protocols, survey timing and duration, procedures and frequency of direct reporting to CDFW, and project-specific avoidance and minimization measures that consider, but are not necessarily limited to, project phasing and timing; installation and monitoring of exclusionary materials, where and when appropriate; monitoring of project-related noise, vibration, and lighting; and installation of buffers.	**Timing:** Preconstruction and construction **Methods:** • A CDFW-approved bat biologist will conduct a bat roosting habitat suitability assessment. • If bat roosting habitat is found, the CDFW-approved biologist will create and implement a Bat Avoidance, Monitoring, and Protection Plan.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with CDFW

Mitigation Measure	Timing and Methods	Responsible Parties
BIO-7B.2: Nighttime Surveys – Any locations identified as suitable bat roosting habitat by the CDFW-approved bat biologist shall be subject to additional nighttime surveys during the summer months (i.e., June–August) to determine the numbers and bat species using the roost(s). The information collected during these additional surveys shall be used by the CDFW-approved bat biologist to develop species-specific measures to minimize impacts on roosting bats. The surveys shall be conducted by the CDFW-approved bat biologist using an appropriate combination of structure inspection, sampling, exit counts, and acoustic surveys. If bats are found using any structures or trees within the project area, the biologist shall identify the bats to the species level and evaluate the colony to determine its size and significance. The bat survey shall include: (1) the exact location of all roosting sites (location shall be adequately described and drawn on a map); (2) the number of bats present at the time of visit (count or estimate); (3) the names of each species of bat present (including how the species was identified); (4) the location, amount, and distribution of all bat guano described and pinpointed on a map; and (5) the type of roost, i.e., a night roost (resting at night while out feeding) versus a day roost (resting during the day), clearly stated. The results of the pre-construction bat surveys shall be submitted to CDFW for review.	**Timing:** Preconstruction and construction **Methods:** • If the CDFW-approved bat biologist identifies locations as suitable bat roosting habitat, these areas will be subject to additional surveys as defined. • If bats are found using any structures or trees within the project area, the biologist will document conditions as defined. • The results of the preconstruction bat surveys will be submitted to CDFW for review.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with CDFW
BIO-7B.3: Maternity Colonies Avoidance and Minimization – If the presence of a maternity colony is confirmed within a structure (e.g., bridge, culvert) during the maternity season survey and activities involving combustion engines and/or night lighting is deemed necessary during the recognized bat maternity season (April 1 through August 31), avoidance and minimization measures including the designation of buffers shall be developed and submitted to CDFW for review.	**Timing:** Preconstruction and construction **Methods:** Avoidance and minimization measures will be developed and submitted to CDFW if the presence of a maternity colony is confirmed within a structure as defined.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with CDFW
BIO-7B.4: Establishment of Buffer – If any previously undiscovered roosting bats are discovered during project activities, all work shall stop on, under, around, or within an appropriate buffer as determined by the CDFW-approved bat biologist. To avoid disturbance of maternity-roosting bats during project-related activities, work activities within a predetermined buffer distance of the	**Timing:** Preconstruction **Methods:** • Work will stop as defined if any previously undiscovered roosting	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in

Mitigation Measure	Timing and Methods	Responsible Parties
maternity roost sites shall avoid the recognized bat maternity season (April 1 through August 31) unless concurrence otherwise has been received from CDFW. The buffer distance shall be determined by a CDFW-approved bat biologist and shall be based upon which bat species are found to compose the maternity colony, because different bat species are known to have different tolerance levels for certain construction activities. Project activities shall not occur at structures housing a maternity colony of bats during the recognized bat breeding season unless concurrence is received from CDFW.	bats are discovered during project activities. • Work activities within a predetermined buffer distance of the maternity roost sites shall avoid the recognized bat maternity season unless concurrence otherwise has been received from CDFW. • Buffer distance will be determined by a CDFW-approved bat biologist.	coordination with CDFW
BIO-8: Conduct Preconstruction Surveys Within the Limits of Disturbance for Sensitive Terrestrial Reptile Species. Not greater than 48 hours prior to initiation of ground disturbance, the work area shall be surveyed for sensitive terrestrial reptile species, including southwestern pond turtle, California legless lizard, California glossy snake, coastal whiptail, red-diamond rattlesnake, coast horned lizard, and coast patch-nosed snake. If a sensitive reptile species is observed within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance, those reptiles shall be captured and relocated to an approved location in consultation with USFWS and/or CDFW by a biologist having appropriate permits, if required, and in compliance with regulatory permits and authorizations issued.	**Timing:** Preconstruction **Methods:** If a sensitive reptile species is observed within the limits of disturbance as defined, a qualified biologist with the appropriate permits will capture and relocate the reptiles.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with USFWS and/or CDFW
BIO-9: Conduct Preconstruction Surveys Within the Limits of Disturbance for Special-status Plant Species. During the appropriate blooming period up to 1 year prior to initiation of ground disturbance, the work area shall be surveyed to confirm the presence/absence of special-status plant species, including: Santa Ana woolly-star, smooth tarplant, Parry's spineflower, snake cholla, paniculate tarplant, many-stemmed dudleya, Southern California black walnut, Coulter's goldfield, Robinson's pepper-grass, chaparral ragwort, San Bernardino aster, as well as WRCMSHCP narrow endemic species Brand's star phacelia. Surveys shall be conducted in accordance with CNPS and CDFW rare plant survey guidelines and shall be conducted during the flowering period when each species is most readily identifiable, if necessary. A botanist shall determine the	**Timing:** Preconstruction **Methods:** • Valley District will provide a botanist to conduct preconstruction surveys for special-status plant species as defined. • A botanist will determine the blooming period for each species and verify blooming as defined. • A species-specific survey may be required for each special-status	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with USFWS and/or CDFW

Mitigation Measure	Timing and Methods	Responsible Parties
blooming period for each species and verify blooming during the growing season by visiting a reference site as necessary to observe if the target species is flowering or otherwise identifiable. A species-specific survey may be required for each special-status plant depending upon the blooming period. Any special-status plant populations shall be mapped. If the presence of any special-status plant species is confirmed, a copy of the survey results shall be forwarded to USFWS and CDFW. If individuals of a sensitive plant species are observed within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance, then prior to ground disturbance, the individuals shall be flagged and/or mapped for avoidance. If impacts on non-listed species are unavoidable, minimization measures shall be addressed within a 5-year onsite restoration mitigation and monitoring program developed and implemented for the Tributaries Restoration Project and Mitigation Reserve Program Phase I. If impacts on listed plant species are unavoidable, USFWS and/or CDFW shall be consulted prior to proceeding with the project. The following restoration success criteria shall be required. 1. Establishment of restoration site(s) within the Tributaries Restoration Project and Mitigation Reserve Program Phase I, where plant restoration shall occur. The restoration site shall include a restoration mitigation and monitoring program detailing: (1) a clear description of the restoration activities to be completed, including: (a) any recontouring, (b) methods for de-compacting soils, (c) a planting/seeding plan and plant/seed palette, and (d) an irrigation plan; (2) a comprehensive monitoring and maintenance plan, including: (a) a detailed monitoring and maintenance schedule, (b) a nonnative plant removal plan, including procedures to ensure that nonnative plants are not introduced or allowed to sustain within the restoration areas, (c) success standards (e.g., survival, native plant establishment, diversity, nonnative cover), (d) locations of permanent photo stations, and (e) adaptive management measures; (3) graphics and accompanying geographic information system (GIS) shapefiles of the restoration areas; and (4) a contingency plan (e.g., purchase of	plant depending upon the blooming period. • Special-status plant populations will be mapped. • If there are special-status plant species on the project site, survey results will be shared with USFWS and CDFW. • If impacts on non-listed species are unavoidable, minimization measures shall be addressed as defined. • If impacts on listed plant species are unavoidable, Valley District will consult with USFWS and CDFW and implement restoration success criteria as defined.	

Mitigation Measure	Timing and Methods	Responsible Parties
additional mitigation credits, mitigation at a different offsite location) in the event that the restoration areas do not meet success criteria. 2. Seed collection/salvage, if feasible. 3. A qualified botanist shall identify and submit for approval an appropriate plant palette and restoration methodology compatible with the specific affected special-status species. Mitigation sites could include existing habitats in the Tributaries Restoration Project and Mitigation Reserve Program Phase I of the same vegetation community type, depending on site conditions and locations of special-status plants found. 4. Topsoil salvage and reapplication.		
BIO-10: Designate a Qualified Biologist(s) to Ensure Compliance with Avoidance and Minimization Measures. A USFWS-approved qualified biologist(s) with knowledge of least Bell's vireo, coastal California gnatcatcher, Santa Ana sucker, and their habitats shall function as a biological monitor. Prior to initiating Tributaries Restoration Project and Mitigation Reserve Program Phase I activities, the name(s) and resumes of all prospective biological monitors shall be submitted to the appropriate USFWS and CDFW offices. The biological monitor shall ensure compliance with the Tributaries Restoration Project and Mitigation Reserve Program Phase I avoidance and minimization measures. The qualified biologist shall be present on site during construction within and adjacent to occupied least Bell's vireo habitat to ensure that avoidance and minimization measures are in place according to specifications, and shall monitor construction within the vicinity of the least Bell's vireo and coastal California gnatcatcher territories at a frequency necessary to ensure that avoidance and minimization measures are properly followed. The qualified biologist shall report any non-compliance within 24 hours to USFWS. The qualified biologist shall be familiar with other special-status species known, or having the potential to occur, at the restoration sites and shall be present during construction activities involving initial ground disturbance, dewatering, and vegetation removal. If a special-status species is observed within the limits of disturbance, the biologist shall have authority to stop	**Timing:** Preconstruction and construction **Methods:** • Valley District will provide a USFWS-approved qualified biologist to function as a biological monitor prior to construction. • Names and resumes of prospective biological monitors will be submitted to USFWS and CDFW. • Biological monitor will be present on site during construction within and adjacent to occupied least Bell's vireo habitat. • The qualified biologist will report noncompliance within 24 hours to USFWS. • If a special-status species is observed within the limits of disturbance, the biologist may stop work.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with USFWS and/or CDFW

Mitigation Measure	Timing and Methods	Responsible Parties
work in order to prevent harm to the individual. The individual animal shall be allowed to leave the site of its own volition; however, should the biologist determine this is not possible, the individual shall be relocated outside of the Tributaries Restoration Project and Mitigation Reserve Program Phase I by the qualified biologist.	• If needed, the special-status species may be relocated by the qualified biologist.	
BIO-11: Conduct Preconstruction Surveys for Special-Status Semi-Aquatic Species. Prior to construction activity, a qualified biologist familiar with the special-status species, including southwestern pond turtle, two-striped gartersnake, and south coast gartersnake, and approved by USFWS and/or CDFW, shall conduct a preliminary survey of the affected water body and surrounding suitable habitat, noting habitat present and any special-status semi-aquatic species. If special-status species are present, they shall be captured and relocated by a qualified biologist. A Capture and Relocation Plan shall be prepared, which shall include requirements for qualified biologists, methods for special-status semi-aquatic species capture, requirements for any information to be collected for captured special-status semi-aquatic species, procedures for temporary containment and transport of captured special-status semi-aquatic species, details for approved release locations for special-status semi-aquatic species, and periodic and final reporting requirements for all relocated special-status semi-aquatic species.	**Timing:** Preconstruction **Methods:** • Valley District will provide a USFWS- and/or CDFW-approved qualified biologist to conduct a preliminary survey of the affected water body and surrounding habitat. • If special-status species are present, they shall be captured and relocated by a qualified biologist. • A Capture and Relocation Plan will be prepared as defined.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with USFWS and/or CDFW
BIO-12: Conduct Preconstruction Surveys Within the Limits of Disturbance for Special-Status Aquatic Species. Prior to construction activity, a USFWS-approved Authorized Biologist (i.e., a biologist approved by USFWS and qualified to survey for and evaluate impacts on specific listed special-status species) familiar with the special-status species, including Santa Ana sucker and arroyo chub, and approved by USFWS and CDFW, shall conduct a preliminary survey of the affected water body and surrounding suitable habitat, noting habitat present and any special-status fishes. If special-status species are present, a capture and relocation plan shall be implemented to safely relocate these species (see mitigation measure BIO-13). This plan shall include requirements for qualified biologists, methods for special-status aquatic species capture, requirements for any information to be collected for captured special-status aquatic	**Timing:** Preconstruction **Methods:** • Valley District will provide a USFWS- and/or CDFW-approved qualified biologist to conduct a preliminary survey of the affected water body and surrounding habitat. • If special-status species are present, they shall be captured and relocated by a qualified biologist. • A Capture and Relocation Plan will be prepared as defined.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with USFWS and/or CDFW

Mitigation Measure	Timing and Methods	Responsible Parties
species, procedures for temporary containment and transport of captured special-status aquatic species, details for approved release locations for special-status aquatic species, and periodic and final reporting requirements for all relocated special-status aquatic species.		
BIO-13: Develop a Tributaries Restoration Project and Mitigation Reserve Program Phase I-Specific Dewatering, Diversion, and Aquatic/Semi-aquatic Species Rescue Plan (Dewatering Plan). Prior to dewatering activities, a dewatering plan including site-specific measures shall be developed and submitted to USFWS and CDFW for approval. Dewatering structures may include the use of sand bag, Port-a-dams, water bladder dams, K-rails, or driven sheet metal coffer dams. USFWS and CDFW shall review the proposed water diversion method, to approve the plan or provide the requirements for that approval. Valley District shall not commence dewatering of a stream/diversion of water without explicit approval from CDFW. A qualified biologist, familiar with the special-status species, and approved by USFWS and CDFW, shall be present during implementation of the dewatering plan. The plan shall include the following standard measures for the avoidance and minimization of impacts on special-status species resulting from dewatering activities. • Dewater aquatic habitat that shall be disturbed or removed 15 days prior to the initiation of construction activities to allow time for construction areas to dry and management of any deficiencies in the dewatering effort. If complete dewatering is not possible, potential snake prey (i.e., fish and tadpoles) shall be removed so that snakes and other wildlife are not attracted to the construction area. • Prior to dewatering, blocking nets or other fish barriers shall be installed at the upstream and downstream extents of the reach to be dewatered to prevent aquatic species from entering. • All aquatic species shall be removed by a team of qualified biologists as the stream is dewatered. Native species shall be relocated to nearby suitable habitat downstream of the project sites. Nonnative species shall be sacrificed. • Pumps used for flow diversion shall be appropriately screened to prevent entrainment of all life stages of aquatic and semi-aquatic species.	**Timing:** Preconstruction and construction **Methods:** • Valley District will develop and submit a dewatering plan as defined to USFWS and CDFW prior to any dewatering activities. • A qualified biologist, familiar with the special-status species, and approved by USFWS and CDFW, shall be present during implementation of the dewatering plan.	**Implementation:** Valley District **Monitoring and Reporting:** CDFW and/or USFWS.

Mitigation Measure	Timing and Methods	Responsible Parties
• Diversion outflow structures shall be appropriately placed and silt screens, settling ponds, and other equipment shall be used to minimize erosion, sediment deposition, and increased turbidity at the site of outflow. • Draw-down rates shall be implemented to maintain water quality, reduce crowding of fish, and prevent stranding. • Water quality shall be regularly monitored during dewatering to ensure conditions are sufficient for aquatic life. • Other measures shall be implemented to ensure minimal mortality associated with relocation or holding of captured individuals. The dewatering plan shall also specify the following: • The removal methods shall be implemented so as to minimize potential injury or mortality to native fish. All captured native fish shall be placed in ice chests filled with Santa Ana River water. The ice chest shall be kept shaded and aerated at all times. The water temperature in the ice chests and condition of captured native fish shall be closely monitored. Any native fish removed from the site shall be relocated in suitable habitat downstream of the Tributaries Restoration Project and Mitigation Reserve Program Phase I. When handling native fish, the hands of all participants shall be free of sunscreen, lotion, and insect repellent. The qualified biologist shall submit a report to USFWS and CDFW identifying the number of any native fish that were relocated and other measures that were taken to minimize impacts on native fish. The report shall be submitted to USFWS and CDFW no more than 60 days following capture and relocation activities. • If a southwestern pond turtle nest is found, a 100-foot no-disturbance buffer zone shall be established around the nest using flagging, fencing, and/or signage as appropriate. No construction activities shall occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I established buffer until a qualified biologist has determined that the nest is not in use. If an active southwestern pond turtle nest is found, the turtle nest shall be relocated by a qualified biologist, in consultation with CDFW, and in accordance with the aquatic species rescue plan for the project. If a southwestern pond turtle is observed at any time before or during construction, it shall be left alone		

Mitigation Measure	Timing and Methods	Responsible Parties
to move out of the area on its own or may be relocated by a qualified biologist to a suitable aquatic habitat outside of the Tributaries Restoration Project and Mitigation Reserve Program Phase I; translocation of turtles can only be performed in consultation with CDFW, and by an individual possessing a valid scientific collecting permit.		
BIO-14: Develop a Nesting Bird Management Plan. Construction is likely to occur during nesting bird season. Therefore, the Tributaries Restoration Project and Mitigation Reserve Program Phase I shall develop a nesting bird management plan in consultation with USFWS and CDFW. Approval by both USFWS and CDFW are required before the plan can be implemented. The nesting bird management plan shall include measures, some of which may have been detailed above, and an adaptive management program to avoid and minimize impacts on special-status and MBTA- or CFGC-protected bird species during nesting periods. The qualified biologist shall notify USFWS and CDFW of all Tributaries Restoration Project and Mitigation Reserve Program Phase I-related bird injuries or mortalities within 48 hours of discovery and shall follow the agencies' recommended actions, if any. This plan shall include a description of all federal, state, and local nesting bird policies, biologist qualifications, roles and responsibilities, definitions of active and inactive nest, survey requirements, active nest avoidance, nest buffer reductions, guidelines for working within nest buffers, notification and documentation, inactive nest management, and periodic and final reporting requirements.	**Timing:** Preconstruction and construction **Methods:** • Valley District will develop a nesting bird management plan as defined in consultation with USFWS and CDFW. • The qualified biologist will notify USFWS and CDFW of any bird injuries or mortalities.	**Implementation:** Valley District **Monitoring and Reporting:** CDFW and/or USFWS.
BIO-15: Delineate Limits or Require Use of GPS-based exclusionary Technology on Construction Equipment to Prevent Encroachment of Construction Activities into Environmentally Sensitive Areas. Before the start of construction activities, including establishment of staging areas, vegetation clearing, and/or grading activities, environmentally sensitive areas shall be mapped and either delineated with flagging or stakes, or the contractor shall be required to use global positioning system (GPS)-based exclusionary technology, along the limits of disturbance at each tributary restoration site to prevent access into non-Tributaries Restoration Project and Mitigation Reserve Program Phase I areas. The limits of work shall be	**Timing:** Preconstruction and construction **Methods:** • Valley District will map and delineate any environmentally sensitive areas or the construction contractor will use GPS. • A qualified biological monitor will monitor the limits of work and	**Implementation:** Valley District, Construction Contractor **Monitoring and Reporting:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
inspected during construction by a qualified biological monitor at a frequency necessary to ensure that protective measures are intact and construction activities are not encroaching into environmentally sensitive areas. Environmentally sensitive area fencing shall be inspected daily by the authorized biologist(s) or project construction personnel working under the direction of the authorized biologist(s). The authorized biologist(s) shall personally inspect the fencing no less than once per week. Environmentally sensitive area fencing shall be maintained in good working order for the duration of project activities.	inspect the environmentally sensitive area fencing as defined. • Environmentally sensitive area fencing will be maintained in good working order for the duration of project activities.	
BIO-16: Implement Best Management Practices. The contractor shall implement the following BMPs during construction activities to protect aquatic habitat and other sensitive natural communities that provide habitat for special-status species. • Reduce the risk of wildfire ignition using spark arresters. • Limit personnel activities, vehicles, equipment, and construction materials to the designated work area. • Confine the ingress and egress of construction equipment and personnel to designated access points. Prohibit cross-country travel by vehicles and equipment. • Leave no open trenches or holes overnight without covering, fencing, or providing escape ramps with a minimum 3:1 slope. If trenches are not covered, they shall be inspected for trapped wildlife by a qualified biologist or biological monitor. Animals found shall be captured and moved to the nearest safe location outside the construction area. • Develop an integrated weed management plan (IWMP) to minimize the potential introduction of new weeds and to control the spread of weeds resulting from ground disturbance. The IWMP shall be developed within the first year following issuance of the ITP and shall be reviewed and approved by the Wildlife Agencies. The IWMP shall include biologist qualifications, roles, and responsibilities; definitions of noxious weeds and invasive plants; pre-construction, construction, and operations phase weed control methods; and periodic and final reporting requirements.	**Timing:** Construction **Methods:** Valley District will implement BMPs as defined during construction.	**Implementation:** Valley District, Construction Contractor **Monitoring and Reporting:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
• Maintain adequate fire suppression capability in active construction areas including having a water tender on site in active construction areas during periods of high fire danger. A water truck or water buffalo with adequate hoses for fire control shall be maintained on the site during all habitat-clearing and construction activities during fire season. • Implement litter control measures. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness of the area to opportunistic predators. • Limit vehicle speeds to 15 miles per hour except on paved roads with posted speed limits. If work must take place at night, the speed limit shall be 10 miles per hour. • Conduct new construction during the daylight hours to the extent feasible. • Confine the construction site disturbances to the smallest practical area, considering topography, placement of facilities, location of Covered Species habitat, public health and safety, and other limiting factors, and use previously disturbed areas to the extent possible. • Use secondary containment devices such as drip pans under stationary engines, such as compressors, generators, light plants, etc., to prevent any leakage from entering runoff or receiving waters. • Inspect all construction equipment for leaks and regularly maintain such equipment to avoid soil contamination. Leaks shall be fixed or the equipment shall be taken out of service until the leak is fixed. Smears of petroleum products shall be cleaned prior to use. • Clean up any hazardous waste or spills immediately and dispose at an offsite location that receives the required grade of hazardous waste. • Store spill kits capable of containing hazardous spills on site.		

Mitigation Measure	Timing and Methods	Responsible Parties
BIO-17: Implement a Worker Environmental Awareness Training. Prior to construction, a Worker Environmental Awareness Program (WEAP) shall be implemented for work crews by a qualified biologist(s). Training materials and briefings shall include, but not be limited to, discussion of ESA and CESA, the consequences of noncompliance with Tributaries Restoration Project and Mitigation Reserve Program Phase I permitting requirements, identification and values of special-status plant and wildlife species and sensitive natural plant community habitats, fire protection measures, hazardous substance spill prevention, and containment measures.	**Timing:** Preconstruction **Methods:** Valley District will provide a qualified biologist to implement a Worker Environmental Awareness Program for work crews.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District
BIO-18: Consult with Agencies Regarding ESA and CESA Permitting Needed for Expanded Mitigation Reserve Program Phase II Restoration Activities. The Expanded Mitigation Reserve Program Phase II shall obtain federal and state incidental take authorization as necessary for all federally listed species identified as potentially being adversely affected by construction, operations, and/or maintenance within the Expanded Mitigation Reserve Program Phase II limits of disturbance. Implementation of the Upper Santa Ana HCP is expected to provide coverage for federally listed and/or state-listed species when it is approved. Specific Expanded Mitigation Reserve Program Phase II projects that predate the approval of the Upper Santa Ana HCP shall require Valley District to initiate Section 7 consultation with the appropriate federal agency for the purpose of insuring that the specific Expanded Mitigation Reserve Program Phase II projects are not likely to jeopardize the continued existence of any threatened or endangered species identified within the Expanded Mitigation Reserve Program Phase II project limits of disturbance, or result in the destruction or adverse modification of critical habitat for these species within the limits of disturbance. Expected terms and conditions may address take avoidance, habitat restoration and conservation, construction monitoring, and project operations for federally listed species identified or expected to occur within the Expanded Mitigation Reserve Program Phase II limits. Furthermore, those specific Expanded Mitigation Reserve Program Phase II projects that predate the approval of the Upper Santa Ana HCP and result in a take of a state-only listed species identified within the project limits shall require Valley	**Timing:** Preconstruction **Methods:** • Valley District will obtain federal and state incidental take authorization as defined. • Valley District will initiate Section 7 consultation as necessary. • Valley District will apply for a take permit under Section 2081(b).	**Implementation:** Valley District **Monitoring and Reporting:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
District to apply for a take permit under Section 2081(b). Expected terms and conditions may address take avoidance, habitat restoration and conservation, construction monitoring, and project operations for state-listed species identified or expected to occur within the Expanded Mitigation Reserve Program Phase II limits.		
BIO-19: Conduct Pre-Construction Biological Clearance Surveys to Avoid and Minimize Direct Impacts on Special-Status Wildlife and Plants From Construction Activities. To avoid or minimize direct impacts on special-status species from construction activities, a qualified biologist approved by USFWS and/or CDFW shall conduct appropriate preconstruction clearance surveys of the specific projects of the Expanded Mitigation Reserve Program Phase II for special-status bird species—including nesting bird surveys, coastal California gnatcatcher surveys, least Bell's vireo surveys, western burrowing owl surveys—special-status mammal species, special-status terrestrial reptile species, special-status semi-aquatic species, and special-status native plants and narrow endemic plants prior to any ground disturbing activities.	**Timing:** Preconstruction **Methods:** Valley District will provide a qualified biologist approved by USFWS and/or CDFW to conduct preconstruction clearance surveys as defined.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District
BIO-20: Designate a Qualified Biologist. A USFWS qualified biologist with knowledge of special-status species and their habitats that may be affected by the construction activities shall function as a biological monitor. The qualified biologist shall ensure compliance with the avoidance and minimization measures of the Expanded Mitigation Reserve Program Phase II.	**Timing:** Preconstruction and construction **Methods:** • Valley District will provide a USFWS-qualified biologist to function as a biological monitor. • The qualified biologist will ensure compliance with avoidance and minimization measures.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District
BIO-21: Develop a Nesting Bird Management Plan. To address potential conflicts between construction activities and the activities of nesting birds in the specific projects of the Expanded Mitigation Reserve Program Phase II, the project shall develop a nesting bird management plan in consultation with USFWS and CDFW. Approval by both USFWS and CDFW is required before the plan is implemented. This plan shall include a description of all federal, state, and local nesting bird policies, biologist qualifications, roles	**Timing:** Preconstruction and construction **Methods:** • Valley District will develop a nesting bird management plan as defined in consultation with USFWS and CDFW.	**Implementation:** Valley District **Monitoring and Reporting:** CDFW and USFWS

Mitigation Measure	Timing and Methods	Responsible Parties
and responsibilities, definitions of active and inactive nest, survey requirements, active nest avoidance, nest buffer reductions, guidelines for working within nest buffers, notification and documentation, inactive nest management, and periodic and final reporting requirements.	• Plan will be approved by USFWS and CDFW before implementation.	
BIO-22: Delineate Limits or Require Use of GPS-Based Exclusionary Technology on Construction Equipment to Prevent Encroachment of Construction Activities into Environmentally Sensitive Areas. Before the start of construction activities, including establishment of staging areas, vegetation clearing, and/or grading activities, environmentally sensitive areas shall be mapped and either delineated with flagging or stakes or the contractor shall be required to use GPS-based exclusionary technology along the specific projects of the Expanded Mitigation Reserve Program Phase II limits of disturbance to prevent access into non-project areas. The limits of work shall be inspected during construction by a qualified biological monitor at a frequency necessary to ensure that protective measures are intact and construction activities are not encroaching into environmentally sensitive areas. Environmentally sensitive area fencing shall be inspected daily by the authorized biologist(s) or project construction personnel working under the direction of the authorized biologist(s). The authorized biologist(s) shall personally inspect the fencing no less than once per week. Environmentally sensitive area fencing shall be maintained in good working order for the duration of project activities.	**Timing:** Preconstruction and construction **Methods:** • Valley District will map and delineate any environmentally sensitive areas or the construction contractor will use GPS. • A qualified biological monitor will monitor the limits of work and inspect the environmentally sensitive area fencing as defined. • Environmentally sensitive area fencing will be maintained in good working order for the duration of project activities.	**Implementation:** Valley District, Construction Contractor **Monitoring and Reporting:** Valley District
BIO-23: Implement Best Management Practices to Avoid or Minimize Construction-Related Spills or Leaks of Toxic Substances. The contractor shall implement the following BMPs during construction activities to protect aquatic habitat and other sensitive natural communities that provide habitat for special-status species: • Reduce the risk of wildfire ignition using spark arresters. • Limit personnel activities, vehicles, equipment, and construction materials to the designated work area. • Confine the ingress and egress of construction equipment and personnel to designated access points. Prohibit cross-country travel by vehicles and equipment.	**Timing:** Construction **Methods:** Valley District will implement BMPs during construction activities as defined to protect aquatic habitat and other sensitive natural communities.	**Implementation:** Valley District, Construction Contractor **Monitoring and Reporting:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
• Leave no open trenches or holes overnight without covering, fencing, or providing escape ramps with a minimum 3:1 slope. If trenches are not covered, they shall be inspected for trapped wildlife by a qualified biologist or biological monitor. Animals found shall be captured and moved to the nearest safe location outside the construction area. • Develop an IWMP to minimize the potential introduction of new weeds and to control the spread of weeds resulting from ground disturbance. The IWMP shall be developed within the first year following issuance of the ITP and shall be reviewed and approved by the Wildlife Agencies. The IWMP shall include biologist qualifications, roles, and responsibilities; definitions of noxious weeds and invasive plants; pre-construction, construction, and operations phase weed control methods; and periodic and final reporting requirements. • Maintain adequate fire suppression capability in active construction areas, including having a water tender on site in active construction areas during periods of high fire danger. A water truck or water buffalo with adequate hoses for fire control shall be maintained on the site during all habitat-clearing and construction activities during fire season. • Implement litter control measures. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness of the area to opportunistic predators. • Limit vehicle speeds to 15 miles per hour except on paved roads with posted speed limits. If work must take place at night, the speed limit shall be 10 miles per hour. • Conduct new construction during the daylight hours to the extent feasible. • Confine the area of construction site disturbances to the smallest practical area, considering topography, placement of facilities, location of Covered Species habitat, public health and safety, and other limiting factors, and locate sites in previously disturbed areas to the extent possible. • Use secondary containment devices such as drip pans under stationary engines, such as compressors, generators, light plants, etc. to prevent any leakage from entering runoff or receiving waters.		

Mitigation Measure	Timing and Methods	Responsible Parties
• Inspect all construction equipment for leaks and maintain equipment regularly to avoid soil contamination. Leaks shall be fixed or the equipment shall be taken out of service until the leak is fixed. Smears of petroleum products shall be cleaned prior to use. • Clean up any hazardous waste or spills immediately and dispose of at an offsite location that receives the required grade of hazardous waste. • Store spill kits capable of containing hazardous spills on site.		
BIO-24: Implement a Worker Environmental Awareness Training. Prior to construction, a WEAP shall be implemented for work crews by a qualified biologist(s). Training materials and briefings shall include but not be limited to discussion of ESA and CESA, the consequences of noncompliance with specific Expanded Mitigation Reserve Program Phase II project permitting requirements, identification and values of special-status plant and wildlife species and sensitive natural plant community habitats, fire protection measures, hazardous substance spill prevention, and containment measures.	**Timing:** Preconstruction **Methods:** Valley District will provide a qualified biologist to implement a Worker Environmental Awareness Program for work crews.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District
BIO-25: Implement Best Management Practices to Avoid or Minimize Impacts on Special-Status Species From Construction- and Operations-Related Impacts. To avoid noise impacts on special-status species from construction and operations activities, the Tributaries Restoration Project and Mitigation Reserve Program Phase I shall include measures necessary to reduce construction noise levels to comply with local noise ordinances. All heavy equipment shall install and maintain mufflers or other noise-reducing features. A biological monitor shall monitor at the edge of the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance or areas not cleared of vegetation to ensure noise levels do not result in a disruption to nesting birds. If construction noise is negatively affecting nesting birds (e.g., a discernable negative change in behavior is observed, such as nest flushing or adults not returning to the nest with prey) then work shall cease in the immediate area until adequate controls such as noise barriers can be established to reduce noise levels. Noise barriers may include temporary noise blankets or noise shrouds. If construction noise may affect nesting birds, it may be most effective to construct noise barriers well prior to February 15, the start of the nesting	**Timing:** Construction **Methods:** • Valley District will implement BMPs to reduce construction noise levels to comply with local noise ordinances. • A biological monitor will monitor to ensure noise levels do not result in a disruption to nesting birds. • If construction noise is negatively affecting nesting birds, work shall cease in the immediate area until controls as defined can be established. • Construction and operations area shall be watered regularly.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
season, to ensure construction delays do not occur. All noise barriers shall be constructed within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance. To control fugitive dust, active construction and operations areas shall be watered regularly to control dust and minimize impacts on adjacent vegetation.		
BIO-26: Restore Temporarily Affected Riparian Habitat or Other Sensitive Natural Communities. Prior to any ground disturbances a site-specific revegetation plan shall be prepared by a qualified restoration ecologist that includes a description of existing conditions for each area, disturbances, site preparation, revegetation methods, maintenance and monitoring criteria, performance standards, and adaptive management practices. The plan shall identify cover standards that shall be developed for each plant community target, and cover values established for each layer (shrub, herb, and/or tree layers). The restoration plan shall include a restoration mitigation and monitoring program detailing: (1) a clear description of the restoration activities to be completed, including: (a) any recontouring, (b) methods for de-compacting soils, (c) a planting/seeding plan and plant/seed palette, and (d) an irrigation plan; (2) a comprehensive monitoring and maintenance plan, including: (a) a detailed monitoring and maintenance schedule, (b) a nonnative plant removal plan, including procedures to ensure that nonnative plants are not introduced or allowed to sustain within the restoration areas, (c) success standards (e.g., survival, native plant establishment, diversity, nonnative cover), (d) locations of permanent photo stations, and (e) adaptive management measures; (3) graphics and accompanying GIS shapefiles of the restoration areas; and (4) a contingency plan (e.g., purchase of additional mitigation credits, mitigation at a different offsite location) in the event that the restoration areas do not meet success criteria. Revegetation shall be implemented immediately following construction activities to ensure no permanent net loss of sensitive habitats would occur. Seeds and container stock shall be from regional stock.	**Timing:** Preconstruction, construction, and postconstruction **Methods:** • A qualified restoration ecologist will prepare a site-specific revegetation plan as defined. • Revegetation will be implemented immediately following construction activities to ensure no permanent net loss of sensitive habitats would occur. • Seeds and container stock will be from regional stock.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
BIO-27: Restore Temporarily Affected Riparian Habitat or Other Sensitive Natural Communities. Prior to any ground disturbances a site-specific revegetation plan shall be prepared by a qualified restoration ecologist that includes a description of existing conditions for each area, disturbances, compensation mitigation, site preparation, revegetation methods, maintenance and monitoring criteria, performance standards, and adaptive management practices. The plan shall identify cover standards that shall be developed for each plant community target, and cover values established for each layer (shrub, herb, and/or tree layers). The restoration plan shall include a restoration mitigation and monitoring program detailing: (1) a clear description of the restoration activities to be completed, including: (a) any recontouring, (b) methods for de-compacting soils, (c) a planting/seeding plan and plant/seed palette, and (d) an irrigation plan; (2) a comprehensive monitoring and maintenance plan, including: (a) a detailed monitoring and maintenance schedule, (b) a nonnative plant removal plan, including procedures to ensure that nonnative plants are not introduced or allowed to sustain within the restoration areas, (c) success standards (e.g., survival, native plant establishment, diversity, nonnative cover), (d) locations of permanent photo stations, and (e) adaptive management measures; (3) graphics and accompanying GIS shapefiles of the restoration areas; and (4) a contingency plan (e.g., purchase of additional mitigation credits, mitigation at a different offsite location) in the event that the restoration areas do not meet success criteria. Revegetation shall be implemented immediately following construction activities to ensure no permanent net loss of sensitive habitats would occur. Seeds and container stock shall be from regional stock.	**Timing:** Preconstruction, construction, and postconstruction **Methods:** • A qualified restoration ecologist will prepare a site-specific revegetation plan as defined. • Revegetation will be implemented immediately following construction activities to ensure no permanent net loss of sensitive habitats would occur. • Seeds and container stock will be from regional stock.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District
BIO-28: Obtain Clean Water Act Section 404 and 401 Authorization and California Fish and Game Code Section 1600 et seq. Authorization. The Tributaries Restoration Project and Mitigation Reserve Program Phase I shall require authorization from USACE pursuant to Section 404 of the CWA, the RWQCB pursuant to Section 401 of the CWA and the Porter-Cologne Water Quality Control Act, and from CDFW pursuant to Section 1602 of the CFGC, as a result of temporary and permanent impacts on jurisdictional aquatic resources. Authorizations from these agencies shall be obtained prior to construction. Terms and conditions may include:	**Timing:** Preconstruction **Methods:** Valley District will obtain authorization from USACE, RWQCB, and CDFW as defined.	**Implementation:** Valley District **Monitoring and Reporting:** USACE, RWQCB, and CDFW

Mitigation Measure	Timing and Methods	Responsible Parties
compensatory mitigation requirements, aquatic life movement requirements, spawning area requirements, migratory bird breeding area requirements, water flow management requirements, 100-year floodplain requirements, soil erosion and sediment control requirements, water quality requirements, and pre-construction notification and coordination requirements.		
Cultural Resources		
CUL-1: Retain a Qualified Archaeologist. The applicant shall retain a qualified archaeologist, defined as an archaeologist who meets the Secretary of the Interior's Standards for professional archaeology, to carry out all mitigation measures related to archaeological and historical-period resources. The qualified archaeologist shall work under the direction of a qualified archaeological Principal Investigator.	**Timing:** Preconstruction **Methods:** Valley District will provide a qualified archaeologist to implement mitigation measures as defined.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District
CUL-2: Unanticipated Discoveries. If an above-surface artifact, cultural resources of potential significance, or archaeological deposit of potential significance is discovered, the qualified archaeologist shall have the authority to temporarily halt construction activities within 25 feet of the find and shall be given reasonable time to map its location with a global positioning system device and recover the item. If buried cultural resources of potential significance are discovered inadvertently during ground-disturbing activities, work shall be temporarily halted in the area and within 50 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the lead agency. If the find is prehistoric or Native American in origin, consultation with local Native American tribes who have expressed interest regarding the project shall be undertaken. The Principal Investigator will notify the lead agency to discuss the significance determination and shall also submit a letter to the lead agency indicating whether additional mitigation is required. If the discovery is determined to be not significant in consultation with the lead agency, work will be permitted to continue in the area. If, in consultation with the lead agency, a discovery is determined to be significant, a mitigation plan shall be prepared and carried out in accordance with state and federal	**Timing:** Construction **Methods:** • The qualified archaeologist will have the authority to temporarily stop construction activities if a cultural or archaeological resource is discovered. • Consultation with Native American tribes will be conducted as necessary. • The Principal Investigator will consult with Valley District to determine if a discovery is significant. • If, in consultation Valley District, a discovery is determined to be significant, a mitigation plan shall be prepared and carried out as defined.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
guidelines. If the resource cannot be avoided, a data recovery plan shall be developed to ensure collection of sufficient information to address archaeological and historical-period research questions, with results presented in a technical report describing field methods, materials collected, and conclusions. The qualified archaeologist shall treat recovered items in accordance with current professional standards by properly proveniencing, cleaning, analyzing, researching, reporting, and curating them in a collection facility meeting the Secretary of the Interior's Standards as promulgated in 36 CFR 79.	• If the resource cannot be avoided, a data recovery plan shall be developed. • The qualified archaeologist shall treat recovered items in accordance with current professional standards.	
CUL-3: Avoidance of Significant Historical Resource through Establishment of Environmentally Sensitive Areas (ESAs). Impacts on significant historical resources and/or archaeological resources identified in Table 3.4-3 and Table 3.4-4 [of the See Attachment A of this MMRP] should be avoided through establishing fencing around the boundaries of these known resources and delineating these locations as ESAs. The placement of protective fencing can include a buffer beyond the known boundaries of archaeological or historical sites to account for potentially unknown buried resources. Buffers of 25 feet have been recommended for sites P-33-000621, P-33-000622, P-33-03361, and P-33-009652. Due to conditions surrounding the sites, a 10-foot buffer is recommended for P-33-000127 and no buffer is recommended for site P-33-000884. Worker training should include language to the effect that ESAs must be avoided and cannot be entered on foot or with heavy equipment. Reasonable signage indicating the fenced area is an ESA should be posted. Should sacred objects or objects of religious importance to Native American groups be identified, consultation with local Native American tribes who have expressed interest regarding the project shall be undertaken and those materials should be preserved in place to the extent feasible to maintain the critical relationship between built environment resources and archaeological artifacts and their archaeological context.	**Timing:** Preconstruction **Methods:** • Valley District will establish fencing as defined around boundaries of known archaeological resources and delineate them as ESAs. • Worker training will include language to the effect that ESAs must be avoided and cannot be entered on foot or with heavy equipment. • Signage indicating the fenced area is an ESA will be posted. • Should sacred objects or objects of religious importance to Native American groups be identified, consultation with local Native American tribes will be undertaken as defined.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District
CUL-4: Provide Archaeological and Native American Monitoring and Prepare Archaeological Monitoring Plan. If avoidance is not feasible, and if project-related ground disturbance is anticipated to occur at archaeological sites identified in Tables 3.4-3 and	**Timing:** Preconstruction and construction **Methods:**	**Implementation:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
3.4-4, a qualified archaeologist shall be present to monitor the ground-disturbing activity. If ground-disturbing activities are to proceed at prehistoric archaeological sites, a Native American monitor shall be retained in addition to an archaeologist. The Native American monitor, if required, should be affiliated with a local Native American tribe. Prior to the commencement of ground-disturbing activity, an Archaeological Monitoring Plan (AMP) shall be developed to guide archaeological monitoring work during ground-disturbing activities. The AMP shall detail and emphasize training for construction workers and qualifications necessary for archaeological monitors. The AMP must also detail the locations where archaeological monitoring will take place and the depths of excavation that will require monitoring. The AMP must include roles and responsibilities for cultural resources staff and contact information for any Archaeological Principal Investigator, archaeological and Native American monitors, and appropriate management staff. The AMP must detail monitoring procedures, discovery protocols, general procedures for documenting and recovering archaeological materials, artifact identification, repository institution identification, associated repository fees, guidelines for preparing the archaeological monitoring, and mitigation final report. The AMP must also include protocols for communication and response should an unanticipated discovery be made at times that archaeological monitors are not present. The AMP must require attendance by construction personnel at a preconstruction meeting led by either the Principal Investigator or qualified archaeologist in which the Principal Investigator or qualified archaeologist will explain the anticipated likelihood for encountering archaeological resources, what resources may be discovered, and the methods that will be employed if such a resource is discovered. The AMP must include an example proposed letter regarding transfer of salvaged materials to an appropriate museum curation facility, an example daily monitoring report form, and all other pertinent archaeological resources recordation and analysis forms.	• Valley District will provide a qualified archaeologist to monitor ground-disturbing activity. • A Native American monitor will be provided if ground-disturbing activities occur at prehistoric archaeological sites. • Valley District will prepare an Archaeological Monitoring Plan as defined.	**Monitoring and Reporting:** Valley District
CUL-5: Development and implementation of an Archaeological Treatment Plan (ATP). To evaluate archaeological sites for which information regarding the potential for listing in the NRHP or CRHR is not available due to a lack of data on the full vertical and horizontal extents and	**Timing:** Preconstruction **Methods:**	**Implementation:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
the archaeological integrity of the site, the lead agency shall develop an Archaeological Treatment Plan (ATP) prior to ground-disturbing activities that describes methods and procedures for conducting subsurface excavations to determine the vertical and horizontal extents of an archaeological site. Development of the ATP should include consultation with local Native American tribes who have expressed interest regarding the project. Implementation of such a plan may include mechanical and/or manual excavations to provide data on the cultural constituents at the site and the depositional context of such materials (if found to exist). These data can be used to determine the integrity of the site and to make a formal evaluation based on the eligibility criteria set forth in CEQA and Section 106 of the National Historic Preservation Act for inclusion in the CRHR and NRHP. The ATP should define the parameters of archaeological testing at the site, and the extent of excavation and analysis of any materials recovered. The ATP must also include guidelines for treatment and curation of any materials recovered during the testing process. Following implementation of the ATP, a technical report describing the methods and results of archaeological testing and formal evaluations of the archaeological sites and recommendations for further treatment shall be completed.	• Valley District will prepare an Archaeological Treatment Plan as defined. • Following implementation of the Archaeological Treatment Plan, a technical report will be completed as defined.	**Monitoring and Reporting:** Valley District
CUL-6: Human Remains and Associated or Unassociated Funerary Objects. The discovery of human remains is always a possibility during ground-disturbing activities; if human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, all work within 50 feet of the find shall be halted until the remains have been evaluated by the county coroner, and appropriate action taken in coordination with the NAHC, in accordance with Section 7050.5 of the California Health and Safety Code or, if the remains are Native American, Section 5097.98 of the PRC. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant. The most likely descendant shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and	**Timing:** Construction **Methods:** • If human remains are discovered, Valley District will halt all work within 50 miles of the discovery until the remains have been evaluated as defined. • If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant.	**Implementation:** Valley District **Monitoring and Reporting:** NAHC

Mitigation Measure	Timing and Methods	Responsible Parties
nondestructive analysis of human remains and items associated with Native American burials.		
Geology, Soils, Seismicity, and Paleontological Resources		
GEO-1: Retain a Qualified Paleontologist and Develop a Paleontological Monitoring Plan (PMP). The applicant shall retain a qualified paleontologist defined as a paleontologist who meets the requirements as a Principal Investigator/Project Paleontologist per the guidelines of the Society of Vertebrate Paleontologists. The Principal Investigator/Project Paleontologist will review any paleontological finds encountered during monitoring and provide input for significance determinations and procedures for recovery (if necessary). A Paleontological Monitoring Plan (PMP) shall be developed by the qualified paleontologist prior to the start of ground-disturbing activities and paleontological monitoring. The PMP shall detail and emphasize training for construction workers and qualifications necessary for paleontological monitors. The plan will also detail the locations where paleontological monitoring will take place (Lower Hole Creek, southeastern portion of Hidden Valley Creek, and southern Anza Creek/Old Ranch Creek sites) and the depths of excavation that will require monitoring (deeper than 9 feet). The PMP will include contact information for the Principal Investigator/Project Paleontologist, paleontological monitors, and appropriate management staff. The PMP will detail procedures for collecting macro to micro fossils; general procedures for recovered specimens and specimen identification, repository institution identification and associated repository fees, and permits for collecting; and guidelines for preparing the paleontological monitoring and mitigation final report. The PMP will also include protocols for communication and response should an unanticipated discovery be made at times that paleontological monitors are not present. The PMP will require attendance at a preconstruction meeting led by a Qualified Principal Investigator/Project Paleontologist. The Project Paleontologist will explain the likelihood for encountering paleontological resources, what resources may be discovered, and the methods that will be employed if anything is discovered (who to call, construction diversion away from the	**Timing:** Preconstruction **Methods:** • Valley District will provide a qualified paleontologist to function as the Principal Investigator/Project Paleontologist. • If needed, the Principal Investigator/Project Paleontologist will review any paleontological finds encountered during monitoring and provide input for significance determinations and procedures for recovery. • A Paleontological Monitoring Plan will be developed by the qualified paleontologist as defined.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
find, etc.). The PMP will include an example letter regarding donating salvaged fossils to an appropriate museum repository, an example of a daily monitoring report form, and an example of a paleontological training acknowledgement form.		
GEO-2: Provide Paleontological Monitoring. Paleontological monitoring will be conducted by a paleontological monitor that meets the qualifications set forth by the Society of Vertebrate Paleontology (SVP) as a Paleontological Resource Monitor. Oversight of paleontological monitoring and recovery of any fossils will be conducted by a professional paleontologist that meets the requirements as a Principal Investigator, Project Paleontologist per the guidelines of the SVP. Paleontological monitoring will be conducted under the direction of the Paleontological Principal Investigator/Project Paleontologist. Paleontological monitors will record observations on a daily monitoring report form and will notify the Principal Investigator/Project Paleontologist immediately upon the identification of a paleontological resource (fossil) during monitoring. The paleontological monitors shall be equipped to salvage fossils as they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitoring efforts can be reduced or ended based upon field conditions, site assessment, and professional judgment of the Paleontological Principal Investigator/Project Paleontologist. The monitor shall have authority to temporarily divert grading away from exposed fossils in order to professionally and efficiently recover the fossil specimens and collect associated data. All efforts to avoid delays in project schedules shall be made. To prevent construction delays, paleontological monitors shall be equipped with the necessary tools for the rapid removal of fossils and retrieval of associated data. This equipment shall include handheld global positioning system receivers, digital cameras, and cell phones, as well as a tool kit with specimen containers, matrix sampling bags, field labels, field tools (awls, hammers, chisels, shovels, etc.), and plaster kits. At each fossil locality, field data forms shall be used to record	**Timing:** Construction **Methods:** • Valley District will provide a qualified paleontologist to serve as a Paleontological Resource Monitor. • Oversight of paleontological monitoring and recovery of any fossils will be conducted by a professional paleontologist as defined. • Paleontological monitors will record observations daily and will notify the Principal Investigator/Project Paleontologist upon the identification of a paleontological resource. • The monitor will have authority to temporarily divert grading away from exposed fossils. • Fossils collected, if any, shall be transported to a paleontological laboratory for processing where they will be prepared, identified, and listed as defined. • Following analysis of any fossils collected, a Report of Findings with an appended itemized inventory of specimens will be prepared.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
pertinent geologic data, stratigraphic sections shall be measured, and appropriate sediment samples shall be collected and submitted for analysis. Fossils collected, if any, shall be transported to a paleontological laboratory for processing where they shall be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and deposited in a designated paleontological curation facility (such as the Western Science Center). Following analysis, a Report of Findings with an appended itemized inventory of specimens shall be prepared. The report and inventory, when submitted to the appropriate lead agency along with confirmation of the curation of recovered specimens into an established, accredited museum repository, shall signify completion of the program to mitigate impacts on paleontological resources.		
Noise and Vibration		
NOI-1: Reduce Groundwater Well Pump Noise to Comply with the City of Riverside Municipal Code. This mitigation measure would only apply if the groundwater wells are utilized by the project. If either the Hidden Valley Creek or Old Ranch Creek groundwater wells are eliminated from the project, then their associated noise impact would also be eliminated and this mitigation measure would no longer be necessary for the eliminated location(s). In the event that the groundwater pumps are included as part of the project, they must be designed and installed to ensure that their operation complies with the City of Riverside's noise limits at the closest residential receptors. This may be achieved using one or more of the following methods: (a) Specify a well design at Hidden Valley Creek that limits combined pump and motor noise levels to a total sound pressure of 100 dBA or less at a distance of 1 meter, and a well design at Old Ranch Creek that limits combined pump and motor noise levels to a total sound pressure of 106 dBA or less at a distance of 1 meter. Techniques for achieving these specifications may include, but are not limited to: • Selecting quieter pumps and motors.	**Timing:** Preconstruction and construction **Methods:** If the project uses groundwater wells, Valley District will implement methods as defined to avoid and minimize noise impacts associated with groundwater pumps.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
• Shielding pumps and motors with noise barriers or enclosures. The design of such shielding should be based on final location details and pump/motor noise data; or (b) Provide an acoustical study based on final plans and pump/motor noise data that demonstrates compliance with the City's noise ordinance; or (c) Restrict pump operation to the daytime hours of 7:00 a.m. to 10:00 p.m. in order to avoid the affected nighttime hours.		
NOI-2: Implement Measures to Avoid Groundborne Vibration. Implement the following measures to avoid groundborne vibration impacts at the nearby residential structures. (a) During all construction and maintenance activities, avoid the use of full-size earthmoving equipment (e.g., excavators, graders, backhoes) within 9 feet of any building or 52 feet of any habitable structure (auxiliary buildings such as garages, sheds, etc. are not considered to be habitable structures). (b) During all construction and maintenance activities, avoid the use of loaded trucks on rough terrain within 8 feet of any building or 45 feet of any habitable structure (auxiliary buildings such as garages, sheds, etc. are not considered to be habitable structures). Alternately, loaded trucks shall use paved roads or travel at low speeds (10 miles per hour or less) on properly maintained dirt roads. (c) During all construction and maintenance activities, avoid the operation of small earthmoving equipment (e.g., skid steers, mini excavators, bobcats) within 1 foot of any building or 3 feet of any habitable structure (auxiliary buildings such as garages, sheds, etc. are not considered to be habitable structures). (d) If the avoidance distances specified in (a), (b), or (c) above cannot be observed, then additional steps shall be taken on a project-by-project basis to reduce impacts. These steps may include, but are not limited to: • Notification and coordination with potentially affected residents to provide advance notice of potential groundborne vibration, including the dates and times when it may occur.	**Timing:** Construction and maintenance **Methods:** Valley District will implement measures as defined to avoid and minimize groundborne vibration impacts.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District

Mitigation Measure	Timing and Methods	Responsible Parties
• Site-specific analyses that include additional details such as specific soil conditions, specific equipment to be used, and details of the potentially affected structure(s) (e.g., age, conditions). • Assessment by a qualified structural or geotechnical engineer to determine if there are any risks to buildings from the vibration. If the engineer identifies any potential risks, it may be prudent to survey (including photographing and/or videotaping) the potentially affected buildings in order to provide a record of the existing conditions before construction. • If considered appropriate by the structural/geotechnical engineer, tests, observations, or monitoring should be performed on site during the construction activities to ensure the structural stability of the buildings. This may include vibration measurements obtained inside or outside of the buildings.		
Tribal Cultural Resources		
TCR-1: Protection of P-33-000884 (CA-RIV-884) Based on recommendations from consultation with a representative of the Morongo Tribe of Mission Indians, TCR-1 would be implemented prior to project-related ground disturbance to protect archaeological site P-33-000884. Because P-33-000884 has already been damaged by vandalism, additional protective measures are necessary to preserve this site. Protective measures can include, but are not limited to, the placement of protective fencing surrounding the feature and/or the planting of repellent plant species such as poison oak to prevent further vandalism of the site.	**Timing:** Preconstruction **Methods:** Valley District will consult with a representative of the Morongo Tribe of Mission Indians to develop protective measures for archaeological site P-33-000884.	**Implementation:** Valley District **Monitoring and Reporting:** Valley District in coordination with the Morongo Tribe of Mission Indians

AMP – Archaeological Monitoring Plan
ATP –Archaeological Treatment Plan
BMP – best management practice
CDFW – California Department of Fish and Wildlife
CEQA – California Environmental Quality Act
CESA – California Endangered Species Act
CFGC – California Fish and Game Code
CRHR – California Register of Historical Resources
CNPS – California Native Plant Society
CWA – Clean Water Act
EIR – environmental impact report
ESA – Federal Endangered Species Act
ESA – Environmentally Sensitive Area
GPS – global positioning system
HCP –habitat conservation plan
ITP – incidental take permit
IWMP – integrated weed management plan
MBTA – Migratory Bird Treaty Act
NAHC – Native American Heritage Commission
NRHP – National Register of Historic Places
PMP – Paleontological Monitoring Plan
PRC – Public Resources Code
RWQCB – Regional Water Quality Control Board
SKR – Stephens' kangaroo rat
USACE – U.S. Army Corps of Engineers
USFWS – U.S. Fish and Wildlife Service
Valley District - San Bernardino Valley Municipal Water District
WEAP – Worker Environmental Awareness Program
WRCMSHCP – Western Riverside County Multiple Species Habitat Conservation Plan

Attachment A

Applicable Environmental Impact Report Tables

Table 3.3-3. Special-status Species and Sensitive Natural Communities with Potential to Occur at the Proposed Project Sites

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Fish Species									
Santa Ana sucker (*Catostomus santaanae*)	FT/-/-	Yes - only in Santa Ana River mainstem, not in tributaries	Yes	Benthic species using sand, cobble, and boulder substrates for various life stages, cool, clear water, and benthic algae. Adults require coarse substrates free of silt and sand to graze algae.	Low to Moderate – Suitable habitat present. Species occasionally observed at wetted areas within the sites, particularly Anza Creek after high-flow events, which temporarily provide habitat. Also observed in the mainstem Santa Ana River, including areas adjacent to Anza Creek as recently as 2018 (Appendix B).	Suitable habitat present. Species occasionally observed at wetted areas within the sites, particularly Anza Creek after high-flow events, which temporarily provide habitat. Also observed in the mainstem Santa Ana River, including areas adjacent to Anza Creek as recently as 2018 (Appendix B).	S	S	R
Arroyo chub (*Gila orcuttii*)	-/SSC/-	N/A	Yes	Slow to moderate flows in stream channels or backwaters with sand or cobble bottoms. Feeds heavily	Moderate to High – Species observed in mainstem of Santa Ana River, including areas adjacent to project sites in	Arroyo chub has been observed in the mainstem of the Santa Ana River, including in some areas adjacent to project sites as recently as 2001 and 2018 (CDFW 2018), in the	S	S	R

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				on aquatic vegetation and associated invertebrates.	2001 and 2018 (CDFW 2018).	vicinity of the river and tributaries. Therefore, arroyo chub has a high potential to occur within the project sites under suitable hydrologic conditions.			
Santa Ana speckled dace (*Rhinichthys osculus* ssp.)	-/SSC/-	N/A	Yes	Requires permanent flowing streams with summer water temps of 17–20°C. Usually inhabits shallow cobble and gravel riffles. Overhanging riparian vegetation. Low tolerance for nonnative predatory fishes.	Not expected to occur[3] – Most recent documentation in vicinity to project sites in 1996 within the mainstem of Santa Ana River at confluence with Hole Creek (CDFW 2018). Considered extirpated from area.	There are historic records of dace in the lower Santa Ana River above Prado Dam from before 1970 (Swift et al. 1993). There is a more recent record for the species from the mainstem of the Santa Ana River at the confluence with Hole Creek in 1996 (CDFW 2018). However, the species has not been observed in the vicinity since and is considered extirpated from the area. Therefore, Santa Ana speckled dace are not expected to occur within the project sites.	R	R	R
Reptile & Amphibian Species									
Southwestern pond turtle	-/SSC/-	N/A	Yes	An aquatic turtle, utilizing ponds, marshes,	High – suitable habitat for species is present within	Suitable habitat is present for southwestern pond	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
(*Actinemys pallida*)				rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometer from water for egg-laying.	project sites. Documented occurrences in Santa Ana River diversion at Prado Wetlands and oxbow pools in Norco (WRCRCA 2011, 2013).	turtle within the project sites. WRCMSHCP monitoring for the species has documented occurrences in the Santa Ana River diversion in the Prado Wetlands and at the oxbow pools along the Santa Ana River in Norco (WRCRCA 2011, 2013). Therefore, the species has a high potential to occur within the project sites.			
Southern California legless lizard (*Anniella stebbinsi*)	-/SSC/-	N/A	No	Occurs in sandy or loose loamy soils under sparse vegetation. Variety of habitats; generally in moist, loose soil. Prefers soils with a high moisture content.	High – Suitable habitat for species is present within project sites. Documented occurrence in 2016 within 0.25 miles of Anza Creek/Old Ranch Creek site (CDFW 2018).	Suitable habitat is present within the project sites. The nearest record of occurrence is from 2016 within 0.25 mile of the Anza Creek/Old Ranch Creek project site (CDFW 2018). Therefore, there is a high potential for Southern California legless lizard to occur within the project sites.	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
California glossy snake (*Arizona elegans occidentalis*)	-/SSC/-	N/A	Yes	Generalist reported from a range of scrub, grassland, and rocky wash habitats, often with loose or sandy soils.	Low – suitable habitat is present within project sites; however, species prefers cismontane habitats. Nearest documented occurrences within 2 miles of species from mid-1900s (CDFW 2018).	Suitable habitat is present within the project sites, although the species is typically found in cismontane habitats. There are multiple nearby records of occurrences within 2 miles of the project sites; however, all are historical occurrences from the mid-1900s (CDFW 2018). Therefore, California glossy snake has a low potential to occur within the project sites.	S	S	S
Coastal whiptail (*Aspidoscelis tigris stejnegeri*)	-/SSC/-	N/A	No	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.	Moderate – Suitable habitat is present within project sites. Nearest documented occurrences in 1995 and 2001, approximately 5 miles from project sites.	Suitable habitat is present within the project sites. The nearest records of occurrence are approximately 5 miles north and south of the project sites in 1995 and 2001, respectively (CDFW 2018). Therefore, coastal whiptail has a moderate potential to	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
						occur within the project sites.			
Red-diamond rattlesnake (*Crotalus ruber*)	-/SSC/-	N/A	No	Chaparral, woodland, grassland, and desert areas, typically in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks, or surface cover objects.	Low – suitable habitat is present, though rodent burrows were rare during habitat suitability surveys. Most occurrences within 5 miles date to early or mid-1900s, with one occurrence in 2003 (CDFW 2018).	Suitable habitat is present; however, few rodent burrows were observed during mammal habitat suitability surveys. Most of the nearby records of occurrence within 5 miles of the project sites are historical from the early to mid-1900s, and one is from 2003 (CDFW 2018). Therefore, there is a low potential for red-diamond rattlesnake to occur within the project area.	S	S	S
Coast horned lizard (*Phrynosoma blainvillii*	-/SSC/-	N/A	No	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover,	Low – poor to moderate quality habitat of limited extent within project sites. Occurrence records within 5 to 10 miles of project sites in 1980s and 1990s. Species was	Suitable habitat is present; however, it is of limited extent and only poor to moderate quality. There are multiple occurrence records within 5–10 miles of the project sites from the 1980s through 1990s (CDFW 2018), and coast	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				patches of loose soil for burial, and abundant supply of ants and other insects.	observed in 2017 along Santa Ana River upstream of Van Buren Boulevard (Appendix B).	horned lizards were observed in 2017 at a neighboring project site along the Santa Ana River adjacent and upstream of Van Buren Boulevard (Appendix B). Therefore, there is a low potential for coast horned lizard to occur within the project area.			
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	-/SSC/-	N/A	No	Brushy or shrubby vegetation in coastal Southern California. Requires small mammal burrows for refuge and overwintering sites.	Low – suitable habitat is present, though few rodent burrows observed during habitat suitability surveys. No occurrences within 10 miles of the project sites (CDFW 2018).	Suitable habitat is present; however, few rodent burrows were observed during mammal habitat suitability surveys. There are no nearby occurrences recorded within 10 miles of the project sites (CDFW 2018). Therefore, there is a low potential for coast patch-nosed snake to occur within the project area.	S	S	S
Two-striped gartersnake (*Thamnophis hammondii*)	-/SSC/-	N/A	Yes	Essential habitat factors include permanent water source, low gradient	Moderate – suitable habitat is present within the project sites. No official records of occurrence	Suitable habitat is present. There are no official records of occurrence within 10 miles of the project sites (CDFW 2018).	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				topography, and dense multi-storied riparian vegetation.	within 10 miles of the project sites (CDFW 2018). Species has been documented at unknown locations within Riverside County (Nafis 2018), and upstream of Anza Creek.	However, there is a record of unknown exact location within Riverside County available online (Nafis 2018), and a gartersnake was previously observed at the upstream end of Anza Creek. Therefore, there is a moderate potential for two-striped gartersnake to occur within the project sites.			
South coast gartersnake (*Thamnophis sirtalis infernalis*)	-/SSC/-	N/A	Yes	Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	Moderate – limited documentation of historical occurrence from CNDDB or San Bernardino County Museum. One extinct museum record from Prado Basin (Jennings and Hayes 1994). Two records from HERP database in Prado Basin in 2007 and 2011 (HERP 2014).	Historical occurrence data is sparse. There are no San Bernardino County Museum records for San Bernardino County, or CNDDB records for Riverside and San Bernardino Counties. Jennings and Hayes (1994) show one extinct museum record from Prado Basin. However, the HERP database has two records from Prado Basin in 2007 and 2011 (HERP 2014), and USGS	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
					Recent occurrence in Santa Ana River upstream of Interstate 15 (USGS).	has recent occurrence records from the Santa Ana River upstream of Interstate 15. Therefore, there is a moderate potential for south coast gartersnake to occur within the project sites.			
Bird Species									
Grasshopper sparrow (*Ammodramus savannarum*)	-/SSC/- (nesting)	N/A	No	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs, and scattered shrubs. Loosely colonial when nesting.	Low (nesting) – habitat is present, though of poor quality due to nonnative species. Multiple observations at Hidden Valley Wildlife Area (eBird 2018).	There are multiple observations of grasshopper sparrow at Hidden Valley Wildlife Area (eBird 2018). However, although grassland habitat is present within the project sites, it is not dense and is dominated by nonnative species; thus, it is only marginally suitable for grasshopper sparrow. Therefore, there is a moderate potential for individuals of the species to occur in the project sites, but a low potential for nesting.	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Long-eared owl (*Asio otus*)	-/SSC/- (nesting)	N/A	No	Riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land, productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	Low (nesting) – suitable nesting habitat within project sites and potentially suitable foraging habitat adjacent to project sites. Observation at Hidden Valley Wildlife Area in 2015 (eBird 2018). Nearest documented occurrence from 1920s approximately 12 miles from the project sites (CDFW 2018).	There is suitable nesting habitat present within the project sites, and potentially adequate open land for foraging adjacent to project sites. There is an observation recorded at the Hidden Valley Wildlife Area in 2015 (eBird 2018). However, the nearest documented nesting occurrence was a historical record from 1920s in the Chino Hills, approximately 12 miles west of the project sites (CDFW 2018). Therefore, there is a moderate potential for long-eared owl to occur within the project sites, and a low potential for nesting.	S	S	S
Burrowing owl (*Athene cunicularia*)	-/SSC/- (burrowing sites and some wintering sites)	N/A	Yes	Upland habitat, open, low relief, well-drained soils. Substantial small mammal populations to provide	Low (burrowing and wintering) – suitable vegetation communities exist within project site, though vegetation is	Suitable vegetation communities are present within portions of the project sites; however, in most areas, vegetation may be too tall and/or dense to support burrowing owl,	-	R	-

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				burrows and a forage base.	likely too tall and/or dense. Limited suitable burrowing and foraging habitat within project sites. Nearest documented occurrence approximately a half mile from Hole Creek (CDFW 2018).	and only there is limited suitable habitat for burrows and foraging. Suitable habitat is limited within the project site, and primarily found on the mesa above and to the south of the Santa Ana River floodplain above Lower Hole Creek. Burrowing owl are generally known to occur in the region, and the nearest recent record of occurrence was approximately a half mile southeast of the Hole Creek site, near the Riverside Municipal Airport (CDFW 2018). Therefore, there is a low potential for the species to occur within project sites.			
Clark's marsh wren (*Cistothorus palustris clarkae*)	-/SSC/-	N/A	No	Narrow distribution along the coast of Southern California from the Los Angeles basin south to	High – suitable nesting and foraging habitat present within project sites. Common year round in Prado	Suitable nesting and foraging habitat present within the project sites. In western Riverside County, where sub-specific identity needs	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				the Mexican border. Nests in cattail, bulrush, or sedge in emergent wetland habitat.	Flood Control Basin and Hidden Valley Wildlife Area (Shuford and Gardali 2008). Several observations in vicinity of project sites (eBird 2018).	confirmation, Marsh Wrens remain common all year in Prado Flood Control Basin along the Santa Ana River and occur locally along the river between Prado Basin and the city of Riverside (including at Hidden Valley Wildlife Area at the western edge of the city of Riverside) (Shuford and Gardali 2008). There have been many recorded observations of marsh wren in the vicinity of the project sites (eBird 2018). Therefore, Clark's marsh wren has a high potential to occur (nesting and foraging) within the project sites.			
Tricolored blackbird (*Agelaius tricolor*)	-/T/-	N/A	Yes	Breeding colonies require open water; appropriate nesting substrate consists of cattails	Absent - There is currently no suitable open water or marsh habitat on the project sites that would support	The project would restore over 53 acres of ponds that would support a variety of habitats including open water/marsh.	-	-	R

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				bulrushes, willows.	tricolored blackbird.				
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)	E/E/-	N/A	Yes	Breeding range is distributed throughout the southwestern United States. Occurs within dense riparian tree and scrub communities (*Tamarix* or *Salix* usually). Surface hydrology during nesting season.	Present (nesting) – nesting behavior observed within project sites during 2016 surveys at Anza Creek/Old Ranch Creek, and suitable habitat exists within project sites.	Suitable habitat is present within the project sites. Southwestern willow flycatcher territories were found at the Anza Creek/Old Ranch Creek sites. Several willow flycatcher (non-breeding migrants) were detected on the other sites, but it was determined not to be the federally listed sub-species.	S	S	S
White-tailed kite (*Elanus leucurus*)	-/SFP/- (nesting)	N/A	No	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated,	Moderate (nesting) – species has been seen in vicinity of project sites (eBird 2018). Nearest recent records of nesting in 2009 at Prado Regional Park (CDFW 2018).	White-tailed kite has been seen often in the vicinity of the project sites (eBird 2018); however, the nearest recent records of nesting were at Prado Regional Park in 2009 (CDFW 2018). Therefore, there is a high potential for individuals of the species to occur within the project sites, but only a moderate	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				dense-topped trees for nesting and perching.		potential for nesting within the project sites.			
Yellow-breasted chat (*Icteria virens*)	-/SSC/- (nesting)	N/A	Yes	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 feet of ground.	Present (nesting) – species currently present within project sites. Breeding activities observed at Anza Creek/Old Ranch Creek during surveys in 2016.	Suitable habitat is present within the project sites. Yellow-breasted chat currently occurs in riparian habitat within the Santa Ana River and associated tributaries, and breeding activities were observed at the Anza Creek/Old Ranch Creek and Hidden Valley Creek sites during riparian bird surveys in 2016. Therefore, yellow breasted chat is considered present (nesting) within the project sites.	S (species present)	S	S (species present)
Coastal California gnatcatcher (*Polioptila californica californica*)	FT/SSC/-	No	Yes	Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage	Low – most recent occurrences approximately 2 miles from project sites in 1990s and 2000s (CDFW 2018, eBird 2018). However,	Records of the species in the area include numerous detections from the 1990s and 2000s in the vicinity of the Pedley Hills and Norco Hills, approximately as close	R	S	-

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				scrub are occupied.	limited suitable habitat within project sites as habitat is small, fragmented, and of poor quality.	as 2 miles away from the nearest project sites (CDFW 2018, eBird 2018). However, much of the land cover at the project sites consists of unsuitable habitat. Potentially suitable habitat for the species is limited to small, fragmented, isolated patches of poor quality scrub, primarily at the Lower Hole Creek site outside of the floodplain. Therefore, there is a low potential for the species to occur at the project sites.			
Yellow warbler (*Setophaga petechia*)	-/SSC/- (nesting)	N/A	No	Riparian plant associations close to water. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods,	High (nesting) – species was documented during surveys in 2016, and suitable habitat exists within project sites. Nesting activities documented in vicinity of project sites from 2007–	Suitable habitat present and the species was observed during 2016 project sites surveys. Additionally, there are records of nesting behavior observed within the Santa Ana River corridor in the immediate vicinity of the project sites from 2007–2015 (CDFW 2018). Therefore, there is a high potential for	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				sycamores, ash, and alders.	2015 (CDFW 2018).	yellow warbler to nest within the project sites.			
Least Bell's vireo (*Vireo bellii pusillus*)	FE/SE/- (nesting)	Yes	Yes	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, mule fat, or mesquite.	Present (nesting) – nesting behavior observed within project sites during 2016 surveys, and suitable habitat exists within project sites.	Suitable habitat is present within the project sites, and individuals and nesting behavior were observed within the project sites during riparian bird surveys in 2016. Therefore, the species is present (including nesting) within the project sites.	S (species present)	S (species present)	S (species present)
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	-/SSC/- (nesting)	N/A	No	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Nests only where large insects	Low (nesting) – suitable habitat exists within project sites, though there are no records of nesting in the region (CDFW 2018). Individuals have been seen at Hidden Valley	Suitable habitat is present in the project sites, where relatively deep water with peripheral emergent vegetation occurs. There are no records of nesting in the region (CDFW 2018); however, individual yellow-headed blackbird have been	-	-	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				such as *Odonata* are abundant.	Wildlife Area, Rancho Jurupa Park, and Rubidoux Nature Center (eBird 2018).	observed at the Hidden Valley Wildlife Area, Rancho Jurupa Park, and Rubidoux Nature Center, in the vicinity of the project sites (eBird 2018). Therefore, there is a high potential for individuals of the species to occur within the project sites, and low potential for nesting.			
Mammal Species									
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	-/SSC/-	N/A	No	Coastal scrub, chaparral, grasslands, sagebrush, etc., primarily in western San Diego County, and also in western Riverside and San Bernardino counties. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	Low – suitable isolated patches of habitat exist within project sites. Nearest documented occurrence of species is from 1999, approximately 4 miles from project sites.	Potentially suitable habitat is present within the project sites within isolated patches of annual grassland and coastal sage scrub communities. The nearest record of occurrence is from 1999, approximately 4 miles southeast of the project sites, south of Highway 91 (CDFW 2018). Based on the isolated and limited amount of potentially suitable habitat and the lack of reported	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
						occurrences, the potential for this species to occur is low.			
Stephens' kangaroo rat (*Dipodomys stephensi*)	FE/ST/-	N/A	No	Primarily annual and perennial grasslands, but also occurs in coastal scrub and sagebrush with sparse canopy cover. Prefers buckwheat, chamise, brome grass and filaree. Will burrow into firm soil.	Low – potentially suitable habitat within elevated grassland terraces above Santa Ana River, no suitable habitat within floodplain. Species typically occurs farther south and east in Riverside County, but has been documented near Norco (USFWS 1997). Two documented occurrences within 4 miles of Hidden Valley Creek in 2003 and 2013 (CDFW 2018).	There is potentially suitable habitat present within the project sites on the elevated grassland terraces south of the Santa Ana River floodplain, and there is no suitable habitat within the floodplain. The species is primarily found farther south and east in Riverside County than the location of the project sites; however, it also occurs near Norco, California (USFWS 1997), and there are two documented occurrences within 4 miles of the Hidden Valley Creek from 2003 and 2013 (CDFW 2018). Therefore, there is a low potential for SKR to occur within the project sites.	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Western mastiff bat (*Eumops perotis californicus*)	-/SSC/-	N/A	No	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Low (foraging and roosting) – suitable foraging and roosting habitat present within project sites. However, documented occurrences include 1 mile from project sites in 1954 and 4 miles from project sites in 1993.	There is suitable habitat present within the project sites for foraging and roosting. The nearest records of occurrence are from 1954 near Pedley approximately within a mile of the project sites, and from 1993 at Norco City Hall approximately 4 miles southwest of the project sites and within a half mile of the Santa Ana River corridor (CDFW 2018). Therefore, there is a low potential for mastiff bat to occur within the project sites.	S	S	S
Western yellow bat (*Lasiurus xanthinus*)	-/SSC/-	N/A	No	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	Moderate (foraging and roosting) – suitable foraging and roosting habitat exists within project sites. Nearest documented occurrence less than a mile from project sites in	There is suitable habitat for foraging and roosting (particularly abundant palm trees) within the project sites. The nearest record of occurrence is from 1996 near Riverside, less than a mile south of the project sites (CDFW 2018). Therefore, there is a moderate potential for	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
					1996 (CDFW 2018).	western yellow bat to occur within the project sites.			
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	-/SSC/-	N/A	No	Intermediate canopy stages of shrub habitats with open shrub, herbaceous and tree, and herbaceous edges. Coastal sage scrub habitats in Southern California.	Moderate – suitable habitat exists within project sites. Species documented in 2001 approximately 5 miles from project sites (CDFW 2018).	There is suitable habitat for within the project sites. The nearest recent record of occurrence is from 2001 approximately 5 miles south of the project sites, and there is an historical occurrence within approximately 2 miles of the project sites north of the Santa Ana River (CDFW 2018). Therefore, there is a moderate potential for San Diego black-tailed jackrabbit to occur within the project sites.	S	S	S
San Diego desert woodrat (*Neotoma lepida intermedia*)	-/SSC/-	N/A	No	Coastal scrub of Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They	Low – suitable habitat exists within project sites as small isolated fragments. Nearest recent documented occurrence is approximately 8	There is limited suitable habitat for San Diego desert woodrat within the project sites. The nearest recent record of occurrence is from 1999 approximately 8 miles south of the project sites (CDFW 2018).	S	S	S

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				are particularly abundant in rock outcrops, rocky cliffs, and slopes.	miles from the project sites in 1999 (CDFW 2018).	Therefore, given the small and isolated fragments of potentially suitable habitat present, there is a low potential to occur within the project sites.			
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	-/SSC/-	N/A	No	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Roosts in rocky areas with high cliffs.	Moderate (foraging) – suitable foraging habitat exists within the project site, though no suitable roosting habitat. Several documented occurrences within 1-10 miles of project sites from 1980s (CDFW 2018).	Suitable habitat is present within the project sites for foraging; however no suitable roosting habitat is present. There are multiple records of occurrence of pocketed free-tailed bat within 1–10 miles of the project sites during the 1980s (CDFW 2018). Therefore, there is a moderate potential for the species to occur within the project sites.	S	S	S
Los Angeles pocket mouse (*Perognathus longimembris brevinasus*)	-/SSC/-	N/A	Yes	Lower elevation grasslands and coastal sage communities in and around the Los Angeles Basin. Open ground with	Low – suitable habitat is present within project site, though it is patchy and limited. Nearest documented occurrence	Suitable habitat is present within the project sites, but is of small areas, limited extent, and patchy in distribution. The nearest record of occurrence of Los	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				fine, sandy soils. May not dig extensive burrows, hiding under weeds and dead leaves instead.	approximately 7 miles from project sites in 2000 (CDFW 2018).	Angeles pocket mouse is approximately 7 miles northeast of the project sites in 2000 (CDFW 2018). Therefore, there is a low potential for the species to occur within the project sites.			
Plant Species									
San Diego ambrosia (*Ambrosia pumila*)	E/-/1B.1	N/A	No	Found in chaparral, coastal scrub, valley and foothill grasslands, and vernal pool habitats; often found within disturbed sandy loam or clay soils within the upper terraces of a water source.	Low – Suitable habitat is present within grasslands at the Lower Hole Creek site. This species was found near the intersection of Arlington Avenue and Van Buren Boulevard; however this population is believed to be extirpated (CNDDB 2019). The nearest occurrence occurs near Lake Elsinore, CA.	The species was not observed during focused habitat assessment conducted for WRC MSHCP Narrow Endemic Plant Species in July 2019. If present, it would have been observed, as the survey occurred during the appropriate time of year. Refer to Appendix I.	-	S	-

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Plummer's mariposa-lily (*Calochortus plummerae*)	-/-/4.2	N/A	No	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60–2,500 meters.	Low – suitable habitat exists within project sites (USDA NRCS 2018). Nearest documented occurrence 3.5 miles from project sites in 1998, 2003, and 2011 (CDFW 2018).	Suitable habitats with alluvial substrate are present within the project sites (USDA NRCS 2018). The nearest recorded observations are from near Riverside and the Jurupa Hills, as close at 3.5 mile from a project site, from 1998, 2003, and 2011 (CDFW 2018, Calflora 2018). Plummer's mariposa-lily was not observed during project surveys. Therefore, due to the presence of suitable habitat and records of contemporary occurrences within a few miles, there is a low potential for Plummer's mariposa lily to occur within the project sites.	S	R	S
Smooth tarplant (*Centromadia pungens* ssp. *laevis*)	-/-/1B.1	N/A	No	Valley and foothill grassland, chenopod scrub, meadows and seeps, playas, riparian	High – habitat was documented at Anza Creek/Old Ranch Creek site during surveys. Documented in Hidden Valley	Suitable habitat for this species is present within the project sites, and was identified at the Anza Creek/Old Ranch Creek project sites during vegetation	S	-	R

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				woodland. Alkali meadow, alkali scrub; also in disturbed places. 5–1,170 meters.	Wildlife Reserve in 2004 (CDFW 2018).	mapping surveys. It was also observed in alkali grassland along the access road to Hidden Valley Wildlife Reserve in 2004 (CDFW 2018), and near the Santa Ana River just downstream of the Anza Creek project site in the 1960s (Calflora 2018). Smooth tarplant was not observed during project surveys. Therefore, due to suitable habitat and nearby observations, the species has a high potential to occur within the project sites.			
Parry's spineflower (*Chorizanthe parryi var. parryi*)	-/-/1B.1	N/A	No	Coastal scrub, chaparral, cismontane woodland, valley and foothill grassland. Dry slopes and flats; sometimes at interface of two vegetation types, such as chaparral and	Low – suitable habitat exists within project sites. However, nearest documented occurrences within 5 miles date to 1900s (CDFW 2018).	Suitable sandy openings within dry habitats are present at the project sites. Multiple nearby observation of the species are recorded within approximately 5 miles; however, they are from the early to mid-1900s (CDFW 2018, Calflora 2018). Parry's spineflower	S	S	S

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				oak woodland. Dry, sandy soils. 90–1,220 meters.		was not observed during project surveys. Therefore, due to the historical nature of nearby observations, there is low potential for the species to occur within the project sites.			
San Miguel savory (*Clinopodium chandleri*)	-/-/1B.2	N/A	No	Occurs within rocky, gabbroic, or metavolcanics soils in chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grasslands.	None - Suitable habitat is not present at the project sites.	The project sites lack suitable soils. A habitat assessment was conducted for WRC MSHCP Narrow Endemic plants. Refer to Appendix I.	-	-	-
Snake cholla (*Cylindropuntia californica var. californica*)	-/-/1B.1	N/A	No	Chaparral, coastal scrub. 15–290 meters.	Low – Marginally suitable habitat present within project sites. Species was observed 2 miles from project sites in 1998 (Calflora 2018).	Marginally suitable scrub habitat is present in the project sites. Snake cholla was observed approximately 2 miles south of the project sites in 1998, near Challen park (Calflora 2018). Snake cholla	S	R	S

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
						was not observed during project surveys. Therefore, due to the nearby observation and presence of marginally suitable habitat, the species has a low potential to occur within the project sites.			
Paniculate tarplant (*Deinandra paniculata*)	-/-/4.2	N/A	No	Coastal scrub, valley and foothill grassland, vernal pools. Usually in vernally mesic sites. Sometimes in vernal pools or on mima mounds near them. 25–940 meters.	High – suitable habitat present within project sites. Several observations from 1970–2010s within 1 mile of project sites (Calflora 2018).	Suitable vernally mesic habitat is present within the project sites. There are multiple observations recorded from the 1970s through the 2010s within 1 mile of each of the project sites, primarily in or adjacent to the Santa Ana River corridor (Calflora 2018). Paniculate tarplant was not observed during project surveys. Therefore, due to the proximity of recent observations and presence of suitable habitat, paniculate tarplant has a high potential to occur within the project sites.	S	R	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Slender-horned spineflower (*Dodecahema leptoceras*)	FE/SE/1B.1	N/A	Yes	Chaparral, cismontane woodland, coastal scrub (alluvial fan sage scrub). Flood deposited terraces and washes; associates include Encelia, Dalea, Lepidospartum, etc. Sandy soils. Typically found on stable older alluvium away from active channels in areas with little flooding disturbance but infrequent surface flows. 200–765 meters.	Low – suitable habitat exists within project sites (USDA NRCS 2018). Nearest documented occurrences approximately 9 miles from project sites from late 1800s to early 1900s (CDFW 2018). Contemporary observations 15 miles from project sites in 2010s (CDFW 2018).	Suitable sandy soils and habitat types are present within the project sites, particularly where terraces and alluvial deposits of the mainstem Santa Ana River occur (USDA NRCS 2018). The nearest recorded occurrences in San Bernardino and Riverside Counties are historical from the late 1800s and early 1900s, are located at least 9 miles away from the project sites, and are considered extirpated (CDFW 2018). The nearest contemporary observations from the 2010s were recorded at the Santa Ana River's floodplain upstream near Highland (at least 15 miles northeast of the project sites), and in Temescal Wash south of Lake Matthews (at least 14 miles south of the project sites)	S	S	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
						(Calflora 2018, CDFW 2018). Slender-horned spineflower was not observed during project surveys. Therefore, although there is suitable habitat and extant populations upstream in the Santa Ana River Watershed, due to a lack of contemporary observations nearby, there is a moderate potential for slender-horned spineflower to occur within the project sites.			
Many-stemmed dudleya (*Dudleya multicaulis*)	-/-/1B.2	N/A	No	Chaparral, coastal scrub, valley and foothill grassland. In heavy, often clayey soils or grassy slopes. 15–790 meters.	Low – habitat present within project sites (USDA NRCS 2018). Nearest documented occurrences in 2003 and 2017 approximately 2 miles from project sites.	Scrub and grassland habitats and loamy sand/sandy loam soils are present within the project sites (USDA NRCS 2018); thus, there is potentially suitable habitat present. The nearest recent observations were recorded in 2003 and 2017 approximately 2 miles south of the project sites, near the Crestlawn Memorial	S	R	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
						Cemetery (CDFW 2018, Calflora 2018). Many-stemmed dudleya was not observed during project surveys. Therefore, due to the presence of potentially suitable habitat and distance of previous observations, there is a low potential for many-stemmed dudleya to occur within the project sites.			
Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*)	FE/SE/1B.1	N/A	Yes	Coastal scrub, chaparral. In sandy soils on river floodplains or terraced fluvial deposits. 180–705 meters.	Present – suitable habitat exists within Hidden Valley Creek site. Species was observed within Anza Creek/Old Ranch Creek site in 2014.	Suitable habitat is present within the Hidden Valley Creek site. This species was observed within the Anza Creek/Old Ranch Creek project sites in 2014.	S (species present)	R	S
Southern California black walnut (*Juglans californica*)	-/-/4.2	N/A	No	Chaparral, coastal scrub, cismontane woodland. Slopes, canyons, alluvial habitats. 50–900 meters.	High – suitable habitat exists within project sites. Documented occurrences within 1 mile of project sites in 2004 and 2013 (Calflora 2018).	Suitable scrub and alluvial habitat is present at the project sites. Recent observations of Southern California black walnut have been recorded within 1 mile of project sites in 2004	S	R	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
						and 2013 (Calflora 2018). The species was not observed during project surveys. Therefore, due to proximity of recent nearby observations and presence of suitable habitat, Southern California black walnut has a high potential to occur at the project sites.			
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	-/-/1B.1	N/A	No	Coastal salt marshes, playas, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. 1–1,375 meters.	Low – suitable habitat exists within project sites, though limited in distribution. Nearest documented occurrence to project sites in 1989 approximately 5 miles from project sites (Calflora 2018, CDFW 2018).	Suitable alkaline grassland habitat is present near the project sites; however, it is of limited distribution. The nearest observation of the species was recorded in 1989, approximately 5 miles south of the project sites near Woodcrest, south of Highway 91 (Calflora 2018; CDFW 2018). Coulter's goldfields was not observed during project surveys. Therefore, due to proximity of a	S	-	R

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
						contemporary observation and presence of limited suitable habitat, the species has a low potential to occur at the project sites.			
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	-/-/4.3	N/A	No	Chaparral, coastal scrub. Dry soils, shrubland. 4–1,435 meters.	Moderate – suitable habitat exists within project sites. Few documented occurrences within Santa Ana River. Nearest documented occurrence in 1952 approximately 3 miles from project sites and in Prado Basin in 2010 (Calflora 2018, CDFW 2018).	Suitable scrub habitat is present at the project sites. The nearest observation of the species was recorded in 1952 at Fairmount Park in Riverside, approximately 3 miles east of the project sites. A more recent observation was recorded at Prado Basin in 2010 (Calflora 2018; CDFW 2018). Robinson's peppergrass was not observed during project surveys. Therefore, due to few previous observations within the Santa Ana River corridor, and presence of suitable habitat, the species has a moderate potential to	S	R	S

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
						occur at the project sites.			
Brand's star phacelia (*Phacelia stellaris*)	-/-/1B.1	N/A	No	Coastal scrub, coastal dunes. Open areas. 3–370 meters.	Moderate – limited suitable habitat exists within project sites. Nearest documented occurrence in 2000 approximately 2.5 miles from project sites (CDFW 2018).	Suitable scrub habitat with openings is present near the project sites, though the extent of scrub habitat is limited. A nearby occurrence was observed in 2000, approximately 2.5 miles west of the project sites, along the Santa Ana Santa Ana River and adjacent to horse trails (CDFW 2018, Calflora 2018). Therefore, there is a moderate potential for Brand's star phacelia to occur within the project sites.	S	R	S
Chaparral ragwort (*Senecio aphanactis*)	-/-/2B.2	N/A	No	Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. 20–855 meters.	Low – suitable habitat exists within project sites. Few documented occurrences in proximity to project sites; nearest documented	Scrub habitat and alkaline meadows are present within the project sites. There are observations from the early 2000s in the Box Springs Mountains southeast of Riverside, approximately 6 miles from the nearest	S	-	R

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
					occurrence approximately 6 miles from project sites in early 2000s (Calflora 2018, CDFW 2018).	project sites (Calflora 2018, CDFW 2018). Therefore, due to the presence of potentially suitable habitat and few regional observations, chaparral ragwort has a low potential to occur within the project sites.			
San Bernardino aster (*Symphyotrichum defoliatum*)	-/-/1B.2	N/A	No	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland. Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 3–2,045 meters.	Low – suitable habitat exists within project sites. Nearest most recent documented occurrence in 1995 approximately 4 miles from project sites (Calflora 2018). Other occurrences are historical and species is considered extirpated or possibly extirpated (CDFW 2018).	Scrub, alkaline meadows, and grassland habitats with disturbed areas are present within the project sites. The nearest contemporary recorded observation is from north of the Jurupa Hills in 1995, approximately 4 miles north of the closest project sites (Calflora 2018). The other recorded occurrences in the region are historical and are considered extirpated or possibly extirpated (CDFW 2018). Therefore, due to the presence of potentially suitable habitat and the	S	R	R

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
						lack of contemporary observation in the region, there is a low potential for San Bernardino aster to occur within the project sites.			
Sensitive Natural Communities									
Riversidian Alluvial Fan Sage Scrub	--	--	--	Sub-type of coastal sage scrub found on the alluvial fans and flood plains of the coastal side of the San Bernardino and San Gabriel Mountains. All remaining significant expanses of alluvial fan sage scrub habitats now occur only in San Bernardino County, specifically on the Etiwanda Fan, Lytle Creek, Cajon Creek and the	Present – vegetation mapping in 2016 identified California Buckwheat Scrub present within some alluvial areas within the project sites (Barbour and Wirka 1997).	Riversidian Alluvial Fan Sage Scrub habitat is not mapped within the project sites (CDFW 2018). However, the vegetation mapping completed for the project in 2016 identifies California Buckwheat Scrub within some alluvial areas of the project sites. Classification of alluvial scrub in Los Angeles, Riverside, and San Bernardino Counties has been expanded to include additional series, including a Western Riverside group distinguished by low cover of *Eriogonum fasciculatum* and	R	R	S (present)

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				Santa Ana River.		*Lepidospartum squamatum* as well as a high diversity of annuals (Barbour and Wirka 1997).			
Southern California Arroyo Chub/Santa Ana Sucker Stream	--	--	--	Santa Ana River and tributaries, in San Bernardino, Riverside and Orange Counties. From Mount Rubidoux downstream to northeastern Anaheim, including tributaries Chino, Aliso, and Sunnyslope Creeks.	Present – identified during 2016 and 2017 aquatic species habitat assessments within portions of tributaries within project sites.	Southern California Arroyo Chub/Santa Ana Sucker Stream is mapped within the project sites where the Santa Ana River is present (CDFW 2018). Additionally, as determined during 2016 and 2017 aquatic species habitat assessments, portions of the tributaries within the project sites have suitable habitat for these species.	S (present)	S (present)	R
Southern Cottonwood Willow Riparian Forest	--	--	--	Santa Ana River, from the Prado Flood Control Basin to below Rubidoux. Extant, 1985, per interpretation of aerial photos	Present – vegetation mapping in 2016 identified the presence of this community within project sites.	Southern Cottonwood Willow Riparian Forest is mapped within the project sites along the Santa Ana River riparian corridor. As noted in the CNDDB, the boundary of mapped occurrence has changed over time	S (present)	S (present)	S (present)

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				but boundary changed. Mapped as closed canopy *Populus fremontii, P. trichocarpa*, and *Salix* spp. in matrix with scrub of *Baccharis viminea* and *B. emoryi.*		(CDFW 2018). The vegetation mapping completed for the project in 2016 identifies the following vegetation communities: Black Willow/Freemont Cottonwood Forest, Fremont Cottonwood/Willow Forest, Fremont Cottonwood/Willow/Mulefat Forest, and Fremont Cottonwood/Willow/Wild Grape Forest within the project sites.			
Southern Riparian Forest	--	--	--	Riparian forests in Southern California.	Present – vegetation mapping in 2016 identified the presence of this community within project sites.	Southern Riparian Forest habitat is not recorded as mapped by the CNDDB within the project sites (CDFW 2018). However, the vegetation mapping completed for the project in 2016 identifies the following vegetation communities: Black Willow/Freemont Cottonwood Forest, California Sycamore	S (present)	S (present)	S (present)

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
						Woodlands, Fremont Cottonwood/Willow Forest, Fremont Cottonwood/Willow/Mulefat Forest, and Fremont Cottonwood/Willow/Wild Grape Forest within the project sites.			
Southern Riparian Scrub	--	--	--	Riparian scrub habitats in Southern California.	Present – vegetation mapping in 2016 identified the presence of this community within project sites.	Southern Riparian Scrub habitat is not recorded as mapped by the CNDDB within the project sites (CDFW 2018). However, the vegetation mapping completed for the project in 2016 identifies the following vegetation communities: Arrow Weed Thickets, Black Willow Thickets, California Buckwheat Scrub, Mulefat Thickets, and Sandbar Willow Thickets within the project sites.	S (present)	R	S (present)
Southern Willow Scrub	--	--	--	Willow scrub habitats in Southern California.	Present - vegetation mapping in 2016 identified the	Southern Willow Scrub habitat is not recorded as mapped by the CNDDB within the	S (present)	S (present)	S (present)

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
					presence of this community within project sites.	project sites (CDFW 2018). However, the vegetation mapping completed for the project in 2016 identifies the following vegetation communities: Arrow Weed Thickets, Black Willow Thickets, California Buckwheat Scrub, Mulefat Thickets, and Sandbar Willow Thickets within the project sites.			

[1] Status Definitions:

FE = Federally-listed as endangered under ESA
FT = Federally-listed as threatened under ESA
FD = De-listed under ESA
SE = State-listed as endangered under CESA
ST = State-listed as threatened under CESA
SC = Candidate for state-listing as endangered under CESA
SD = De-listed under CESA
SFP = Fully-protected species in California as identified in the California Code of Regulations, Fish and Game Code.
SSC = California Species of Special Concern
CRPR = California Rare Plant Rank:
1A. Presumed extirpated in California and either rare or extinct elsewhere
1B. Rare or Endangered in California and elsewhere (includes Rare Plant Ranks 1B.1, 1B.2, 1B.3)
2A. Presumed extirpated in California, but more common elsewhere
2B. Rare or Endangered in California, but more common elsewhere (includes Rare Plant Ranks 2B.1, 2B.2, 2B.3)

Species	Status (Federal/ State/ CRPR)[1]	Critical Habitat within Project Sites[2]	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek

3. Plants for which more information is needed - Review list (includes Rare Plant Ranks 3, 3.1, 3.2, 3.3)

4. Plants of limited distribution in California - Watch list (includes Rare Plant Ranks 4.1, 4.2, 4.3)

Threat Code extensions and their meanings:

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

.2 – Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat)

.3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

[2] Critical habitat as designated in *Federal Register* documents. "N/A" value indicates critical habitat is not designated for a species; thus, it is not applicable to identify if critical habitat occurs within the project sites.

[3] Santa Ana speckled dace is not expected to occur within the project sites under current conditions; however, habitat within the project sites is expected to potentially become suitable for the species following completion of the restoration projects, and the species' potential to occur within the project sites is expected to increase.

Table 3.4-3. Eligibility Recommendations and Recommended Mitigation Measures for Identified Archaeological Sites within the Tributaries Restoration Project and Mitigation Reserve Program Phase I Study Area

Primary Number	Trinomial	Eligibility for Inclusion on CRHR and NRHP	Recommended Mitigation Measures
P-33-000622	CA-RIV-622	Unevaluated	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-5
P-33-000884	CA-RIV-884	Recommended eligible	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-4 and CUL-2
P-33-003357	CA-RIV-3357H	Recommended ineligible	CUL-1 and CUL-2
P-33-008839		Recommended ineligible	CUL-1 and CUL-2
P-33-009651		Recommended ineligible	CUL-1 and CUL-2
P-33-009652	CA-RIV-6452	Unevaluated	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-4 and CUL-2
P-33-016848		Recommended ineligible	CUL-1 and CUL-2

Table 3.4-4. Eligibility Recommendations and Recommended Mitigation Measures for Archaeological Sites within the Expanded Mitigation Reserve Program Phase II Study Area

Primary Number	Trinomial	Eligibility for Inclusion on CRHR and NRHP	Recommended Mitigation Measures
P-33-000127	CA-RIV-127	Appears eligible; unevaluated	CUL-1 and CUL-2; if avoidance is not feasible, then CUL-4 and CUL-5
P-33-000325	CA-RIV-325	Recommended ineligible	No further action recommended
P-33-000621	CA-RIV-621	Unevaluated	CUL-1 and CUL-2; if avoidance is not feasible, then CUL-3 and CUL-5
P-33-000622*	CA-RIV-622	Unevaluated	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-5
P-33-000884*	CA-RIV-884	Recommended eligible	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-4 and CUL-2
P-33-003357*	CA-RIV-3357H	Recommended ineligible	CUL-1 and CUL-2
P-33-003361**	CA-RIV-3361H	Recommended eligible	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-5
P-33-008698		Recommended ineligible	CUL-1 and CUL-2
P-33-008839*		Recommended ineligible	CUL-1 and CUL-2

Primary Number	Trinomial	Eligibility for Inclusion on CRHR and NRHP	Recommended Mitigation Measures
P-33-009651*		Recommended ineligible	CUL-1 and CUL-2
P-33-009652*	CA-RIV-6452	Unevaluated	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-4 and CUL-2
P-33-016848*		Recommended ineligible	CUL-1 and CUL-2
ISO-ICF-HV-01		Recommended ineligible	No further action recommended
ISO-ICF-HV-02		Recommended ineligible	No further action recommended

*Denotes archaeological resources that are within both the Tributaries Restoration Project and Mitigation Reserve Program study areas. **Denotes historical resource previously discussed within Mitigation Reserve Program study area.